

# Clinton Creek Surface Water Quality and Hydrological Monitoring Program June to September, 2016

Prepared for:  
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## 1.0 INTRODUCTION

This Work was performed in accordance with Contract C00033502 between Hemmera Envirochem Inc. (“Hemmera”) and Government of Yukon (YG), dated May 13, 2016 (“Contract”). In performing this Work, Hemmera has relied in good faith on information provided by others, and has assumed that the information provided by those individuals is both complete and accurate. This Work was performed to current industry standard practice for similar environmental work, within the relevant jurisdiction and same locale. The findings presented herein should be considered within the context of the scope of work and project terms of reference; further, the findings are time sensitive and are considered valid only at the time the Report was produced. The conclusions and recommendations contained in this Report are based upon the applicable guidelines, regulations, and legislation existing at the time the Report was produced; any changes in the regulatory regime may alter the conclusions and/or recommendations.

Hemmera and Ecological Logistics & Research Ltd. (Hemmera/ELR) were retained by the YG, Assessment and Abandoned Mines (AAM) to conduct a water quality and hydrological monitoring program at the Clinton Creek Mine Site during the 2015/2016 fiscal year.

The Clinton Creek Site (herein referred to as the Site) is an abandoned asbestos mine, formerly owned and operated by Cassiar Asbestos Corporation Limited from 1967 to 1978. Mining activities ceased in 1978 when the economic value of the asbestos operations were exhausted (YG 2013). During operation, approximately 16 million tons of serpentinite rock containing 940,000 tonnes of white asbestos (known as chrysotile) were removed from three pits at the Site. From 1978 to 1992, the company attempted to implement an abandonment plan and completed limited remedial activities at the Site. Since then, various weather events have destabilized creek channels and caused erosion on-site which has increased the potential for flooding. In 2002, the federal government implemented a stabilizing program at the Site under emergency provisions of the *Yukon Waters Act* (YG 2007) to mitigate further impacts. Upon devolution in 2003, AAM assumed responsibility and control of the care, maintenance and closure of the Site.

The purpose of this 2016 sampling program is to monitor water quality, hydrology, and meteorological station data from the Site as part of the overall care, maintenance and closure program objectives for the Site. The water quality and hydrology scope of work was based on program recommendations developed by Hemmera/ELR in 2015 (Hemmera 2015), while the meteorological station was installed and is managed by AAM, with maintenance work performed by other contractors.

### 1.1 SITE LOCATION AND HYDROLOGICAL SETTING

The Site is located approximately 75 kilometres (km) northwest of Dawson City (100 km by road), in the traditional territory of the Tr’ondëk Hwëch’in First Nation (**Figure 1**). The Site is within the Klondike Plateau Ecoregion of the Boreal Cordillera Ecozone (Smith et al. 1994), near the northern extent of the Klondike Plateau, at the edge of the Tintina Trench.

The Site falls within the drainage of the Forty Mile River, a tributary to the Yukon River. Clinton Creek flows through the Site from the west then continues southeast for approximately 8 km before flowing into the Forty Mile River. Waste rock slumping into the valley has dammed Clinton Creek, forming Hudgeon Lake. The four named tributaries of Clinton Creek at or near the Site are as follows:

- Easter Creek which flows into Hudgeon Lake;
- Porcupine Creek and Wolverine Creek which flow through the Site to Clinton Creek from the south and north, respectively; and,
- Eagle Creek which flows into Clinton Creek from the north, downstream from the Site.

Slumping tailings have interrupted the flow of Wolverine Creek, creating two ponds. Past mining activities have also formed two pit lakes: Porcupine Pit Lake (PL) and Snowshoe Pit Lake (SL).

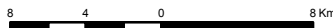


Client: [Redacted]

- Legend**
- ★ Clinton Creek Site
  - Road
  - - Limited-use road
  - Wetlands
  - Waterbodies
  - Vegetation



Scale: 1:400,000



## Clinton Creek Surface Water Quality and Hydrological Monitoring Program

**Figure 1**  
**Project Area Overview**

Date: February 13, 2017

Drawn by: AN

ELR Project #: 16-240.5

Hemmera Project #: 1343-005.20

Rev. #: 1

- Visiting and sampling at 17 surface water quality and seven (7) groundwater seep / pit lake stations. *In-situ* water quality measurements and samples for laboratory analysis were to be collected at each station, where possible;
- Collection of manual discharge measurements at 14 stream stations including flow, stream width, stream depth, and other site characteristics. This included the two Stations where automated hydrometric monitoring stations are also installed.
- Collecting survey data, staff gauges readings, and stream gauging data at two hydrometric monitoring stations.
- Completion of a manual download of the standalone hydrometric station located on Wolverine Creek (Station E3[H]), including a check of battery power and functioning (September 2016).
- Download, review, and plotting of meteorological station data from the Site between January 2016 and September 2016.
- Collection of *in-situ* water quality measurements and depth profiles from three (3) stations on Hudgeon Lake at one (1) metre increments.

**Table 1**      **Schedule of Monitoring Program Tasks from June to September 2016**

[illegible]

From June to September 2016, all water quality and hydrology stations were visited monthly with the exception of Porcupine Pit Lake; sampling has not been conducted at the Porcupine Pit Lake (PL) Station since 2013 due to pit wall stability concerns. Access to this Station follows a roadway which begins in high ground on the northeast portion of the Station and descends along the southeast edge of the pit towards the sample Station. There continues to be evidence of numerous rock falls along the length of the roadway, including one directly at the sample Station.

Reference Stations are located on watercourses upstream from the Site that were not considered to be influenced by Site infrastructure or activities. Exposed Stations included watercourses and water bodies under the influence of Site infrastructure (e.g., waste rock or tailings), and Stations downstream of the Site that were considered to be part of the receiving environment.

This report summarizes the monitoring activities and the methods used to complete the field program, describes sample stations, summarizes data including the quality assurance/quality control (QA/QC) program data, and provides a summary of the overall success of the program.

### 1.3 JUNE TO SEPTEMBER 2016 PROGRAM SAMPLE STATIONS

A total of 24 water quality and hydrology Stations were included in the program, including nine (9) reference surface water Stations, eight (8) exposed surface water Stations, five (5) exposed groundwater seepage stations, and two (2) pit lake Stations (Note that two stations are divided into separate hydrology and water quality stations, therefore the total number is greater than provided above in **Section 1.2**). A summary of the stations including field-verified UTM coordinates, a description, and a summary of the sampling conducted at each is provided in **Table 2** below. The locations of sample stations are shown in **Figures 2** and **3**.

**Table 2 Sample Station Descriptions and Locations – June to September 2016**

| Station Code     | Hydrology Data Collected | Water Quality Data Collected | Station Description                                                          | Location (UTM, Zone 7N) |          |
|------------------|--------------------------|------------------------------|------------------------------------------------------------------------------|-------------------------|----------|
|                  |                          |                              |                                                                              | Easting                 | Northing |
| Exposed Stations |                          |                              |                                                                              |                         |          |
| E1               |                          | J,J,A,S                      | Clinton Creek downstream of gabions                                          | 513645                  | 7147111  |
| E1(H)            | J,J,A,S                  | J,J,A,S                      | Clinton Creek at the outlet of Hudgeon Lake                                  | 512806                  | 7147438  |
| E2 <sup>1</sup>  | J,J,A,S                  | J,J,A,S                      | Clinton Creek, downstream of Porcupine Creek but upstream of Wolverine Creek | 514158                  | 7147076  |
| E3 <sup>1</sup>  |                          | J,J,A,S                      | Wolverine Creek, upstream of culvert                                         | 514178                  | 7147189  |
| E3(H)            | J,J,A,S                  |                              | Wolverine Creek approximately 300 m upstream of the Clinton Creek confluence | 514170                  | 7147608  |
| E4               | J,J,A,S                  | J,J,A,S                      | Clinton Creek downstream of Wolverine Creek but upstream of Eagle Creek      | 515950                  | 7145287  |



| Station Code                                                   | Hydrology Data Collected | Water Quality Data Collected | Station Description                                                                    | Location (UTM, Zone 7N) |          |
|----------------------------------------------------------------|--------------------------|------------------------------|----------------------------------------------------------------------------------------|-------------------------|----------|
|                                                                |                          |                              |                                                                                        | Easting                 | Northing |
| E7                                                             | J,J,A,S                  | J,J,A,S                      | Clinton Creek near mouth                                                               | 519400                  | 7142042  |
| E8                                                             |                          | J,J,A,S                      | Forty Mile River downstream of Clinton Creek                                           | 519457                  | 7142795  |
| E9 <sup>2</sup>                                                |                          |                              | Porcupine Creek at its discharge into Clinton Creek                                    | -                       | -        |
| <b>Reference Stations</b>                                      |                          |                              |                                                                                        |                         |          |
| R1 <sup>1</sup>                                                | J,J,A,S                  | J,J,A,S                      | Clinton Creek upstream of Hudgeon Lake                                                 | 510718                  | 7147525  |
| R2                                                             | J,J,A,S                  | J,J,A,S                      | Easter Creek upstream of Hudgeon Lake                                                  | 512023                  | 7148061  |
| R3 <sup>1</sup>                                                | J,J,A,S                  | J,J,A,S                      | Wolverine Creek, upstream of tailings                                                  | 513952                  | 7148677  |
| R4                                                             | J,J,A,S                  | J,J,A,S                      | Eagle Creek, upstream of culvert                                                       | 515981                  | 7145344  |
| R6                                                             |                          | J,J,A,S                      | Forty Mile River, upstream of Clinton Creek                                            | 519485                  | 7141731  |
| R7                                                             | J,J,A,S                  | J,J,A,S                      | Porcupine Creek, upstream of waste rock                                                | 513026                  | 7145669  |
| R8                                                             | J,J,A,S                  | J,J,A,S                      | Unnamed creek that enters Hudgeon Lake west of Easter Creek                            | 511885                  | 7147805  |
| R9                                                             | J,J,A,S                  | J,J,A,S                      | Unnamed stream input on the south side of Hudgeon Lake                                 | 512343                  | 7146753  |
| R11                                                            |                          | J,J,A,S                      | Unnamed tributary to Wolverine Creek between R3 and E3(H).                             | 514177                  | 7147828  |
| R11(H) <sup>3</sup>                                            | J,J,A,S                  |                              | Unnamed tributary to Wolverine Creek between R3 and E3(H).                             | 514160                  | 7147793  |
| <b>Groundwater Seepage and Pit Stations</b>                    |                          |                              |                                                                                        |                         |          |
| GWCC-1                                                         |                          | J,J,A,S                      | Toe of the Waste Rock dump flowing into ponded area at Porcupine Creek                 | 513902                  | 7146960  |
| GWCC-2                                                         |                          | J,J,A,S                      | Toe of the Waste Rock dump flowing into ponded area approx. 10 m northwest of GWCC-1   | 513899                  | 7146968  |
| GWCC-3                                                         |                          | J,J,A,S                      | Toe of the Waste Rock dump flowing into side channel, approx. 10 m northwest of GWCC-2 | 513882                  | 7147038  |
| GWCC-4                                                         |                          | J,J,A,S                      | Toe of the Waste Rock dump flowing into side channel, approx. 10 m northwest of GWCC-3 | 513868                  | 7147052  |
| GWCC-5                                                         | J,J,A,S                  | J,J,A,S                      | Groundwater flows in old Clinton Creek channel                                         | 513984                  | 7147127  |
| SL <sup>4</sup>                                                |                          | J,J,A,S                      | Snowshoe Pit Lake from shore                                                           | 513824                  | 7146703  |
| PL <sup>5</sup>                                                |                          |                              | Porcupine Pit Lake from shore                                                          | -                       | -        |
| <b>Hudgeon Lake <i>In-Situ</i> Depth Profile Data Stations</b> |                          |                              |                                                                                        |                         |          |
| HL1                                                            |                          | J,J,A,S                      | Hudgeon Lake, near the west end                                                        | 511284                  | 7147219  |
| HL2                                                            |                          | J,J,A,S                      | Hudgeon Lake, near the center                                                          | 511924                  | 7147168  |
| HL3                                                            |                          | J,J,A,S                      | Hudgeon Lake, close to the outlet                                                      | 512485                  | 7147190  |

<sup>1</sup> – Asbestos sample collected monthly in addition to regular program analytical set.

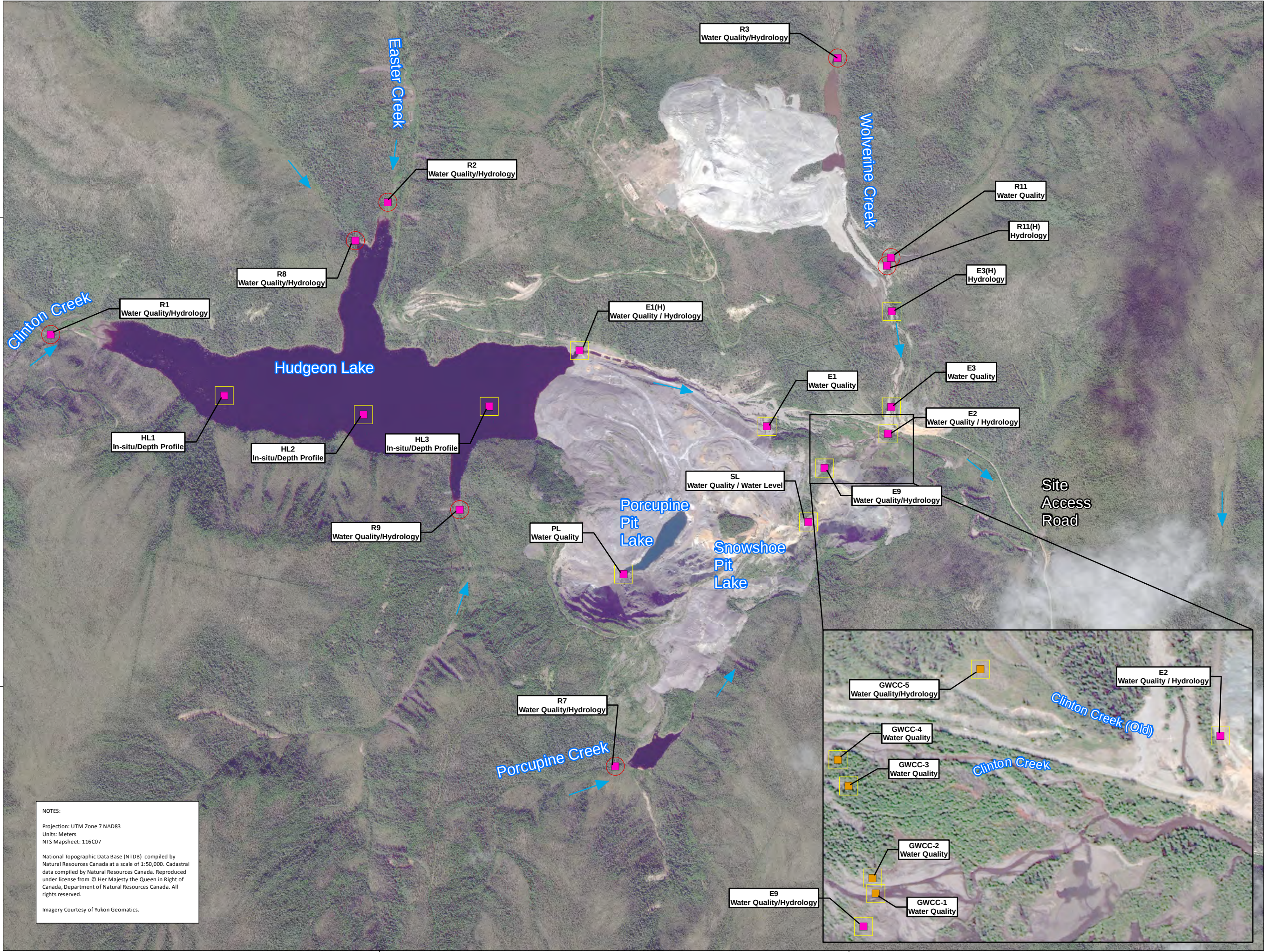
<sup>2</sup> – Station E9 was dry during all of the June to September events.

<sup>3</sup> – Station R11(H) was established during the July program identifies a slightly different location from R11 which is better suited to stream gauging requirements.

<sup>4</sup> – Survey data are also collected to record water elevation.

<sup>5</sup> – Porcupine Pit is part of the overall program but is not visited due to concerns with pit wall instability.





# Clinton Creek Surface Water Quality and Hydrological Monitoring



Client:



Energy, Mines and Resources  
Assessment and Abandoned Mines

**Legend**

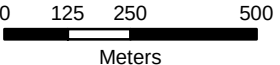
**Water Type**

- Groundwater Seepage
- Surface Water

**Site Type**

- Exposed
- Reference





| FIGURE 2<br>Sampling Stations<br>Site Area |                 |
|--------------------------------------------|-----------------|
| Date: February 13, 2017                    | Scale: 1:15,000 |
| ELR Project #: 16-240.5                    | Rev. #: 1       |
| Hemmera Project #: 1343-005.20             |                 |

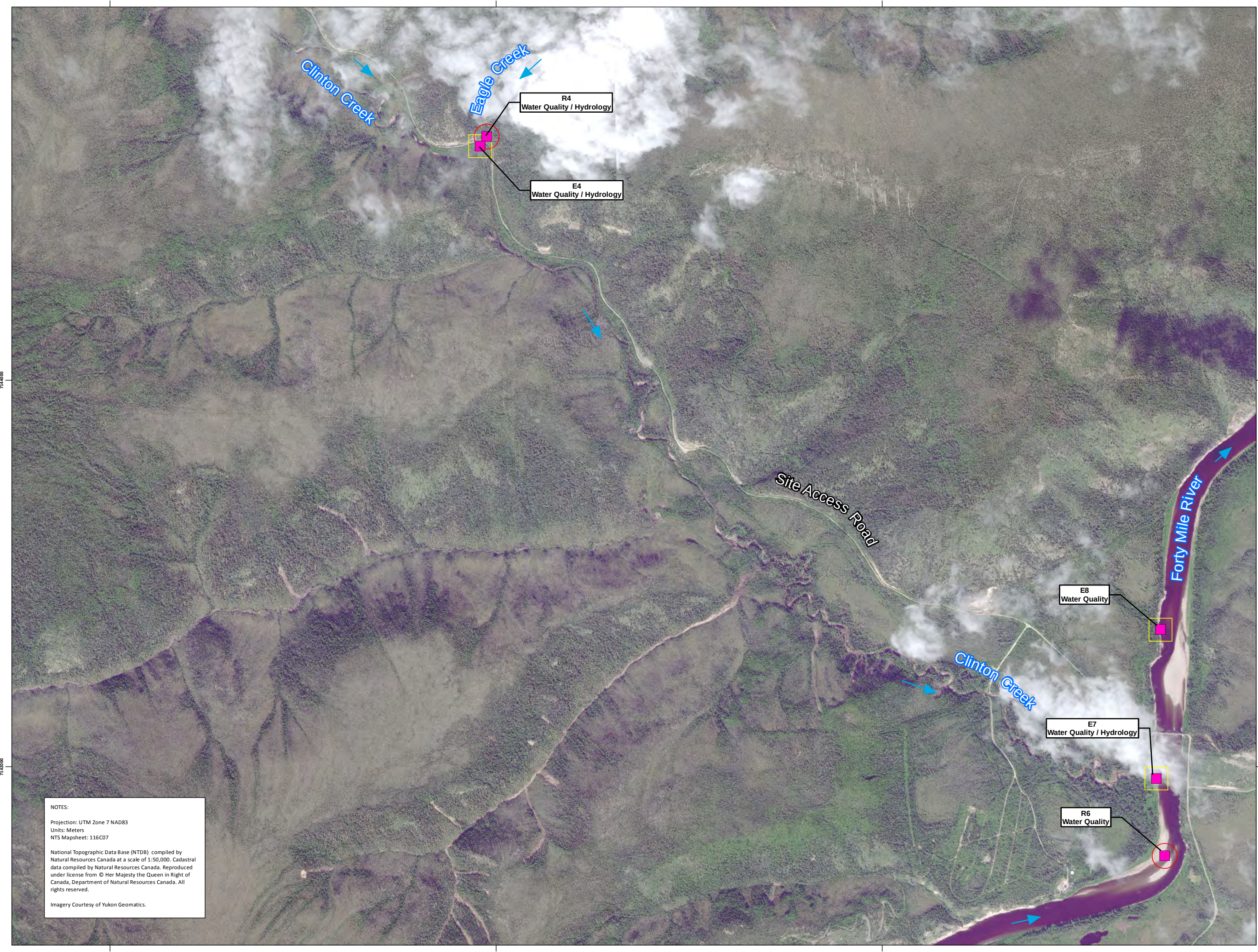
NOTES:

Projection: UTM Zone 7 NAD83  
Units: Meters  
NTS Mapsheet: 116C07

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Imagery Courtesy of Yukon Geomatics.





NOTES:

Projection: UTM Zone 7 NAD83  
Units: Meters  
NTS Mapsheet: 116C07

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Imagery Courtesy of Yukon Geomatics.

# Clinton Creek Surface Water Quality and Hydrological Monitoring

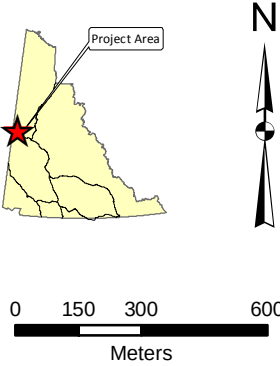


Client:



## Legend

- Water Type**
- Surface Water
- Site Type**
- Exposed
  - Reference



**FIGURE 3**  
Sampling Stations  
Forty Mile River Area

|                                |                 |
|--------------------------------|-----------------|
| Date: February 13, 2017        | Scale: 1:18,000 |
| ELR Project #: 16-240.5        | Rev. #: 1       |
| Hemmera Project #: 1343-005.20 |                 |



## 2.0 METHODS

Specific methods used in sampling are summarized in the following sections.

### 2.1 SURFACE WATER QUALITY SAMPLING

#### 2.1.1 Field Data Collection – Water Quality

Surface water quality sampling was conducted in accordance with *Standard Methods for the Examination of Water and Wastewater* (Rice et al. 2012). Field *in-situ* water quality parameters were measured and laboratory analytical samples were collected at each sample station, as described below.

Upon arriving at each station, the following field *in-situ* water quality data were collected and recorded using a YSI Professional Plus water quality meter.

- Water temperature (°C);
- pH (pH units);
- Oxidation-Reduction Potential (ORP; mv);
- Conductivity and Specific Conductivity (µs/cm); and,
- Dissolved oxygen (mg/L and percent saturation).

Following the collection of field *in-situ* parameters, samples for laboratory analysis were collected directly into laboratory-supplied containers, and were field filtered and/or preserved according to laboratory instructions. The laboratory analytical bottle set for the 2016 monitoring program included 10 bottles for each station, or 11 bottles for the stations where asbestos was collected (**Table 3**, below). Nitric acid (HNO<sub>3</sub>) was used to preserve metals samples (dissolved and total); hydrochloric acid (HCl) was used to preserve samples for ultra-trace mercury testing; sulphuric acid (H<sub>2</sub>SO<sub>4</sub>) was used as a preservative for ammonia and dissolved organic carbon (DOC); and sodium hydroxide (NaOH) was used as a preservative for speciated chromium. The bottles used to collect the asbestos samples were wrapped in aluminum foil to prevent algal growth through exposure to natural light.

**Table 3 Analytical Sampling Bottle Set Summary**

| Bottle Number | Bottle Size | Bottle Type | Parameter Analyzed                                | Sample Treatment                                        | Preservative Added             |
|---------------|-------------|-------------|---------------------------------------------------|---------------------------------------------------------|--------------------------------|
| 1             | 125 ml      | Plastic     | Low Level Dissolved Metals and Hardness           | Field Filtered and Preserved                            | HNO <sub>3</sub>               |
| 2             | 125 ml      | Plastic     | Low Level Total Metals and Hardness               | Preserved                                               | HNO <sub>3</sub>               |
| 3             | 40 ml       | Glass       | Dissolved Mercury                                 | Preserved                                               | HCl                            |
| 4             | 40 ml       | Glass       | Total Mercury                                     | Preserved                                               | HCl                            |
| 5             | 125 ml      | Glass       | Nitrate, Nitrite, Ammonia-N and Total Phosphorous | Preserved                                               | H <sub>2</sub> SO <sub>4</sub> |
| 6             | 500 mL      | Plastic     | Total Suspended Solids (TSS), Sulphate            | -                                                       | None                           |
| 7             | 125 ml      | Glass       | Dissolved Organic Carbon (DOC)                    | Field Filtered and Preserved                            | H <sub>2</sub> SO <sub>4</sub> |
| 8             | 125 ml      | Plastic     | Total Speciated Chromium (VI) and (III)           | Preserved                                               | NaOH                           |
| 9             | 125 ml      | Plastic     | Dissolved Speciated Chromium (VI) and (III)       | Field Filtered and Preserved                            | NaOH                           |
| 10            | 500 mL      | Plastic     | General Chemistry                                 | -                                                       | None                           |
| 11            | 1L          | Plastic     | Asbestos <sup>1</sup>                             | Bottle wrapped in aluminum foil to prevent algal growth | None                           |

<sup>1</sup> – Asbestos sample collected only at four sampling stations (see **Table 2**).

At each sampling station, UTM coordinates were recorded using a Garmin Map 62s handheld GPS. The general condition and description of each sample station was recorded, including any identifiable features or conditions that may have influenced water quality results. Photos were taken at each sample station for reference purposes and to record sampling conditions. Photos were taken facing upstream, downstream, and across the sample station at each location.

### 2.1.2 Sample Care and Shipping

Samples were placed into coolers immediately following water collection and were kept cool with ice and/or ice packs. Samples were shipped via air from Dawson, YT to the laboratory via Hemmera/ELR staff in Whitehorse, or transported by Hemmera/ELR by ground. All samples were delivered to ALS Global Laboratories (ALS) in Whitehorse, Yukon with appropriate chain of custody (COC) for analysis.

### 2.1.3 Laboratory Analysis

All key surface water quality samples collected during the program were received by the analytical laboratory within required holding times with the exception of pH (15 minute hold time) and asbestos samples (which need to be shipped to ALS' Cincinnati facility).

Laboratory analyses for the program employed a variety of laboratory methods to determine the various water quality parameters required. Specific methods were chosen to ensure that reportable detection limits (RDL) were less than the Canadian Council of Ministers on the Environment (CCME) *Water Quality Guidelines for Protection of Aquatic Life* (CCME-FAL) where applicable (CCME 2014).

During the program, water samples for both dissolved and total trivalent (III) and hexavalent (VI) chromium were collected and submitted with samples, but on hold. Unspeciated chromium results were reviewed, and analysis for speciated chromium was initiated for only those samples where the concentration of unspeciated chromium exceeded either the chromium (III) or (IV) CCME-FAL guideline (i.e., where there was a potential for chromium (III) or (IV) exceedance). The method of analyzing the speciated chromium only for samples that exceed either the chromium (III) or (IV) CCME-FAL guideline was implemented for analytical cost saving.

#### **2.1.4 QA/QC Program for Laboratory Analytical Sampling**

##### **2.1.4.1 Field QA/QC**

Several controls were used by Hemmera/ELR staff while in the field to help ensure that sample integrity was maintained and that data were recorded completely and accurately. Equipment used during the sampling process was dedicated to individual stations, including laboratory provided pre-cleaned sample bottles, disposable filters, and disposable syringes. Field staff wore dedicated disposable nitrile gloves for all measurements and sampling. Field instruments (*in-situ* meters) were checked and/or calibrated before each site visit to ensure the parameters recorded were as accurate as possible. All sample bottle sets were pre-labeled prior to sampling with location, analyte, and sample preservation method information. Where filtering and/or preservation were required by the laboratory, these were completed immediately following sample collection. Samples were also kept cool with ice and/or ice packs during transportation to the laboratory. Field station data were confirmed in the field and date/time was recorded on bottle labels at the time of sampling.

Hemmera/ELR used project-specific field data sheets during the sampling program to help ensure all required data and measurements were collected and that information was recorded correctly.

##### **2.1.4.2 Laboratory and Sampling QA/QC**

Laboratory and sampling QA/QC measures taken as part of the summer sampling program include the collection of travel blanks, duplicates, and field blanks, as per the scope of work and standard industry practice. Duplicate samples are collected to help determine the consistency of the laboratory analysis; field blanks are prepared with laboratory-supplied deionized water to determine if samples may have been contaminated as part of the sampling, transport, or analysis process. Travel blanks are prepared by the laboratory with deionized water and remain unopened until returned to the laboratory to help determine if contamination of the samples has occurred during the transportation, storage, or analysis of

the samples. Duplicate samples were collected at a ratio of 10% of the regular samples (2 duplicates were collected in relation to 22 sample stations). Additionally, one field blank was collected per month and up to two travel blanks per month accompanied the analytical supplies and samples during shipping to and from the laboratory (one with each return shipment of samples).

The variation between sample and duplicate pair results was calculated as relative percent difference (RPD). RPD provides a measure of the relative difference between two values in comparison to their mean value, and is calculated as the difference between a sample and its field duplicate over the average of two (2) values. RPD values greater than 20% indicates a greater variance than would normally be anticipated and may be due to a number of factors (e.g., short term change in parameter concentration, sediment in the sample, sampling or instrument error, large relative % difference but very low actual difference in concentration, such as 0.0001 vs 0.0002 mg/L). RPD was calculated according to the following formula:

$$\%RPD = \left( \frac{X_1 - X_2}{\left( \frac{X_1 + X_2}{2} \right)} \right) \times 100$$

Where  $X_1$  is the sample result and  $X_2$  is the corresponding duplicate result. RPD is not considered valid and is therefore not calculated if either the sample or the field duplicate concentration is less than five times the detection limit.

The analytical results for field and travel blanks were reviewed to determine whether any of the parameters tested were detected (i.e., result exceeded the reported detection limit). In such cases, the parameter or element in question and its concentration were reviewed to determine potential sources of contamination or error.

Laboratory replicates and additional quality control measures (i.e., measures against lab standards) were conducted by ALS.

## 2.2 HYDROLOGICAL MONITORING

Hydrological monitoring at fifteen (15) surface water and seepage stations was included in the program scope of work for each of the four months (June to September), following the recommendation of the Hemmera/ELR surface water and hydrology program review (Hemmera 2015) and Hemmera/ELR's recommended updates to the program in January 2016. Included in the program scope were one (1) groundwater seepage station, nine (9) reference surface water stations, and five (5) exposed surface water stations, two of which are also monitored through automated discharge (pressure transducer) data collection. Hydrology data collection was not included in the program for stations where it was not considered safe to do so (such as the Forty Mile River), where it has not been possible to collect data (such as the majority of groundwater seeps), or where the data collection was redundant. See **Table 1** for a list of stations at which hydrological monitoring was conducted.

## **2.2.1 Manual Discharge Data Collection**

Hemmera/ELR used a velocity-area method to measure discharge at surface water bodies during the monitoring program. Total discharge at each sample station was calculated using the area and velocity from a series of point measurements taken across the stream at each location. Stream flow and discharge calculations can be found in Appendix 5.

During the monitoring program, Hemmera/ELR re-visited previously established hydrological monitoring locations at each sample station; these had been selected because they were suited to flow and velocity measurements (i.e., a straight channel with relatively flat stream bed and little vegetation or rocks, and few back-eddies that could hinder flow meter measurements). At each station, a cross section was established, and the active stream channel width was determined using a tape measure fixed to the top of the bank on each side. The stream was then divided into a series of sections (referred to as panels), where individual velocity and depth measurements were recorded. Stream channel widths were divided by 20 to establish the location of flow gauging panels. The number of panels was reduced in cases where the resulting panel widths were less than 6.0 cm. At each point across the stream cross-section, water depth and mean flow were measured (at 60% depth) using a Swoffer Current Velocity Meter. A suitable length of straight channel was chosen to help reduce interference caused by eddying and larger rocks or vegetation were cleared from the channel before gauging started.

### **2.2.1.1 QA/QC Program for Hydrology Field Measurements**

Two sets of measurements were collected at each stream crossing location. The first crossing was used to establish the station locations and data, and the second crossing was used to collect a duplicate set of data for QA/QC purposes (i.e., to ensure station readings were accurate and that no significant variance between the two measurement sets had occurred).

### **2.2.1.2 Data Analysis for Manual Discharge Data Collection**

For each sampling point (panel) at a crossing location (sample station), stream discharge ( $Q$ ;  $\text{m}^3/\text{s}$ ) was calculated by multiplying the cross sectional area of the panel (width of panel x mean depth;  $A$ ;  $\text{m}^2$ ) by the measured velocity ( $V$ ;  $\text{m/s}$ ), according to the following formula:

$$Q = AV$$

The total discharge for a sample station was then calculated by adding the discharge of all panels for each stream crossing location.



### **2.2.2 Automated Discharge Data Collection**

Two pressure sensors (PS) were installed at the Site in July of 2015 by Northern Avcom, on behalf of AAM; one in Hudgeon Lake, near the outlet of the lake to Clinton Creek [site E1(H)]; and one on Wolverine Creek, about 500 m upstream of the confluence with Clinton Creek [site E3(H)]. The purpose of the PSs is to provide regular data (15 minute intervals) on lake and stream water levels (stage) and temperature. The stage data are then used in conjunction with manually collected discharge data to create a stage-discharge relationship. Collectively, the data are then used to calculate ongoing discharge in Clinton Creek and Wolverine Creek over time.

The data collected by the PS installed in Hudgeon Lake are uploaded to a datalogger on an ongoing basis via a cable connection, and were downloaded from the datalogger via a satellite connection by Hemmera/ELR following each field event. The data from the PS on Wolverine Creek were downloaded manually during the September 2016 field sampling and monitoring event using a laptop computer with the required software installed. The batteries in the PS were changed during the September 2016 monitoring event in preparation for the fall and winter.

#### ***2.2.2.1 QA/QC Program for Automated Discharge Monitoring***

The data downloaded from each PS (water depth above the pressure sensor and water temperature) were checked for completeness (complete record since installation or the previous download) and reviewed for general expected ranges. For the PS installed on Wolverine Creek (E3[H]), a preliminary QA/QC review of the data was completed in the field.

In addition to the PS data, the benchmarks, staff gauges, and PS housings at E1(H) and E3(H) were surveyed to check for any potential movements in the PS housing or the benchmarks over time, and manual staff gauge readings are collected to provide an additional stage reading that can be used in stream discharge calculations. Additional benchmarks were added at Station E1(H) in June, and at Station E3(H) in September of 2016; these benchmarks were installed to provide another point of reference from which to monitor for some potential movements of benchmarks or instruments that had been observed.

#### ***2.2.2.2 Data Analysis***

Stage discharge relationships for both Clinton Creek and Wolverine Creek were developed using the water level data from the PSs (stage) and the corresponding manual stream gauging measurements (discharge) from site visits. The stage and discharge data were plotted to check for completeness, and the stage-discharge relationship curve for each stream was developed through regression by fitting either an exponential or linear curve function through the plotted stage-discharge data points. The recorded stage measurements from the PS can then be used to calculate a time history of stream discharge. Because additional manual discharge data and staff gauge readings help to refine the stage-discharge

relationship, all suitable manual discharge data previously collected by Hemmera/ELR for Clinton Creek [(E1(H)) and Wolverine Creek [E3(H)] in 2015 were used in addition to data collected in June to September 2016. The stage-discharge relationship will continue to be refined with the collection of additional manual discharge data from different flow periods (i.e., high, moderate and low flow periods).

In addition to stage data, water temperature data for January to September, 2016 from each of the PSs were also reviewed, and plotted for presentation in the report.

### **2.2.3 Meteorological Data Collection**

The meteorological station (MS) is located on a flat area of waste rock south of Clinton Creek and the data collection and satellite communications station (with remote camera) is located on a flat area of ground north of Clinton Creek, near the outlet of Hudgeon Lake. The MS is equipped with the following instrumentation:

- Rain gauge (not an all-weather precipitation gauge)
- Ambient air temperature and relative humidity
- Barometric pressure
- Wind speed and direction
- Snow depth sensor (installed July 2015)

#### **2.2.3.1 QA/QC Program for Meteorological Data Collection**

The data downloaded from the MS were checked for completeness (e.g., complete record for the period pertaining to this report). The data were reviewed for general compliance with expected values (e.g. temperatures within expected ranges), and any omissions or anomalies in the data were reviewed and investigated. Where an anomaly was found, other data (e.g., local or regional meteorological data, or PS data) were used to check the anomalous data where possible.

#### **2.2.3.2 Data Analysis**

Data downloaded from the MS were converted to Microsoft Excel format to allow the data to be reviewed and graphed. Data for precipitation, ambient air temperature, relative humidity, barometric pressure, and snow depth were graphed for the period of January to September 2016. A wind rose figure was created using WRPLOT View™, a software program designed to analyze specific meteorological data. A wind rose is a useful visual representation that presents an entire period of wind data on a single graph (wind speed, direction and frequency). The total duration of wind occurring within a specified speed range (metres per second - m/s) and compass direction are calculated as a percentage of the total reporting period. Mean hourly wind speeds are grouped into ranges (e.g., 0 to 1 m/s, 1 to 3 m/s, 3 to 6 m/s, 6 to 9 m/s etc. through to 18 m/s +). The wind direction is grouped into 16 compass direction ranges representing 22.5° each, starting at north. The wind speed and direction frequency are also tabulated to complement the wind rose figure.



## **2.3 HUDGEON LAKE IN-SITU MEASUREMENTS**

In-situ parameter profiles were collected at three locations in Hudgeon Lake. The measurement locations were established in the deepest part of the lake (the original Clinton Creek alignment before Hudgeon Lake formed behind the slumped waste rock), based on lake bathymetry. Using a YSI Professional Plus water quality meter with a 30 m cable. Measurements were collected from the surface (approximate depth of 0.15 m) and then at 1 m depth intervals until either the bottom of the lake was reached or no more cable was available, whichever came first. Weights were attached to the sensor housing to help the field crew determine when the bottom of the lake had been reached. Each incremental set of measurements was recorded once the meter readings had stabilized. The parameters recorded were:

- Temperature (°C)
- pH
- Salinity (ppt)
- Dissolved oxygen (mg/L)
- Dissolved oxygen (%)
- Oxygen reduction potential or Redox (mV)
- Conductivity (µs/cm)
- Specific conductivity (µs/cm)

## 3.0 RESULTS

### 3.1 GENERAL ON-SITE OBSERVATIONS

Hemmera/ELR completed the monthly field monitoring program during the following dates in June, July, August and September of 2016:

- June 13 to June 18, 2016;
- July 18 to July 24, 2016;
- August 15 to August 21, 2016; and
- September 19 to September 24, 2016

During July and August 2016 (in particular August), frequent and heavy precipitation events at the Site area resulted in above-normal water levels and increased turbidity for Clinton Creek, the Forty Mile River, and their tributaries. This increased turbidity was the result of sediment loading due to high water volumes and velocities, which had the potential to influence program results (e.g., uncharacteristic metals, sediments, turbidity or flow). No other activities or observations were noted between June and September 2016 that were considered to have the potential to influence program results (e.g., instream activities by construction crews). The water levels and turbidity were observed to significantly decrease during the September 2016 event from those levels observed in July and August.

### 3.2 SURFACE WATER QUALITY SAMPLING

Water quality samples were successfully collected from 21 stations during each of the June, July, August and September (2016) field events, including reference surface water stations, exposed surface water stations, and exposed groundwater seepage stations (**Table 4** below). Two duplicate samples (three in June), one field blank, and two travel blanks were also collected each of the four months. A set of representative photographs from each sample station is presented in **Appendix 1**.

**Table 4 Summary of Sampling Stations and Quality Control Samples**

|           | Reference Station Samples | Exposed Station Samples | Groundwater Seepage | Pit Lake | Duplicate Samples | Field Blanks | Travel Blanks |
|-----------|---------------------------|-------------------------|---------------------|----------|-------------------|--------------|---------------|
| June      | 9                         | 7                       | 5                   | 1        | 3                 | 2            | 1             |
| July      | 9                         | 7                       | 5                   | 1        | 2                 | 2            | 1             |
| August    | 9                         | 7                       | 5                   | 1        | 2                 | 2            | 1             |
| September | 9                         | 7                       | 5                   | 1        | 2                 | 2            | 1             |

### 3.2.1 Field *In-Situ* Water Quality Results

Field *in-situ* water quality data were collected during each of the four field events. Hemmera/ELR experienced field meter issues for a limited number of stations and parameters, but generally *in-situ* data were collected successfully and consistently. Results are presented in **Table 9.1**, attached to this report, and are presented in relation to CCME-FAL guidelines where relevant.

A summary of field parameters for the reference and exposed stations, including surface water temperatures, field pH readings, surface water conductivity and concentrations of dissolved oxygen are presented below in **Table 5**.

**Table 5 Range of Observed In-Situ Parameter measurements (minimum and maximum values) recorded during the June to September 2016 Field Programs.**

|                         |                    | Month                     |                           |                           |                           |
|-------------------------|--------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|                         |                    | June                      | July                      | August                    | September                 |
| Temperature (°C)        | Reference Stations | 5.3 (R4) - 16.0 (R6)      | 4.9 (R4) - 10.5 (R6)      | 2.9 (R11) - 9.9 (R6)      | 0.6 (R11) - 7.8 (R6)      |
|                         | Exposed Stations   | 2.7(GWCC1) - 17.7 (SL)    | 4.2 (GWCC1) - 14.6 (SL)   | 5.9 (E3) - 12.8 (E1)      | 3.0 (E3) - 9.1 (GWCC4)    |
| pH (pH Units)           | Reference Stations | 7.58 (R8) - 8.2 (R3)      | 7.43 (R7) – 8.27 (R3)     | 7.78 (R6) – 8.79 (R2)     | 7.45 (R6) - 8.27 (R2)     |
|                         | Exposed Stations   | 7.32 (GWCC1) - 8.28 (E3)  | 7.4 (GWCC1) – 8.5 (SL)    | 7.74 (GWCC4) – 8.88 (E1)  | 7.0 (GWCC1) - 8.31 (E1)   |
| Conductivity (µs/cm)    | Reference Stations | 113.8 (R7) - 460.6 (R1)   | 112.7 (R6) - 545 (R3)     | 115.9 (R6) - 352.1 (R1)   | 131.3 (R7) - 348.4 (R1)   |
|                         | Exposed Stations   | 121.9 (E8) - 1412 (GWCC1) | 118.6 (E8) - 1375 (GWCC1) | 119.5 (E8) - 1218 (GWCC2) | 140.5 (E8) - 1338 (GWCC1) |
| Dissolved Oxygen (mg/L) | Reference Stations | 8.45 (R6) - 13.5 (R4)     | 9.79 (R6) - 13.92 (R11)   | 10.96 (R6) - 13.25 (R11)  | 13.19 (R6) - 13.36 (R11)  |
|                         | Exposed Stations   | 4.26 (GWCC4) - 11.58 (E3) | 2.19 (GWCC4) - 10.93 (E3) | 4.78 (GWCC4) - 12.11 (E3) | 2.51 (GWCC5) - 14.16 (E3) |



### **3.2.2 Laboratory Analytical Water Quality Results**

Laboratory analytical results are summarized in the attached **Table 9.1**, arranged by station, month and analyte. Results are presented in comparison with CCME-FAL guidelines, with exceedances of guideline concentrations shaded dark grey in the table. In some instances the reportable detection limits (RDL) exceeded applicable CCME FAL standards (values shaded in light grey in **Table 9.1**). This occurs when samples with high levels of some elements or compounds require dilution in order for the lab to properly analyse the sample. Accordingly, the laboratory detection limit must then be increased. For the purpose of this report, results that are reported below the RDL, but also have an adjusted RDL that is higher than the applicable guideline, have not been reported as CCME FAL exceedances. Full analytical laboratory reports are provided in **Appendix 2**, and water quality monitoring field notes are provided in **Appendix 3**.

Text summaries of CCME-FAL exceedances and other pertinent observations are provided in *Sections 3.1.2.1 and 3.1.2.2* below, arranged by station and analyte.

With the exception of Station PL (Porcupine Pit) where safety concerns prevented sampling, and Station E9 which remained dry during each sampling event, all program stations were successfully sampled during the June to September 2016 programs.

All samples were received within laboratory hold times and successfully analyzed with the exception of several instances that are described in the relevant station section below.

The most prevalent metals (total and dissolved) having exceeded the CCME-FAL guidelines were selenium, aluminum, iron and copper. These analytes are found in the majority of the reference and exposed stations; including the groundwater seepage stations and Snowshoe Pit.

#### **3.2.2.1 Reference Stations**

Exceedances of CCME-FAL guideline concentrations occurred at every station for at least one parameter, as described below.

##### **R1. Clinton Creek, upstream of Hudgeon Lake**

###### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for three of the four sampling events (June, 0.175 mg/L; July, 5.07 mg/L; August, 1.79 mg/L).

###### Arsenic

Total arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for the July sampling event (0.00547 mg/L).

### Cadmium

Total cadmium exceeded the CCME-FAL guideline concentration of 0.000304 mg/L for the July sampling event (0.000403 mg/L).

### Trivalent (III) Chromium

Total trivalent (III) Chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the July sampling event (0.0139 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for two sampling events (July, 0.0161 mg/L; August, 0.00740 mg/L).

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for the September sampling event (0.313 mg/L), while total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 0.503 mg/L; July, 9.02 mg/L; August, 3.00 mg/L; September, 0.656 mg/L).

### Mercury

Total mercury exceeded the CCME-FAL guideline concentration of 0.000026 mg/L for the July sampling event (0.000155 mg/L).

### Selenium

Dissolved selenium exceeded the CCME guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00256 mg/L; July, 0.00160 mg/L; August, 0.00238 mg/L; September, 0.00287 mg/L). Total selenium exceeded the CCME guideline value of 0.001 mg/L for all four sampling events (June, 0.00246 mg/L; July, 0.00204 mg/L; August, 0.00246 mg/L; September, 0.00281 mg/L).

### Silver

Total silver exceeded the CCME-FAL guideline concentration of 0.0001 mg/L for the July sampling event (0.000171 mg/L).

### Zinc

Total zinc exceeded the CCME-FAL guideline concentration of 0.03 mg/L for the July sampling event (0.0413 mg/L).

## **R2. Easter Creek, north of Hudgeon Lake**

### Aluminum

Dissolved aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for August sampling event (0.112 mg/L). Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for three sampling events (June, 0.109 mg/L; July, 4.60 mg/L; August, 1.16 mg/L).

### Trivalent (III) Chromium

Total Trivalent (III) Chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the July sampling event (0.00993 mg/L).

### Hexavalent (VI) Chromium

Total Hexavalent (VI) Chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for the July sampling event (0.0011 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for two sampling events (July, 0.00914 mg/L; August, 0.00424 mg/L).

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for three sampling events (July, 0.503 mg/L; August, 0.597 mg/L; September, 0.424 mg/L). Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 0.436 mg/L; July, 7.13 mg/L; August, 2.23 mg/L; September, 0.629 mg/L).

## **R3. Wolverine Creek, upstream of Tailings**

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for all four sampling events (June, 1.93 mg/L; July, 3.08 mg/L; August, 5.77 mg/L; September, 0.705 mg/L).

### Trivalent (III) Chromium

Total Trivalent (III) Chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the August sampling event (0.0108 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for three sampling events (June, 0.00551 mg/L; July, 0.00942 mg/L; August, 0.016 mg/L).



### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two sampling events (August, 0.361 mg/L; September, 0.303 mg/L).

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 3.31 mg/L; July, 5.98 mg/L; August, 10.2 mg/L; September, 1.74 mg/L).

### Mercury

Total mercury exceeded the CCME-FAL guideline concentration of 0.000026 mg/L for the August sampling event (0.000042 mg/L).

### Selenium

Total selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for the August sampling event (0.00148 mg/L).

### Silver

Total silver exceeded the CCME-FAL guideline concentration of 0.0001 mg/L for the August sampling event (0.000132 mg/L).

### Zinc

Total zinc exceeded the CCME-FAL guideline concentration of 0.03 mg/L for the August sampling event (0.0343 mg/L).

## **R4. Eagle Creek, Downstream of the Site and Flows into Clinton Creek**

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for all four sampling events (June, 0.365 mg/L; July, 1.55 mg/L; August, 8.01 mg/L; September, 0.834 mg/L).

### Arsenic

Total arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for the August sampling event (0.0119 mg/L).

### Cadmium

Total cadmium exceeded the CCME-FAL guideline concentration of 0.000290 mg/L for the August sampling event (0.00143 mg/L).

### Trivalent (III) Chromium

Total trivalent (III) chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the August sampling event (0.022 mg/L).

### Hexavalent (VI) Chromium

Hexavalent (VI) Chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for the June sampling event (0.0011 mg/L).

### Copper

Dissolved copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for the September sampling event (0.00507 mg/L). Total copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for three sampling events (July, 0.00625 mg/L; August, 0.0382 mg/L; September, 0.005 mg/L).

### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 0.765 mg/L; July, 2.64 mg/L; August, 14.7 mg/L; September, 1.79 mg/L).

### Lead

Total lead exceeded the CCME-FAL guideline concentration of 0.007 mg/L for the August sampling event (0.01 mg/L).

### Mercury

Total mercury exceeded the CCME-FAL guideline concentration of 0.000026 mg/L for the August sampling event (0.000143 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00163 mg/L; July, 0.00185 mg/L; August, 0.00414 mg/L; September, 0.00268 mg/L). Total selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00159 mg/L; July, 0.0018 mg/L; August, 0.00611 mg/L; September, 0.00296 mg/L).

### Silver

Total silver exceeded the CCME-FAL guideline concentration of 0.0001 mg/L only for the August sampling event (0.000825 mg/L).

### Zinc

Total zinc exceeded the CCME-FAL guideline concentration of 0.03 mg/L for the August sampling event (0.0637 mg/L).

## **R6. Forty Mile River, upstream of the confluence of Clinton Creek and Forty Mile River**

### Dissolved Oxygen

Dissolved oxygen was below the CCME-FAL guideline concentration of 9.5 mg/L for the June sampling event (8.45 mg/L).

### Aluminum

Dissolved aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for two sampling events (July, 0.112 mg/L; August, 0.126 mg/L). Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for all four sampling events (June, 0.149 mg/L; July, 2.54 mg/L; August, 1.94 mg/L; September, 0.168 mg/L).

### Copper

Dissolved copper exceeded the CCME-FAL guideline concentration of 0.002087 mg/L for the June sampling event (0.00287 mg/L). Total copper exceeded the CCME-FAL guideline concentration of 0.002087 mg/L for the June sampling event (0.00291 mg/L).

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two sampling events (August, 0.42 mg/L; September, 0.323 mg/L). Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 0.304 mg/L; July, 3.78 mg/L; August, 2.98 mg/L; September, 0.515 mg/L).

## **R7. Porcupine Creek, upstream of the un-named lake**

### Aluminum

Dissolved aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for three sampling events (June, 0.107 mg/L; August, 0.168 mg/L, September, 0.143 mg/L). Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for all four sampling events (June, 0.47 mg/L; July, 1.93 mg/L; August, 3.45 mg/L; September 1.75 mg/L).



### Copper

Dissolved copper exceeded the variable CCME-FAL guideline concentration for all four sampling events (June, 0.00454 mg/L; July, 0.00370; August, 0.00480 mg/L; September 0.00517 mg/L). Total copper exceeded the variable CCME-FAL guideline concentration for all four sampling events (June, 0.00493 mg/L; July, 0.00782 mg/L; August, 0.0111 mg/L; September 0.00836 mg/L). Refer to **Table 9.1** for CCME-FAL guideline concentrations.

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June 1.36 mg/L; July, 1.47 mg/L; August, 1.15 mg/L; September 1.10 mg/L). Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 1.93 mg/L; July, 4.38 mg/L; August, 5.75 mg/L; September, 3.67 mg/L).

## **R8. Unnamed creek, on the north inlet of Hudgeon Lake and southwest of Easter Creek**

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for July sampling event (0.191 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.00304 mg/L for July sampling event (0.00365 mg/L).

### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for the July sampling event (0.334 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for two sampling events (August, 0.00272 mg/L; September, 0.0022 mg/L). Total selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for two sampling events (August, 0.00338 mg/L; September, 0.0022 mg/L).

## **R9. Unnamed creek, on the south inlet of Hudgeon Lake**

### Aluminum

Dissolved aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for the July sampling event (0.198 mg/L). Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for three sampling events (July, 8.54 mg/L; August, 2.38 mg/L; September 0.252 mg/L).

### Arsenic

Total arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for the July sampling event (0.00662 mg/L).

### Cadmium

Total cadmium exceeded the CCME-FAL guideline concentration of 0.000191 mg/L only for the July event (0.000342 mg/L).

### Trivalent (III) Chromium

Total trivalent (III) chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the July sampling event (0.0183 mg/L).

### Hexavalent (VI) Chromium

Total hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for the July sampling event (0.0011 mg/L).

### Copper

Dissolved copper exceeded the variable CCME-FAL guideline concentration for all four sampling events (June 0.00406 mg/L; July, 0.00521 mg/L; August, 0.00462 mg/L; September 0.00419 mg/L). Total copper exceeded the variable CCME-FAL guideline concentration for all four sampling events (June 0.00408 mg/L; July, 0.0247 mg/L; August, 0.0108 mg/L; September 0.00494 mg/L). Refer to **Table 9.1** for CCME-FAL guideline concentrations.

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June 0.884 mg/L; July, 0.985 mg/L; August, 1.06 mg/L; September 1.54 mg/L). Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 0.93 mg/L; July, 14.1 mg/L; August, 4.55 mg/L; September, 2.06 mg/L).

### Lead

Total lead exceeded the CCME-FAL guideline concentration of 0.00423 mg/L for the July sampling event (0.00593 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for three sampling events (June, 0.00112 mg/L; August, 0.00203 mg/L; September, 0.00229 mg/L). Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00109 mg/L; July, 0.00119 mg/L; August, 0.00248 mg/L; September, 0.00236 mg/L).

### Silver

Total silver exceeded the CCME-FAL guideline concentration of 0.0001 mg/L for the July sampling event (0.000129 mg/L).

### Zinc

Total zinc exceeded the CCME-FAL guideline concentration of 0.03 mg/L for the July sampling event (0.0476 mg/L).

## **R11. Unnamed creek, east of Wolverine Creek and southeast of the tailings**

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for all four sampling events (June, 0.151 mg/L; July, 0.112 mg/L; August, 7.66 mg/L; September, 1.43 mg/L).

### Arsenic

Total arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for the August sampling event 0.0067 mg/L).

### Cadmium

Total cadmium exceeded the CCME-FAL guideline concentration of 0.000212 mg/L for the August event only (0.000450 mg/L).

### Trivalent (III) Chromium

Total trivalent (III) chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the August sampling event (0.0159 mg/L).

### Hexavalent Chromium

Total hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for the August sampling event (0.0014 mg/L).

### Copper

Total copper exceeded the variable CCME-FAL guideline concentration for two sampling events (August, 0.0235 mg/L; September 0.00723 mg/L). Refer to **Table 9.1** for CCME-FAL guideline concentrations.

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for the August sampling event (0.433 mg/L).

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for three sampling events (June, 0.315 mg/L; August, 15.6 mg/L; September, 2.91 mg/L).

### Lead

Total lead exceeded the CCME-FAL guideline concentration of 0.00497 mg/L for the August sampling event (0.0112 mg/L).

### Mercury

Total mercury exceeded the CCME-FAL guideline concentration of 0.000026 mg/L for the August sampling event (0.000164 mg/L).

### Selenium

Dissolved selenium exceeded the CCME guideline concentration of 0.001 mg/L for two sampling events (August, 0.00179 mg/L; September, 0.00173 mg/L). Total selenium exceeded the CCME guideline value of 0.001 mg/L for two sampling events (August, 0.00282 mg/L; September, 0.00195 mg/L).

### Silver

Total silver exceeded the CCME-FAL guideline concentration of 0.0001 mg/L for the August sampling event (0.000384 mg/L).

### Zinc

Total zinc exceeded the CCME-FAL guideline concentration of 0.03 mg/L for the August sampling event (0.0587 mg/L).



### **3.2.2.2 Exposed Stations**

Amongst the exposed stations (i.e., both surface water and groundwater seeps), exceedances of the CCME-FAL guidelines were identified in one or more stations for dissolved oxygen, aluminum, arsenic, trivalent (III) and hexavalent (VI) chromium, cadmium, copper, iron, lead, mercury, selenium, silver, and zinc. It was noted by field staff that both water levels and turbidity were high during the July and August monitoring events compared to the June and September events. Concentrations of parameters exceeding CCME-FAL guidelines are discussed in more detail in this section and the detailed analytical results are provided in **Table 9.1**.

#### **E1. Clinton Creek, downstream of the Gabions**

##### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during the July sampling event (8.88 mg/L).

##### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for the August sampling event (0.170 mg/L).

##### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two sampling events (August, 0.545 mg/L; September, 0.313 mg/L).

##### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.0022 mg/L; July, 0.00187 mg/L; August, 0.00157 mg/L; September, 0.00195 mg/L). Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00219 mg/L; July, 0.00169 mg/L; August, 0.00166 mg/L; September, 0.00182 mg/L).

#### **E1(H). Clinton Creek, near outlet of Hudgeon Lake**

##### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during two sampling events (July, 8.5 mg/L; August, 8.9 mg/L).

##### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for the August sampling event (0.122 mg/L).

### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two sampling events (August, 0.436 mg/L; September, 0.324 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00213 mg/L; July, 0.00176 mg/L; August, 0.00166 mg/L; September, 0.00171 mg/L).

Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00206 mg/L; July, 0.0017 mg/L; August, 0.00174 mg/L; September, 0.00197 mg/L).

## **E2. Clinton Creek, upstream of the confluence with Wolverine Creek**

### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during two sampling events (June, 9.21 mg/L; July, 8.12 mg/L).

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for two sampling events (August, 0.128 mg/L; September, 0.123 mg/L).

### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two sampling events (August, 0.481 mg/L; September, 0.755 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00191 mg/L; July, 0.00157 mg/L; August, 0.00194 mg/L; September, 0.00205 mg/L).

Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00198 mg/L; July, 0.00162 mg/L; August, 0.00185 mg/L; September, 0.00195 mg/L).

## **E3. Wolverine Creek, upstream of the confluence with Clinton Creek**

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for all four sampling events (June, 0.361 mg/L; July, 0.402 mg/L; August, 6.99 mg/L; September, 1.18 mg/L).

### Arsenic

Total arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for the August sampling event 0.00718 mg/L).

### Cadmium

Total cadmium exceeded the CCME-FAL guideline concentration of 0.000318 mg/L for the August sampling event (0.000796 mg/L).

### Trivalent (III) Chromium

Total trivalent (III) chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the August sampling event (0.018 mg/L).

### Hexavalent (VI) Chromium

Total hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for two sampling events (June, 0.0012 mg/L; July, 0.0012 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for two sampling events (August, 0.0252 mg/L; September 0.00630 mg/L).

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for the August sampling event (0.350 mg/L). Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 0.766 mg/L; July, 0.905 mg/L; August, 13.1 mg/L; September, 2.81 mg/L).

### Lead

Total lead exceeded the CCME-FAL guideline concentration of 0.007 mg/L for the August sampling event (0.00940 mg/L).

### Mercury

Total mercury exceeded the CCME-FAL guideline concentration of 0.000026 mg/L for the August sampling event (0.000081 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for two sampling events (August, 0.00148 mg/L; September, 0.00135 mg/L). Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for two sampling events (August, 0.00275 mg/L; September, 0.00170 mg/L).

### Silver

Total silver exceeded the CCME-FAL guideline concentration of 0.0001 mg/L for the August sampling event (0.000295 mg/L).

### Zinc

Total zinc exceeded the CCME-FAL guideline concentration of 0.03 mg/L for the August sampling event (0.0575 mg/L).

## **E4. Clinton Creek, upstream of the confluence with Eagle Creek (off-site)**

### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during the July sampling event (9.19 mg/L).

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for the August sampling event (1.29 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for the August sampling event (0.00654 mg/L).

### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two sampling events (August, 2.33 mg/L; September, 0.554 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00153 mg/L; July, 0.00137 mg/L; August, 0.00196 mg/L; September, 0.00160 mg/L).

Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00165 mg/L; July, 0.00134 mg/L; August, 0.00202 mg/L; September, 0.00151 mg/L).

## **E7. Clinton Creek, at the confluence with Forty Mile River**

### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during the July sampling event (9.44 mg/L).



### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for three sampling events (July, 2.71 mg/L; August, 2.76 mg/L; September, 0.193 mg/L).

### Trivalent (III) Chromium

Total trivalent (III) chromium exceeded the CCME-FAL guideline concentration of 0.0089 mg/L for the August sampling event (0.0108 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.004 mg/L for two sampling events (July, 0.00960 mg/L; August, 0.0113 mg/L).

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two sampling events (August, 0.320 mg/L; September, 0.310 mg/L). Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for three sampling events (July, 4.79 mg/L; August, 5.40 mg/L; September, 0.792 mg/L).

### Selenium

Dissolved selenium exceeded the CCME guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00126 mg/L; July, 0.00114 mg/L; August, 0.00198 mg/L; September, 0.00154 mg/L). Total selenium exceeded the CCME guideline value of 0.001 mg/L for all four sampling events (June, 0.00126 mg/L; July, 0.00135 mg/L; August, 0.00231 mg/L; September, 0.00160 mg/L).

### Silver

Total silver exceeded the CCME-FAL guideline concentration of 0.0001 mg/L for the August sampling event (0.000125 mg/L).

### Zinc

Total zinc exceeded the CCME-FAL guideline concentration of 0.03 mg/L for the July sampling event (0.0322 mg/L).

## **E8. Forty Mile River, approximately 700 m downstream of the confluence with Clinton Creek**

### Aluminum

Dissolved aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for the August sampling event (0.126 mg/L). Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for all four sampling events (June, 0.351 mg/L; July, 2.58 mg/L; August, 2.48 mg/L; September, 0.180 mg/L).

### Copper

Total copper exceeded the CCME-FAL guideline concentration of 0.00294 mg/L for the September sampling event (0.00295mg/L).

### Iron

Dissolved iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for two of the sampling events (August, 0.400 mg/L; September, 0.324 mg/L). Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for all four sampling events (June, 0.609 mg/L; July, 3.47 mg/L; August, 3.52 mg/L; September, 0.546 mg/L).

## **Snowshoe Pit Lake**

### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during two sampling events (June, 7.76 mg/L; July, 8.84 mg/L).

### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for the June sampling event (0.215 mg/L).

### Arsenic

Dissolved arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for all four sampling events (June, 0.0168 mg/L; July, 0.0144 mg/L; August, 0.0133 mg/L; September, 0.0158 mg/L). Total arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for all four sampling events (June, 0.0163 mg/L; July, 0.0151 mg/L; August, 0.0152 mg/L; September, 0.0152 mg/L).

### Hexavalent (VI) Chromium

Dissolved hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for two the sampling events (June, 0.0016 mg/L; July, 0.0016 mg/L).

Total hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for three sampling events (June, 0.0019 mg/L; July, 0.0018 mg/L; September, 0.0011 mg/L).

### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for the June sampling event (0.483 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.0163 mg/L; July, 0.0156 mg/L; August, 0.0127 mg/L; September, 0.0110 mg/L).

Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.0157 mg/L; July, 0.0160 mg/L; August, 0.0137 mg/L; September, 0.0109 mg/L).

### **3.2.2.3 Groundwater Seepage Stations**

Amongst the exposed stations (i.e., both surface water and groundwater seeps), exceedances of the CCME-FAL guidelines were identified in one or more stations for dissolved oxygen, aluminum, arsenic, hexavalent (VI) chromium, iron, and selenium. It was noted by field staff that both water levels and turbidity were high during the July and August monitoring events compared to the June and September events. Concentrations of parameters exceeding CCME-FAL guidelines are discussed in more detail in this section and the detailed analytical results are provided in **Table 9.1**.

#### **GWCC-1, at the waste rock seepage**

##### Dissolved Oxygen

Dissolved oxygen concentrations were below the concentration of 9.5 mg/L during all four sampling events (June, 4.76 mg/L; July, 4.26 mg/L; August, 7.92 mg/L; September, 4.35 mg/L).

##### Aluminum

Total aluminum exceeded the CCME-FAL guideline concentration of 0.1 mg/L for two sampling events (July 0.157 mg/L; August, 0.107 mg/L).

##### Arsenic

Total arsenic exceeded the CCME-FAL guideline concentration of 0.005 mg/L for the August sampling event (0.00518 mg/L).

##### Hexavalent (VI) Chromium

Dissolved hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for three sampling events (June, 0.0037 mg/L; July, 0.0034 mg/L; September, 0.0034 mg/L).

Total hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.0036 mg/L; July, 0.0034 mg/L; August, 0.0013 mg/L; September, 0.0037 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00509 mg/L; July, 0.00451 mg/L; August, 0.0114 mg/L; September, 0.00467 mg/L). Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00501 mg/L; July, 0.00409 mg/L; August, 0.0113 mg/L; September, 0.00500 mg/L).

### **GWCC-2, at the at the waste rock seepage**

#### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during all four sampling events (June, 8.36 mg/L; July, 7.24 mg/L; August, 7.81 mg/L; September, 9.1 mg/L).

#### Hexavalent (VI) Chromium

Dissolved hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for three sampling events (June, 0.0019 mg/L; August, 0.0020 mg/L; September, 0.0024 mg/L).

Total hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.0021 mg/L; July, 0.0017 mg/L; August, 0.0022 mg/L; September, 0.0027 mg/L).

#### Iron

Total iron exceeded the CCME-FAL guideline concentration of 0.3 mg/L for the September sampling event (2.59 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00359 mg/L; July, 0.00339 mg/L; August, 0.0103 mg/L; September, 0.00410 mg/L).

Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00341 mg/L; July, 0.00324 mg/L; August, 0.0102 mg/L; September, 0.00441 mg/L).

### **GWCC-3, at the at the waste rock seepage**

#### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during all four sampling events (June, 5.17 mg/L; July, 4.23 mg/L; August, 5.39 mg/L; September, 5.22 mg/L).

### Hexavalent (VI) Chromium

Dissolved hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for the August sampling event (0.0020 mg/L).

Total hexavalent (VI) chromium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for the August sampling event (0.0017 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00149 mg/L; July, 0.00165 mg/L; August, 0.00349 mg/L; September, 0.00186 mg/L).

Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00153 mg/L; July, 0.00144 mg/L; August, 0.00297 mg/L; September, 0.00182 mg/L).

## **GWCC-4, at the waste rock seepage**

### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during all four sampling events (June, 4.26 mg/L; July, 2.19 mg/L; August, 4.78 mg/L; September, 3.67 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for three sampling events (June, 0.00101 mg/L; August, 0.00206 mg/L; September, 0.00103 mg/L). Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for two sampling events (June, 0.00104 mg/L; August, 0.00189 mg/L).

## **GWCC-5, at the Clinton Creek abandoned channel**

### Dissolved Oxygen

Dissolved oxygen concentrations were below the CCME-FAL guideline concentration of 9.5 mg/L during all four sampling events (June, 4.27 mg/L; July, 3.94 mg/L; August, 6.61 mg/L; September, 2.51 mg/L).

### Selenium

Dissolved selenium exceeded the CCME-FAL guideline concentration of 0.001 mg/L for all four sampling events (June, 0.00987 mg/L; July, 0.00769 mg/L; August, 0.0117 mg/L; September, 0.00440 mg/L).

Total selenium exceeded the CCME-FAL guideline value of 0.001 mg/L for all four sampling events (June, 0.00935 mg/L; July, 0.00742 mg/L; August, 0.0122 mg/L; September, 0.00434 mg/L).



### **3.2.3 Quality Assurance/Quality Control (QA/QC) for Water Quality Monitoring**

Three duplicate surface water samples were collected during the June sampling event, and two during each of the other three events. Two travel blanks were provided by the laboratory and accompanied the laboratory-supplied bottles and the samples throughout the sampling program. For each sampling event, one of the travel blanks was sent from Dawson to Whitehorse with samples via air freight, while the other travel blank remained with the samples in the Hemmera/ELR field vehicle for the return trip from Dawson to Whitehorse in order to capture the potential influence of both transport methods. One field blank was prepared during each of the four sampling events. Detailed results of the QA/QC sampling program are provided in **Tables 9.2-9.5**, including RPD values for duplicate and sample pairs.

#### ***3.2.3.1 June 2016 QA/QC Results for Water Quality Monitoring***

For the June program, no exceedances of 20% RPD occurred between sample and duplicate pairs; however, one detection was noted in a travel blank: a detection of Ammonia, which occurs normally from time to time in travel blanks due to the age of the water used in their preparation.

#### ***3.2.3.2 July 2016 QA/QC Results for Water Quality Monitoring***

For the July program, no exceedances of the 20% RPD occurred between sample and duplicate pairs. Ammonia was detected in both travel blanks; however, ammonia exceedances can normally occur from time to time in travel blanks due to the age of the water used in their preparation. A slight detection of total manganese was noted in the program field blank (0.00011 mg/L) compared to detection limit of 0.00010 mg/L).

#### ***3.2.3.3 August 2016 QA/QC Results for Water Quality Monitoring***

For the August program, the 20% RPD threshold exceedances were observed for several parameters. RPD exceedances occurred for dissolved arsenic (24.32%), dissolved manganese (20.41%), dissolved sodium (23.67%), total unspiciated and trivalent (III) chromium (both 31.58%), total nickel (24.34%) and total titanium (27.78%) between samples E1 and duplicate DUP-1. RPD exceedances occurred for dissolved cadmium (30.91%), dissolved molybdenum (28.78%), dissolved strontium (27.54%) and dissolved uranium (27.69%) between samples E1(H) and duplicate DUP-2. Information from the field staff suggested that there were no specific sampling factors believed to have contributed to these exceedances, but that water conditions were very high and very turbid in August; this is considered to be the most likely contributing factor. Despite this number of RPD exceedances, the actual reported concentrations were low, and do not affect the occurrence of CCME FAL exceedances for any parameter.

A slight detection of total barium was noted in in one travel blank (0.000051 mg/L compared to detection limit of 0.000050 mg/L). This detection is considered to represent a slight anomaly of data, and not a contamination issue.

#### **3.2.3.4 September 2016 QA/QC Results for Water Quality Monitoring**

For the September program one single exceedance of the 20% RPD threshold was observed for total titanium (26.32%) between sample E2 and duplicate DUP-1.

#### **3.2.3.5 Laboratory QA/QC Practice Review**

The ALS laboratory QA/QC measures were reviewed and the RPD values were within acceptable limits, or concentrations were less than five times the detection limits. The sample blank and spike analyses were also within the acceptable limits. Sample hold times were not exceeded. Therefore, the samples and duplicates are in agreement, sample integrity has been maintained and the data are considered reliable.

#### **3.2.3.6 Summary of QA/QC Program Results**

The results of the QA/QC program for the June to September water quality monitoring events showed several occurrences of RPD exceedance during the August sampling event, one exceedance in September, and none for the June and July sampling events. Similarly, only one single detection in one of the four field blanks occurred, and one single detection of a metal in one of the eight travel blanks occurred.

These results suggest the influence of heavy sediment loads on sample quality in August (believed to be due to heavy precipitation events and high waters), but not to the magnitude that the occurrence of CCME-FAL exceedances would be affected. Overall, however, the results suggest that Hemmera/ELR's field QA/QC procedures are sound and that contamination of samples during field sampling or sample transportation is not a concern.

#### **3.2.4 Hudgeon Lake In-Situ Depth Profiling**

In-situ water quality measurements were collected from three locations in Hudgeon Lake during the June through September 2016 sampling events. The results of each event were tabulated and checked and are provided in **Appendix 4**.

### **3.3 SURFACE WATER MANUAL DISCHARGE MONITORING RESULTS**

Stream discharge monitoring was completed at thirteen (13) of the prescribed 14 (fourteen) stations visited each month from June to September (**Table 1**), including two where automated discharge monitoring is also conducted. Duplicate stream crossings were successfully completed at all stations.

Discharge monitoring was not conducted at Station E9, which is a surface water station that has always been dry during monitoring events completed by Hemmera/ELR, including those monitoring events presented in this report.

Channel, velocity, and discharge measurements collected during the monitoring program are summarized in **Table 6**, below, while detailed data, calculations, and crossing profiles are attached in **Appendix 5**.

**Table 6**      **Summary of Stream Channel Characteristic and Stream Discharge Data Collected During the June to September 2016 Sampling Events.**

| Station Type                  | Station | Wetted Width (m)        |       |        |           | Mean Channel Depth (m) |      |        |           | Mean Velocity (m/s) |       |        |           | Mean Calculated Discharge (m³/s) |       |        |           |
|-------------------------------|---------|-------------------------|-------|--------|-----------|------------------------|------|--------|-----------|---------------------|-------|--------|-----------|----------------------------------|-------|--------|-----------|
|                               |         | June                    | July  | August | September | June                   | July | August | September | June                | July  | August | September | June                             | July  | August | September |
| Reference Stations            | R1      | 6.10                    | 7.80  | 7.26   | 7.24      | 0.14                   | 0.35 | 0.20   | 0.12      | 0.340               | 0.594 | 0.502  | 0.307     | 0.373                            | 1.948 | 0.844  | 0.323     |
|                               | R2      | 1.67                    | 2.43  | 2.72   | 2.30      | 0.11                   | 0.14 | 0.18   | 0.13      | 0.390               | 0.657 | 0.341  | 0.246     | 0.097                            | 0.302 | 0.224  | 0.102     |
|                               | R3      | 1.56                    | 1.83  | 2.57   | 2.6       | 0.05                   | 0.12 | 0.26   | 0.11      | 0.390               | 0.187 | 0.551  | 0.305     | 0.047                            | 0.060 | 0.377  | 0.096     |
|                               | R4      | 1.86                    | 1.92  | 2.04   | 2.19      | 0.06                   | 0.10 | 0.18   | 0.12      | 0.280               | 0.311 | 0.818  | 0.378     | 0.054                            | 0.079 | 0.355  | 0.127     |
|                               | R6      | Not included in program |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |
|                               | R7      | 0.38                    | 0.64  | 0.81   | 0.74      | 0.12                   | 0.09 | 0.21   | 0.17      | 0.012               | 0.048 | 0.101  | 0.044     | 0.001                            | 0.005 | 0.026  | 0.009     |
|                               | R8      | 0.59                    | 0.88  | 1.00   | 0.95      | 0.09                   | 0.07 | 0.11   | 0.08      | 0.008               | 0.147 | 0.164  | 0.064     | 0.001                            | 0.015 | 0.025  | 0.007     |
|                               | R9      | 0.67                    | 0.59  | 1.29   | 0.89      | 0.15                   | 0.28 | 0.10   | 0.10      | 0.024               | 0.624 | 0.288  | 0.156     | 0.003                            | 0.112 | 0.049  | 0.015     |
|                               | R11(H)  | 0.6                     | 1.79  | 1.91   | 1.4       | 0.25                   | 0.12 | 0.12   | 0.09      | 0.085               | 0.040 | 0.604  | 0.375     | 0.015                            | 0.014 | 0.175  | 0.052     |
| Exposed Stations              | E1(H)   | 10.44                   | 11.06 | 12.37  | 10.8      | 0.32                   | 0.30 | 0.34   | 0.26      | 0.140               | 0.185 | 0.238  | 0.128     | 0.635                            | 0.833 | 1.321  | 0.470     |
|                               | E3(H)   | 3.36                    | 3.68  | 5.89   | 4.03      | 0.09                   | 0.10 | 0.14   | 0.09      | 0.165               | 0.191 | 0.502  | 0.337     | 0.054                            | 0.075 | 0.572  | 0.154     |
|                               | E4      | 6.2                     | 6.35  | 9.72   | 6.9       | 0.17                   | 0.19 | 0.37   | 0.22      | 0.700               | 0.561 | 0.601  | 0.431     | 0.845                            | 0.788 | 2.097  | 0.759     |
|                               | E7      | 4.10                    | 12.74 | 13.44  | 8.19      | 0.33                   | 0.31 | 0.41   | 0.21      | 0.590               | 0.297 | 0.468  | 0.473     | 0.982                            | 1.408 | 3.483  | 1.083     |
|                               | E8      | Not included in program |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |
|                               | E9      | Dry                     | Dry   | Dry    | Dry       | Dry                    | Dry  | Dry    | Dry       | Dry                 | Dry   | Dry    | Dry       | Dry                              | Dry   | Dry    | Dry       |
| Groundwater Seepages and Pits | GWCC-1  | Not included in program |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |
|                               | GWCC-2  |                         |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |
|                               | GWCC-3  |                         |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |
|                               | GWCC-4  |                         |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |
|                               | GWCC-5  | 0.9                     | 1.94  | 2.20   | 0.9       | 0.02                   | 0.03 | 0.05   | 0.04      | 0.106               | 0.059 | 0.039  | 0.033     | 0.003                            | 0.005 | 0.008  | 0.003     |
|                               | SL      | Not included in program |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |
|                               | PL      | Not included in program |       |        |           |                        |      |        |           |                     |       |        |           |                                  |       |        |           |

### 3.4 AUTOMATED DISCHARGE MONITORING

#### 3.4.1 Hudgeon Lake (E1[H])

Stage data (metres of water above the pressure sensor) from the Hudgeon Lake PS were reviewed for the period January 24, 2016 to September 20, 2016 (the date that manual discharge measurements were collected in September at station E1(H)). Although PS stage data for the winter were reviewed and presented, these data were not included in discharge calculations because the weight of the ice cover on the lake can create pressure that causes PS readings to be unreliable for the winter period (changes the stage discharge relationship during this period). April 15 was chosen by Hemmera/ELR as a reasonable start for discharge calculations based on a review of the PS water temperature data, and observations of open water and ice conditions from photos available from the on-site cameras. For the reviewed data, the maximum and minimum stages at Hudgeon Lake were 1.134 m (April 28) and 0.462 m (April 1), respectively. The mean stage over the same period was 0.628 m (Standard Deviation [SD] =  $\pm 0.145$  m).

The water temperature for Hudgeon Lake was reviewed for the period of January 24 (the date since the previous reported download) to September 24, 2016. The maximum water temperature at Hudgeon Lake between January 24, 2016 and September 24, 2016 was 22.2°C (July 15, 2016). The minimum water temperature for the same period was 0.2°C, recorded on 21 separate days between February 9 and April 11, 2016, with a mean water temperature for the same period of 7.7°C (SD= $\pm 6.9$ °C). No gaps in the PS data were noted by Hemmera/ELR from Station E1(H). Both stage and temperature data are presented in **Figure 4**.

The stage-discharge relationship for Clinton Creek (which flows from Hudgeon Lake) is presented in **Figure 5**. The relationship was developed from the PS stage data, staff gauge readings and manual discharge measurements collected during four separate months (June to September). A linear relationship was found to best describe the stage-discharge relationship for the available data because the PS and the staff gauge are recording stage in Hudgeon Lake, rather than directly in Clinton Creek (Chubak and McGinn 2002). The regression coefficient ( $R^2$ ) was 0.9845 (based on four data points). To calculate the Clinton Creek discharge at a point in time between June and September from the stage data the following function was used, generated from the best fit linear curve.

$$y = 6.8827x - 3.6985$$

Where: y = creek discharge ( $\text{m}^3/\text{s}$ )

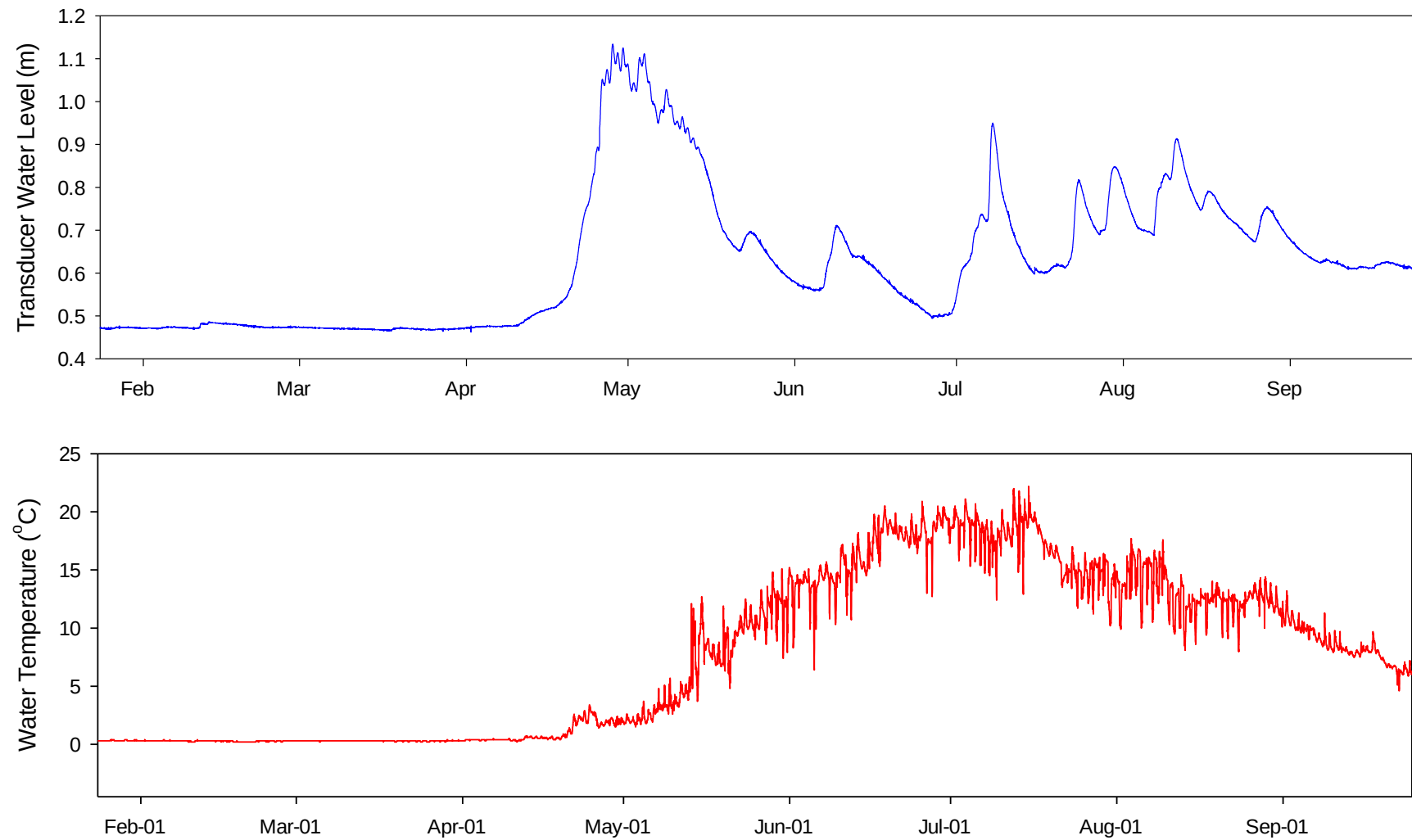
x = recorded water depth over PS (m)

It can be noted in **Figure 5** that the data point from January 2016 was not included at this point in the stage discharge relationship due to the fact that the relationship may be different during winter months, and not enough winter data points are available during that period to define that relationship. Data points for 2015 were also plotted and do not match the 2016 data. There are believed to be two potential

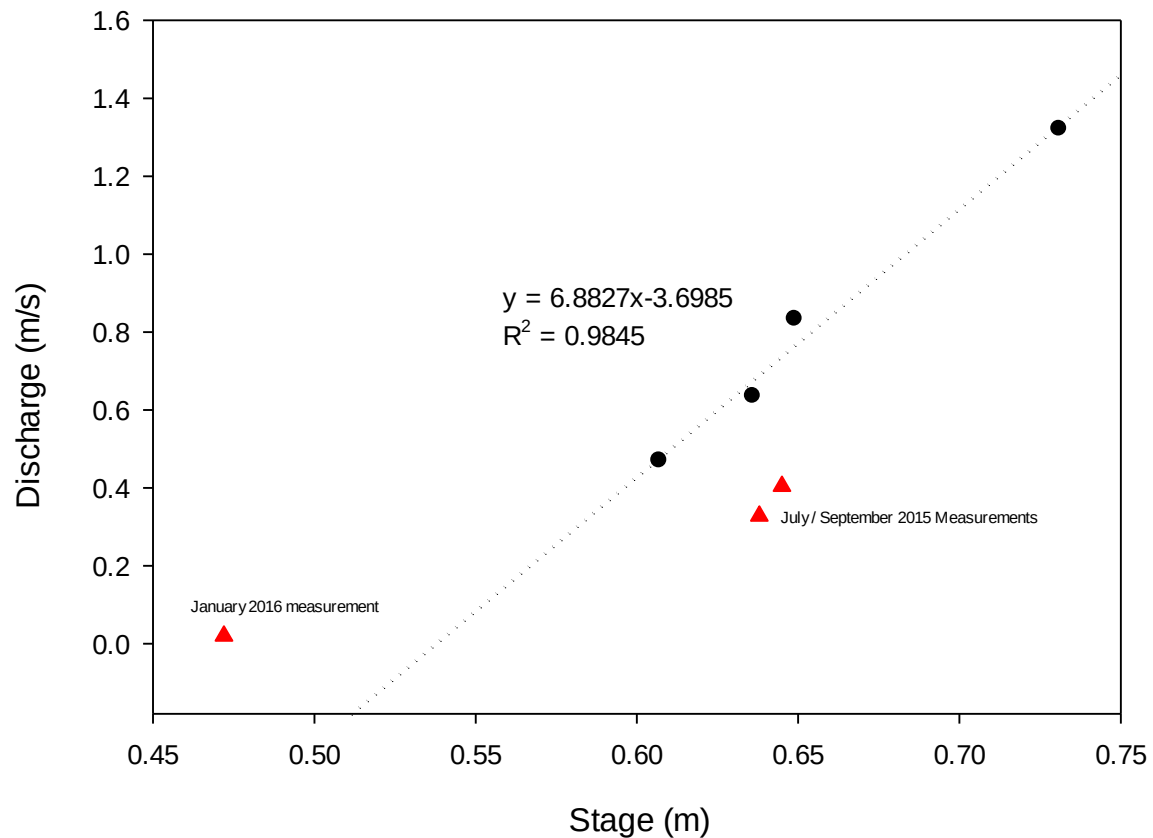
explanations for this: the outlet into Clinton Creek was modified as a result of construction works or natural processes, or some instrumentation shifted during that time period. The former is suspected; however, at this point there are not enough data to define a separate relationship for those data.

Calculated discharge values for the period of April 15 to September 24, 2016 are presented in **Figure 6**. Although the calculated discharge values were very similar to the manual discharge values (between 0.5 and 6.5 RPD) and the stage discharge relationship appears to be predicting discharge values very well for moderate stage levels, the stage discharge relationship still does not provide accurate predictions at low and high stage levels due to a lack of manual readings at these levels (e.g., fall low flow and during freshet). This is because additional calibration points at these levels are still needed to build a more reliable relationship.



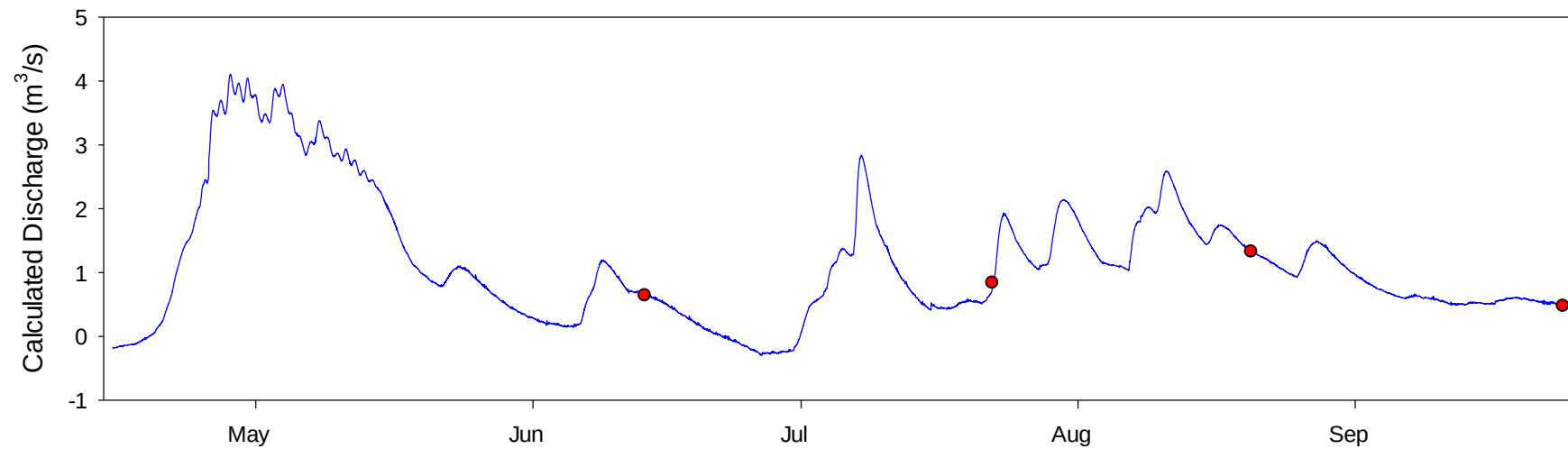


**Figure 4** Plots of Water Level (stage) and Water Temperature as Read from the Hudgeon Lake PS, January 24 to September 24, 2016



**Notes:** Black points represent manual stage/discharge measurements used in the relationship development. Red triangular points represent additional unused stage discharge measurements that are shown for comparative purposes only.

**Figure 5 Stage Discharge Relationship for Clinton Creek at the Hudgeon Lake Outlet**



**Figure 6** Calculated Discharge Measurements for Clinton Creek at the Outlet of Hudgeon Lake. Corresponding Manual Discharge Measurements are Shown in Red.

### 3.4.2 Wolverine Creek (E3[H])

Stage data from the Wolverine Creek PS and datalogger were reviewed for the period of January 24, 2016 to September 20, 2016 (the date of the September manual discharge event). Although PS stage data for the winter were reviewed and presented, these data were not included in discharge calculations because the weight of the ice cover can create pressure that causes PS readings to be unreliable for the winter period. April 1 was chosen by Hemmera/ELR as a reasonable start based on the daily creek water temperature changes and the start of a steady rise in water depths observed in the stage data. Both stage data and water temperature for Wolverine Creek are presented in **Figure 7**. Stage data and temperature data are complete for the periods stated above.

For the reviewed data, the maximum and minimum stages at Wolverine Creek were 0.624 m (April 24) and 0.069 m (March 21), respectively. The mean stage over the same period was 0.200 m (SD =  $\pm 0.099$  m).

The maximum water temperature at Wolverine Creek between January 20, 2016 and September 20, 2016 was 16.0°C (July 13). The minimum water temperature for the same period of record was -0.2°C (February 3). The mean water temperature for the same period of record was 3.7°C (SD =  $\pm 3.9$  °C).

The stage-discharge relationship for Wolverine Creek is presented in **Figure 8**. The relationship was developed from the PS stage data, staff gauge readings and six manual discharge measurements collected in 2015 and 2016. The regression coefficient ( $R^2$ ) was 0.9919 (based on six data points). To calculate the Wolverine Creek discharge at a point in time between June and September 2016 from the stage data the following function was used, generated from the best fit exponential curve.

$$y = 0.0004e^{14.285x}$$

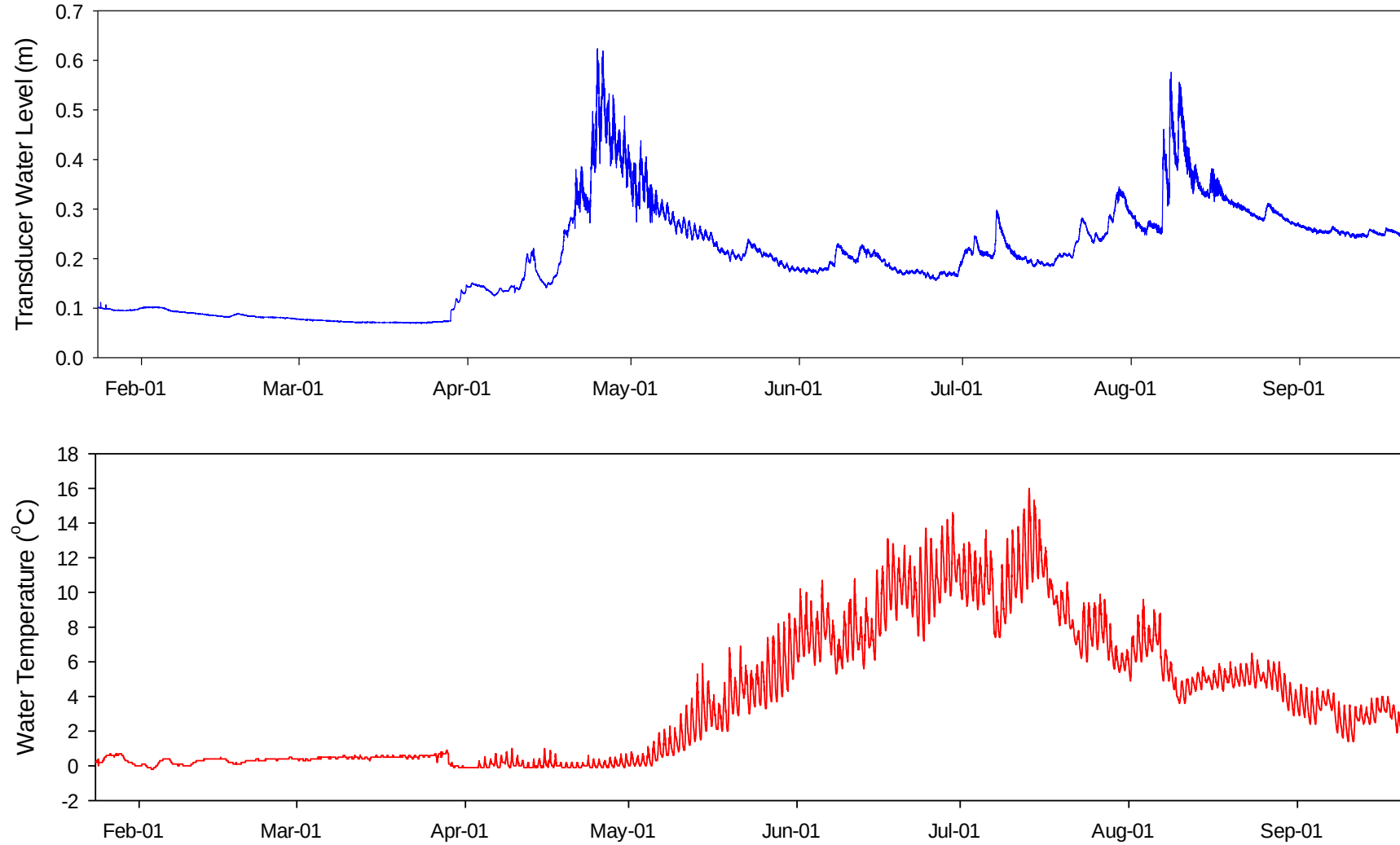
Where: y = creek discharge (m<sup>3</sup>/s)

e = base of the natural logarithm (2.71828)

x = recorded water depth over PS (m)

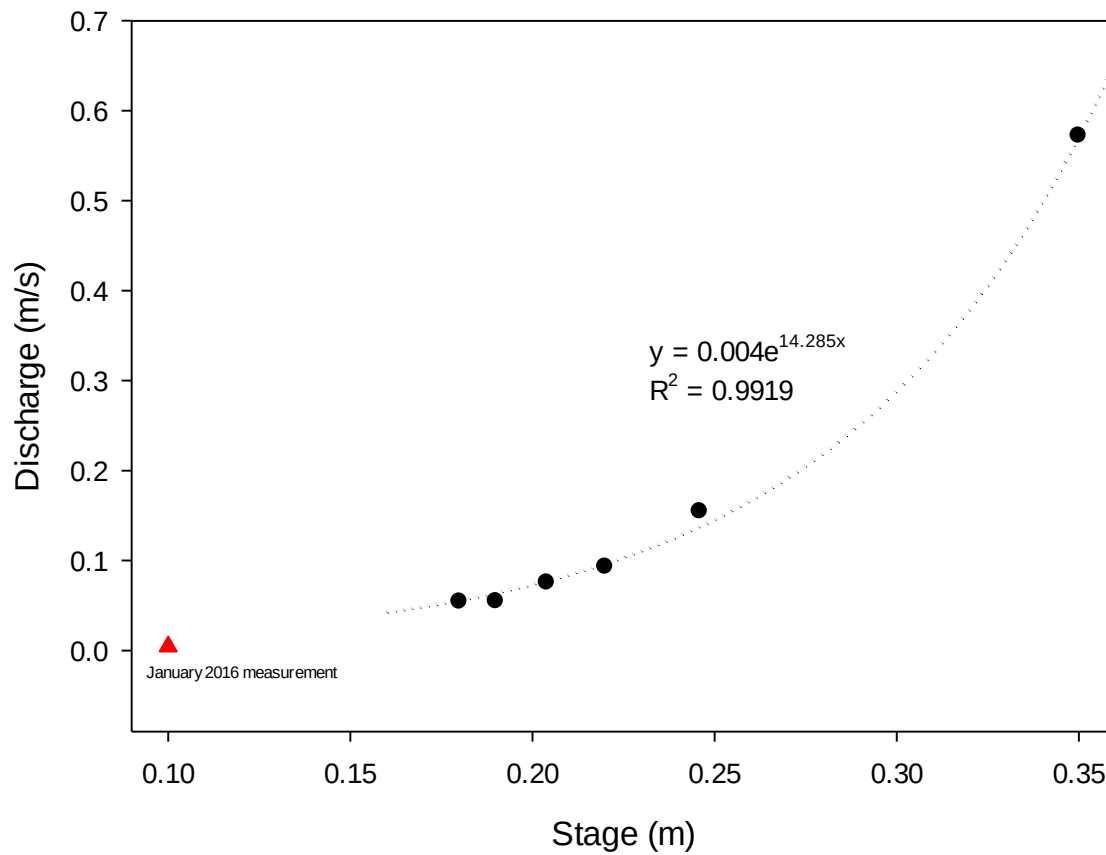
It can be noted in **Figure 8** that the data point from January 2016 was not included at this point in the stage discharge relationship. Although it appears as though it would fit with the other data, was not included because the relationship may be different during winter months, and not enough winter data points are available to define a relationship for that period. Data points for 2015 and 2016 fit the relationship well, suggesting that no significant changes to the channel occurred from one year to the next.

Calculated discharge values for the period of April 11 to September 20, 2016 are presented in **Figure 9**. Although the calculated discharge values were very similar to the manual discharge values (between 1.6 and 6.8 RPD) and the stage discharge relationship appears to be predicting discharge values very well for low to moderate stage levels, the stage discharge relationship still does not provide accurate predictions at higher stage levels (due to a lack of manual readings at these levels). Additional calibration points at high flow levels are still needed to build a more reliable relationship.



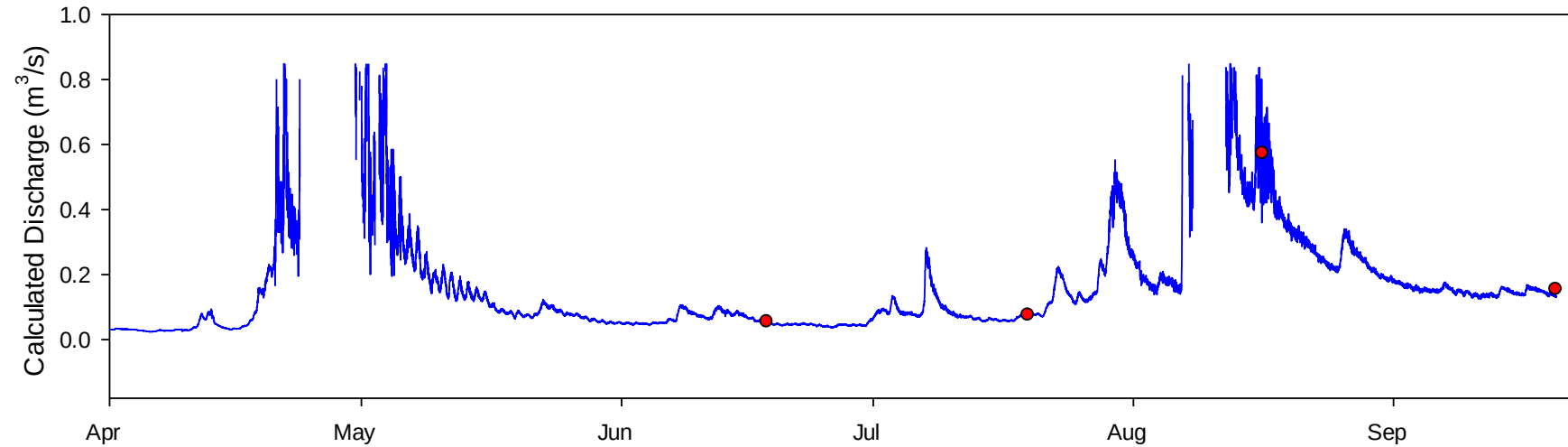
**Figure 7** Plots of Water Level (Stage) and Water Temperature as Read from the Wolverine Creek PS from January 24 to September 20, 2016





**Notes:** Black points represent manual stage/discharge measurements used in the relationship development. Red triangular points represent additional unused stage discharge measurements that are shown for comparative purposes only.

**Figure 8 Stage Discharge Relationship for Wolverine Creek**



**Note:** Discharges were not calculated (peak areas missing) for high water elevations as the model was found to overestimate when extrapolating beyond the range of collected data.

**Figure 9** Calculated Discharge Measurements for Wolverine Creek at Station E3(H). Corresponding Manual Discharge Measurements are Shown in Red.

### 3.4.3 Snowshoe Pit Lake Water Levels

The data for the Snowshoe Pit lake water levels and site observations indicate that the water level fluctuates widely from being almost dry (June 2016) to being in flood (August and September 2016). **Table 7** presents the water level readings from the 1 m staff gauge. When the water levels were below the bottom of the staff gauge, the water level elevation was surveyed relative to the top of the staff gauge and the equivalent staff gauge reading was calculated. During the August 2016 monitoring event the water levels were observed to be high enough to spill over a beaver dam. The water flowed through a channel in a northerly direction towards surface water station E9 but then went to ground before reaching E9.

**Table 7 Snowshoe Pit Lake Staff Gauge Readings**

| Month / Year   | Staff Gauge Reading (m) or Equivalent | Notes                                                   |
|----------------|---------------------------------------|---------------------------------------------------------|
| July 2015      | 0.375                                 |                                                         |
| October 2015   | -0.501                                | Water level below the bottom of the staff gauge         |
| June 2016      | -0.802                                | Water level below the bottom of the staff gauge         |
| July 2016      | -0.394                                | Water level below the bottom of the staff gauge         |
| August 2016    | 1.200                                 | Estimated. Water level above the top of the staff gauge |
| September 2016 | 0.990                                 | Photo of staff gauge used to obtain reading             |

### 3.4.4 QA/QC for Automated Discharge Monitoring

The stage-discharge relationships created for this report are based on a limited number manual discharge data collection events (six for Wolverine Creek and four for Clinton Creek). Continued data collection events in different seasons (including freshet) are required to improve confidence levels in the stage-discharge relationship.

During the sampling and monitoring events, instrument heights at Hudgeon Lake and Wolverine Creek (PS housings and staff gauges) were surveyed against benchmarks established in July, 2015. The comparison is done in order to check whether instruments (or possibly benchmarks) may have moved over time, which could affect data calculations and interpretation. A difference between the two readings of more than 3 mm (0.003 m) may indicate that either the instruments or the benchmarks had moved, or that survey error occurred and that corrective action should be investigated.

#### 3.4.4.1 Hudgeon Lake [E1(H)]

The June to September 2016 monthly survey data for at E1(H) were very consistent with variations of less than 3 mm between each of the months (**Appendix 6**). When these data are compared to survey data collected in July 2015 (when the hydrometric station and the first two benchmarks were installed) the data indicate differences of up to 83 mm (between Benchmark #1 and Benchmark #2), and up to 193 mm

(between the top of the staff gauge and Benchmark #1; **Appendix 6**). No obvious on-site evidence of these differences or movements was observed, and so a third benchmark (Benchmark #3) was installed on site in July 2016 to allow additional data to be collected to understand which benchmark or instrument was shifting, if any; or if survey error had occurred. Additional survey data need to be collected, preferably during snow-free conditions, in order to establish whether on-site conditions have changed since July 2015. It should be noted that earlier survey anomalies do not affect hydrometric data collected in 2016.

#### **3.4.4.2 Wolverine Creek [E3(H)]**

The surveyed instrument elevation differences at E3(H) were reviewed. The June to September 2016 monthly survey data were very consistent with variations of less than 3 mm between each of the months (**Appendix 6**). When these data are compared to survey data collected in July 2015 (when the hydrometric station and the first two benchmarks were installed) the data indicate differences of up to 24 mm (between the top of the staff gauge and Benchmark #2 (**Appendix 6**)). There seemed to be no obvious on-site evidence of this difference and so a third benchmark (Benchmark #3) was installed in September of 2016 to allow additional data to be collected to understand which benchmark or instrument was shifting, if any; or if survey error had occurred. Additional survey data need to be collected, preferably during snow-free conditions, in order to establish whether on-site conditions have changed since July 2015. It should be noted that earlier survey anomalies do not affect hydrometric data collected in 2016.

#### **Snowshoe Pit Lake**

The June to September 2016 monthly survey data were very consistent with variations of less than 3 mm between each of the months (**Appendix 6**). When these data were compared to survey data collected in July 2015 (when the staff gauge and two benchmarks were installed) the data also indicate differences of less than 3 mm.

### **3.5 METEOROLOGICAL DATA**

Meteorological station (MS) data were downloaded and are reported for the period of February 1, 2015 (the first date since the last reported meteorological data) to September 30, 2016. Hemmera/ELR found that the reporting period for all the data parameters were complete but rainfall, snow depth and barometric pressure data contain anomalous data. Each recorded parameter is discussed further below.

#### **3.5.1 Ambient Air Temperature**

Hourly and daily air temperatures were recorded at the MS for the period of February 1, 2016 to September 30, 2016. Hourly mean air temperatures for the reporting period are shown in **Figure 10**. The temperatures are within an expected range and no anomalous data were observed. The maximum mean hourly air temperature recorded by the MS for the reporting period was 28°C on July 13 at 7:00 pm and the minimum temperature recorded was -32.9°C on February 19 at 9:00 am (**Figure 10**). The mean temperature for the reporting period was 4.8°C (Standard Deviation [SD] = ±11.7°C).

### 3.5.2 Relative Humidity

Relative humidity indicates the amount of water vapour in the air relative to the total amount of water vapour that could be present at the same temperature and is usually reported as a percentage. Higher percentages indicate more water vapour. Hourly and daily relative humidity data were recorded at the MS for the period February 1, 2016 to September 30, 2016. Mean hourly relative humidity data for the reporting period are presented in **Figure 10**. No anomalous data were observed. The maximum hourly mean relative humidity recorded by the MS over the reporting period was 96.4%, recorded on April 11 at 8:00 and 9:00 am. The lowest hourly mean humidity recorded was 12.7%, recorded on June 18 at 8:00 pm. The mean relative humidity for the reporting period was 68.7% (SD=  $\pm 20.22\%$ ).

### 3.5.3 Barometric Pressure

Barometric pressure (BP) is the pressure of air exerted by the earth's atmosphere at any given location. At the Clinton Creek MS, barometric pressure is recorded in millibars (mbar), where greater atmospheric pressure correlates to a higher number of mbars. Mean hourly BP was recorded at the MS for the period of February 1, 2016 to September 30, 2016 (**Figure 10**). One anomalous datum was observed and removed before any calculations were completed. The maximum BP recorded for the reporting period was 982 mbar (September 30). The minimum BP recorded for the same period was 930 mbar (September 22) and the mean for the whole reporting period was 958 mbar (SD=  $\pm 7.8$  mbar). Barometric pressure is discussed further in **Section 3.5.7**.

### 3.5.4 Rainfall

A rain gauge at the MS records hourly mean rainfall in millimetres (mm). Mean hourly rainfall was recorded at the MS for the period of February 1, 2016 to September 30, 2016 (**Figure 8**). The maximum mean hourly rainfall recorded during the reporting period was 23.3 mm on August 6 at 6:00 pm. The minimum mean hourly rainfall recorded for the reporting period was 0 mm which accounted for approximately 93.1% of the entire reporting period. The total recorded rainfall for the entire reporting period was 271.7 mm. These data are discussed further in **Section 3.5.7**.

### 3.5.5 Snow Depth

The snow sensor at the MS records snow depth in centimetres (cm). Mean hourly snow depth was recorded at the MS for the period of February 1, 2016 to September 30, 2016 (**Figure 10**). The snow depth data set for the reporting period is complete but contains a number of anomalies (discussed in **Section 3.5.7**). With the anomalous data removed the maximum mean hourly snow depth recorded during the reporting period was 71.3 cm (February 3). Mean hourly snow depths of less than 1 cm accounted for 57% of the data set (with anomalous data removed).

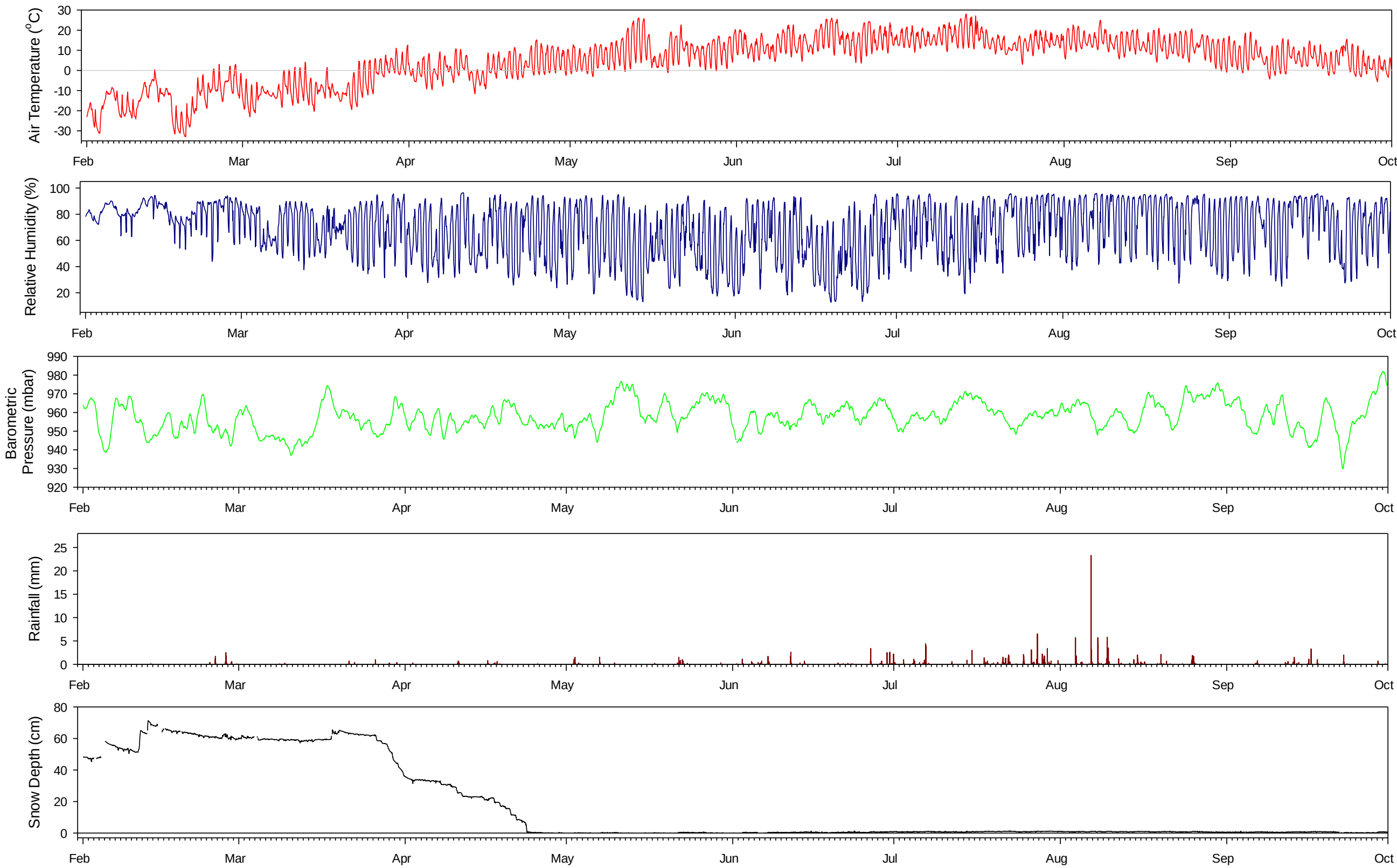


Figure 10 Temperature, Relative Humidity, Barometric Pressure, Rainfall and Snow Depth Data from the Clinton Creek Meteorological Station, February 1 2016 to September 30, 2016



### 3.5.6 Wind Speed and Direction

Mean hourly wind speed data, wind direction and frequency were recorded by the MS for the period of February 1, 2016 to September 30, 2016. The data set were complete and any periods of zero wind speed were less than a day in duration. The maximum mean hourly wind speed recorded at the MS was 7.78 m/s (about 28 kilometres per hour [km/h]), recorded on April 30 at 4:00 pm. The lowest recorded mean hourly wind speed was 0 m/s, recorded on 11 separate days between February 1 and June 1. The overall mean hourly wind speed (for the entire reporting period) was 1.77 m/s (SD=±1.17 m/s).

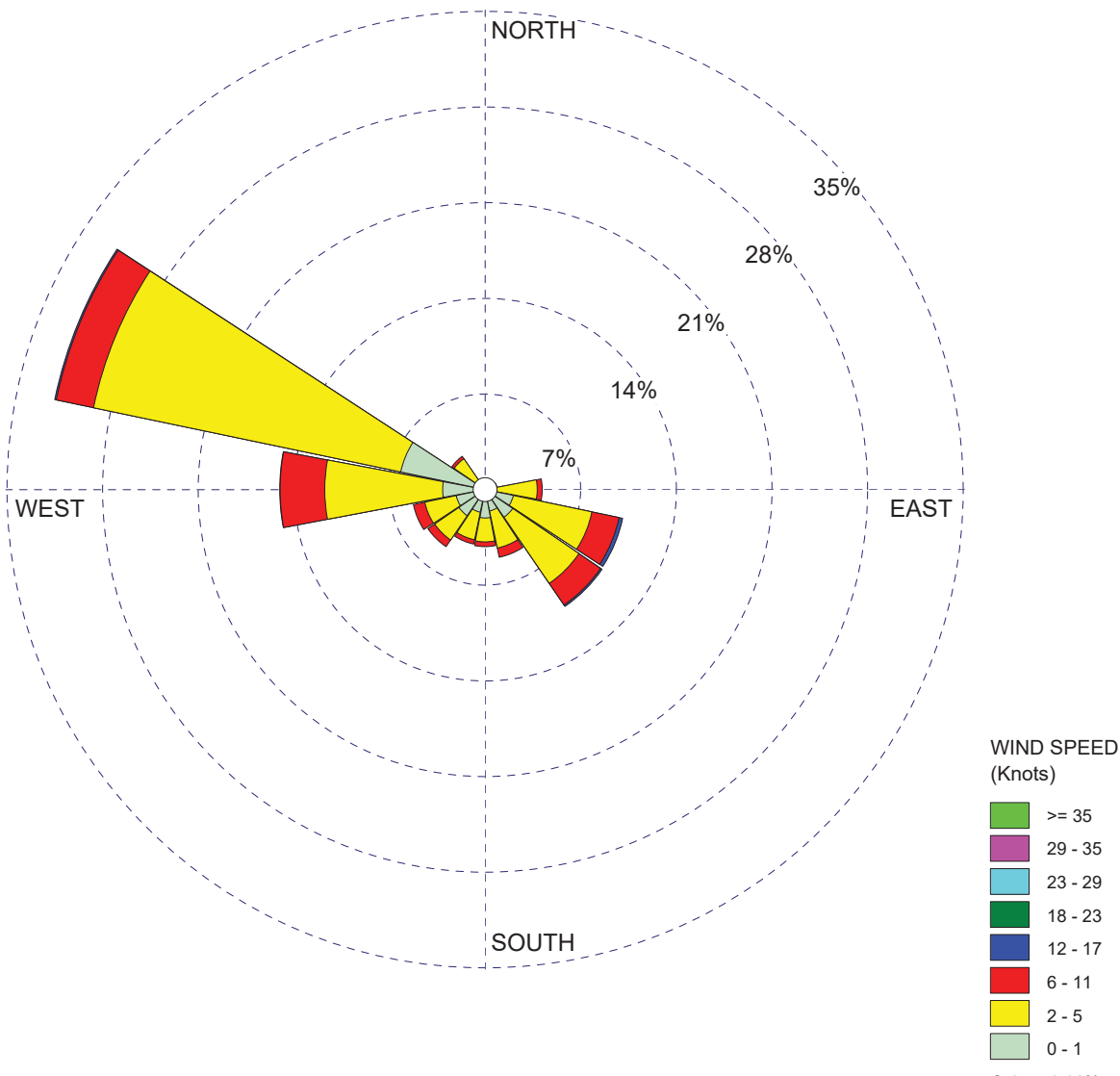
A wind rose for the entire reporting period is presented in **Figure 11**, and the tabulated wind speed and direction frequency for the same period is presented in **Table 8**. The wind direction data were complete and indicate that about 52% of the recorded winds were from a westerly direction with speeds ranging from less than 1 to 22.9 m/s (**Figure 11**; **Table 8**).

**Table 8      Frequency of Wind Direction and Speed Classes from February 1, 2016 to September 31, 2016**

|                 |   | Wind Classes (m/s) |           |           |           |            |             |             |         |           |
|-----------------|---|--------------------|-----------|-----------|-----------|------------|-------------|-------------|---------|-----------|
| Wind Directions |   | 0.0 - 1.0          | 1.0 - 3.0 | 3.0 - 6.0 | 6.0 - 9.0 | 9.0 - 12.0 | 12.0 - 15.0 | 15.0 - 18.0 | >= 18.0 | Total (%) |
| N               | % | 0.0                | 0.0       | 0.0       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 0.0       |
| NNE             | % | 0.0                | 0.1       | 0.1       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 0.1       |
| NE              | % | 0.0                | 0.3       | 0.1       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 0.4       |
| ENE             | % | 0.1                | 0.7       | 0.1       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 0.9       |
| E               | % | 0.8                | 3.0       | 0.4       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 4.2       |
| ESE             | % | 2.1                | 5.9       | 2.0       | 0.3       | 0.0        | 0.0         | 0.0         | 0.0     | 10.3      |
| SE              | % | 2.5                | 5.8       | 1.9       | 0.1       | 0.0        | 0.0         | 0.0         | 0.0     | 10.3      |
| SSE             | % | 1.6                | 2.8       | 0.7       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 5.1       |
| S               | % | 2.1                | 1.7       | 0.3       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 4.2       |
| SSW             | % | 1.7                | 2.1       | 0.3       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 4.1       |
| SW              | % | 2.3                | 2.1       | 0.6       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 5.1       |
| WSW             | % | 2.2                | 2.3       | 0.9       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 5.4       |
| W               | % | 3.1                | 8.6       | 3.3       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 15.0      |
| WNW             | % | 6.3                | 22.9      | 2.8       | 0.1       | 0.0        | 0.0         | 0.0         | 0.0     | 32.0      |
| NW              | % | 0.8                | 1.9       | 0.2       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 2.9       |
| NNW             | % | 0.0                | 0.0       | 0.0       | 0.0       | 0.0        | 0.0         | 0.0         | 0.0     | 0.0       |
| Sub-Total       | % | 25.6               | 60.3      | 13.6      | 0.5       | 0.0        | 0.0         | 0.0         | 0.0     | 100.0     |
| Total           |   |                    |           |           |           |            |             |             |         | 100       |

WIND ROSE PLOT: Clinton Creek  
 Clinton Creek, YT  
 Wind Rose. February 1, 2016 to September 30, 2016

DISPLAY:  
 Wind Speed  
 Direction (blowing from)



1 m/s equals 3.6 km/h.

DATA PERIOD:

Start Date: 2/1/2016 - 00:00  
 End Date: 9/30/2016 - 23:00

COMPANY NAME: Hemmera / ELR Ltd.

Hemmera / ELR Ltd.

MODELER:

GMR

Wind Rose Plot for the  
 Period of February 1 to  
 September 30 2016

TOTAL COUNT:

5830 hrs.

DATE:

1/31/2017

 HEMMERA

PROJECT NO.: 1343-005.20

Figure 11

### 3.5.7 QA/QC for Meteorological Data

Where meteorological data were outside expected ranges or where anomalous data were suspected to be present (e.g., sharp spikes in a graph or values), alternate regional or local meteorological data were reviewed (e.g., Environment Canada data, and/or Government of Yukon, Wildland Fire data, other on-site data). After reviewing the February 1, 2016 to September 30, 2016 MS data, the following parameters were investigated further.

#### **Rainfall**

Approximately 4.0 mm of rain was recorded at the MS when ambient air temperatures were below 0°C during the period of record. It is possible that these data represent snow rather than rainfall. Hemmera/ELR understands that the rain gauge is not fitted with a snowfall adapter, nor is the gauge an all-weather precipitation gauge; therefore, the rainfall data during the colder months of the year may not be representative of actual precipitation (rain and snow).

For August 6, 2016, 27.9 mm of rainfall was recorded by the rain gauge, which represented a noticeable spike in the data (**Figure 10**). Also, 23.3 mm of the daily total was recorded within one hour at 6:00 pm. Rainfall data from the Government of Yukon Wildland Fire Management meteorological station (40 Mile station), located approximately 11 km southeast of the Clinton Creek MS, were reviewed. The total corresponding rainfall recorded by the wildland fire meteorological station for the same day was 1.5 mm. The highest hourly mean precipitation recorded at the Wildland Fire MS between January 1 and September 30, 2016 was 11.2 mm (June 26).

Monthly total precipitation values for the Clinton Creek MS and the Wildland Fire MS were reviewed for June, July and August 2016 and the totals were found to be comparable (**Table 9**).

**Table 9 Rainfall Comparison Between Meteorological Stations for June, July and August 2016**

| Meteorological Station                          | 2016 Precipitation (mm) |      |        |
|-------------------------------------------------|-------------------------|------|--------|
|                                                 | June                    | July | August |
| Clinton Creek Site                              | 34.3                    | 82.8 | 92.3   |
| 40 Mile (Wildland Fire Management) <sup>A</sup> | 55.3                    | 76.4 | 100.5  |

<sup>A</sup> Located approximately 11 km southeast of the Clinton Creek MS

The hydrographs generated from data recorded at the hydrometric stations for both Wolverine Creek and Clinton Creek show spikes in water levels between August 8 to August 12, indicating that there was high precipitation in the days preceding that period, which then took a few days to move through the system as both groundwater and surface runoff.

The comparative data reviews indicate that Clinton Creek can receive high localized precipitation over short periods of time (less than a few hours) but that total precipitation over longer periods (e.g., weeks and months) is comparable to other regional data. There is no reason to believe that the Clinton Creek MS rain gauge is not functioning correctly during periods when ambient air temperatures are above 0°C, and therefore the high precipitation event on August 6, 2016 was not removed from the data set.

### ***Snow Depth***

Negative snow depth values (e.g., -238.0 cm) were recorded at the Clinton Creek MS for approximately 8% of the period of record and three mean hourly snow depths of 173.4 cm were recorded on February 3, 2016. In addition, 25.1 cm of snow was recorded on June 1 at 5:00 pm only. The very high snow depth values are not considered to be correct and this assumption is backed up by the negative value (-193.9 cm) immediately before the three high values and a more realistic value (47.8 cm) immediately following the three values. All the anomalous values were removed from the data set before any calculations were performed. It is not known what may be causing the anomalous values to occur and it will likely be necessary to discuss the data with the snow sensor manufacturer and/or installer.

### ***Barometric Pressure***

One anomalous reading of 600 mbar was recorded by the MS on June 1 at 5:00 pm only, which coincides with the June 2016 anomalous snow depth datum. The data recorded in the hours immediately before and after the datum point are higher (i.e., 944 and 945 mbars) and fit with the overall data trend for the rest of the period of record. It is not known why the anomalous datum occurred. The anomalous data point was removed before the mean barometric pressure was calculated.

## **4.0 RECOMMENDATIONS**

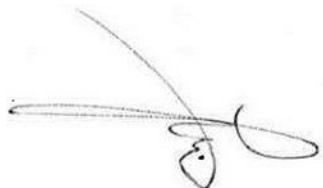
Hemmera/ELR have prepared the following recommendations based on the observations and results of the June to September 2016 water quality and hydrological monitoring program:

1. In order to prevent potentially absent and anomalous data between rainfall and snow fall and to ensure precipitation data are captured throughout the year, an all-weather precipitation gauge could be installed at the Clinton Creek site MS. It should be noted that this type of gauge would have a higher maintenance cost, due to the need to change fluids at least once per year.
2. In order to qualify readings from the snow depth sensor, a manual snow depth gauge could be installed near the MS, and could be read when staff are on-site to provide QA/QC of depth sensor data.
3. Continue to collect seasonal manual stream gauging data to build the stage discharge relationship for the automated discharge stations. In particular, it is critical to visit the Site at times of high flow to properly establish the stage-discharge relationship confidence for higher stage values. Capturing freshet in 2017 is considered to be of high value.
4. Check all the PS and related instrumentation and benchmarks for looseness or signs of movement during snow-free conditions and continue to collect survey data.
5. Communicate with the snow sensor manufacturer or installer regarding the anomalous snow depth data recorded at the meteorological station to see if sensor maintenance, calibration or replacement is required.

## 5.0 CLOSURE

Hemmera/ELR are pleased to provide the Government of Yukon, Assessment and Abandoned Mines this report that summarizes the Winter 2016 water quality and hydrological monitoring program at the Clinton Creek Site. Please do not hesitate to contact us should you have any questions regarding this report.

Sincerely,  
Written by:  
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## 6.0 REFERENCES

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Government of Yukon (YG). 2007. Acts and Regulations: Waters Act O.I.C 2003/58. Accessed online at: [http://www.gov.yk.ca/legislation/acts/waters\\_c.pdf](http://www.gov.yk.ca/legislation/acts/waters_c.pdf) October 2013.

## 7.0 PERSONAL COMMUNICATIONS

Government of Yukon, 2016. Personal communication with Michael Smith, Meteorologist, Wildland Fire Management. March 24, 2016.



## **TABLES**



Table 9.1: Analytical Chemistry Data

| Parameter                      | Station Type   |                             | Reference Stations |            |            |            |              |            |            |            |                 |            |            |            |             |            |            |            |                  |            |            |            |                 |            |            |            |
|--------------------------------|----------------|-----------------------------|--------------------|------------|------------|------------|--------------|------------|------------|------------|-----------------|------------|------------|------------|-------------|------------|------------|------------|------------------|------------|------------|------------|-----------------|------------|------------|------------|
|                                | Watercourse    |                             | Clinton Creek      |            |            |            | Easter Creek |            |            |            | Wolverine Creek |            |            |            | Eagle Creek |            |            |            | Forty Mile River |            |            |            | Porcupine Creek |            |            |            |
|                                | Station ID     |                             | R1                 |            |            |            | R2           |            |            |            | R3              |            |            |            | R4          |            |            |            | R6               |            |            |            | R7              |            |            |            |
|                                | Date Sampled   |                             | 16/06/2016         | 23/07/2016 | 19/08/2016 | 23/09/2016 | 16/06/2016   | 23/07/2016 | 19/08/2016 | 23/09/2016 | 17/06/2016      | 19/07/2016 | 16/08/2016 | 20/09/2016 | 15/06/2016  | 21/07/2016 | 18/08/2016 | 22/09/2016 | 18/06/2016       | 22/07/2016 | 18/08/2016 | 22/09/2016 | 17/06/2016      | 20/07/2016 | 17/08/2016 | 21/09/2016 |
|                                | ALS Work Order |                             | L1785857           | L1803696   | L1816799   | L1834129   | L1785857     | L1803696   | L1816799   | L1834129   | L1785857        | L1802392   | L1816106   | L1833355   | L1785001    | L1803696   | L1816799   | L1834129   | L1785857         | L1803696   | L1816799   | L1834129   | L1785857        | L1802392   | L1816106   | L1833355   |
|                                | Units          | CCME-FAL <sup>1,2,3,4</sup> | Good               | Good       | Good       | Good       | Good         | Good       | Good       | Good       | Good            | Good       | Good       | Good       | Good*       | Good*      | Good*      | Good*      | Good             | Good*      | Good*      | Good*      | Good            | Good       | Good       | Good       |
| Totals Metals                  |                |                             |                    |            |            |            |              |            |            |            |                 |            |            |            |             |            |            |            |                  |            |            |            |                 |            |            |            |
| Aluminum (Al)-Total            | mg/L           | Varies <sup>8</sup>         | 0.175              | 5.07       | 1.79       | 0.0901     | 0.109        | 4.60       | 1.16       | 0.0740     | 1.93            | 3.08       | 5.77       | 0.705      | 0.365       | 1.55       | 8.01       | 0.834      | 0.149            | 2.54       | 1.94       | 0.168      | 0.470           | 1.93       | 3.45       | 1.75       |
| Aluminum CCME-FAL              | mg/L           | -                           | 0.1000             | 0.1000     | 0.1000     | 0.1000     | 0.1000       | 0.1000     | 0.1000     | 0.1000     | 0.1000          | 0.1000     | 0.1000     | 0.1000     | 0.1000      | 0.10000    | 0.1000     | 0.1000     | 0.1000           | 0.1000     | 0.1000     | 0.1000     | 0.1000          | 0.1000     | 0.1000     | 0.1000     |
| Antimony (Sb)-Total            | mg/L           | -                           | 0.00023            | 0.00069    | 0.00040    | 0.00022    | 0.00047      | 0.00053    | 0.00057    | 0.00041    | 0.00029         | 0.00041    | 0.00056    | 0.00020    | 0.00040     | 0.00047    | 0.00162    | 0.00046    | 0.00012          | 0.00018    | 0.00018    | 0.00014    | 0.00022         | 0.00031    | 0.00037    | 0.00033    |
| Arsenic (As)-Total             | mg/L           | 0.005                       | 0.00066            | 0.00547    | 0.00205    | 0.00074    | 0.00091      | 0.00415    | 0.00208    | 0.00099    | 0.00194         | 0.00347    | 0.00473    | 0.00124    | 0.00185     | 0.00410    | 0.0119     | 0.00293    | 0.00061          | 0.00201    | 0.00160    | 0.00063    | 0.00141         | 0.00268    | 0.00348    | 0.00232    |
| Barium (Ba)-Total              | mg/L           | -                           | 0.0505             | 0.162      | 0.107      | 0.0641     | 0.0476       | 0.170      | 0.0761     | 0.0530     | 0.117           | 0.172      | 0.271      | 0.0817     | 0.0660      | 0.116      | 0.385      | 0.115      | 0.0352           | 0.0774     | 0.0687     | 0.0461     | 0.0778          | 0.163      | 0.165      | 0.117      |
| Beryllium (Be)-Total           | mg/L           | -                           | <0.000020          | 0.000167   | 0.000085   | <0.000020  | <0.000020    | 0.000152   | 0.000055   | <0.000020  | 0.000077        | 0.000117   | 0.000204   | 0.000034   | <0.000020   | 0.000054   | 0.000323   | 0.000042   | <0.000020        | 0.000100   | 0.000086   | 0.000023   | 0.000034        | 0.000091   | 0.000121   | 0.000076   |
| Bismuth (Bi)-Total             | mg/L           | -                           | <0.000050          | 0.000074   | <0.000050  | <0.000050  | <0.000050    | 0.000051   | <0.000050  | <0.000050  | <0.000050       | <0.000050  | 0.000058   | <0.000050  | <0.000050   | 0.000053   | 0.000128   | <0.000050  | <0.000050        | <0.000050  | <0.000050  | <0.000050  | <0.000050       | <0.000050  | <0.000050  | <0.000050  |
| Boron (B)-Total                | mg/L           | 1.5                         | <0.010             | <0.010     | <0.010     | <0.010     | 0.011        | <0.010     | <0.010     | <0.010     | <0.010          | <0.010     | <0.010     | <0.010     | <0.010      | <0.010     | <0.010     | <0.010     | <0.010           | <0.010     | <0.010     | <0.010     | <0.010          | <0.010     | <0.010     | <0.010     |
| Cadmium (Cd)-Total             | mg/L           | Varies <sup>9</sup>         | 0.0000625          | 0.000403   | 0.000220   | 0.000146   | 0.0000203    | 0.000118   | 0.0000585  | 0.0000315  | 0.0000492       | 0.000132   | 0.000251   | 0.0000640  | 0.0000830   | 0.000190   | 0.00143    | 0.000155   | 0.0000160        | 0.0000799  | 0.0000407  | 0.0000495  | 0.0000257       | 0.0000708  | 0.000120   | 0.0000598  |
| Cadmium CCME-FAL               | mg/L           | -                           | 0.00037            | 0.000304   | 0.00037    | 0.00037    | 0.00037      | 0.000311   | 0.0000318  | 0.00037    | 0.00037         | 0.00037    | 0.000290   | 0.00037    | 0.00037     | 0.00037    | 0.000290   | 0.00037    | 0.0001404        | 0.0001244  | 0.0001301  | 0.0000200  | 0.0001566       | 0.000222   | 0.000170   | 0.000195   |
| Calcium (Ca)-Total             | mg/L           | -                           | 82.9               | 56.0       | 72.3       | 99.1       | 59.6         | 40.2       | 41.3       | 64.9       | 82.7            | 83.8       | 45.2       | 54.4       | 74.5        | 83.2       | 63.0       | 73.7       | 21.0             | 20.9       | 21.6       | 33.1       | 20.9            | 34.4       | 25.6       | 27.9       |
| Chromium (Cr)-Total            | mg/L           | -                           | <0.00070           | 0.0139     | 0.00490    | 0.00050    | <0.00070     | 0.0110     | 0.00390    | 0.00067    | 0.00425         | 0.00666    | 0.0108     | 0.00190    | 0.00141     | 0.00398    | 0.0220     | 0.00240    | <0.00050         | 0.00505    | 0.00365    | 0.00055    | 0.00227         | 0.00490    | 0.00756    | 0.00463    |
| Trivalent Chromium (III)-Total | mg/L           | 0.0089                      | -                  | 0.0139     | 0.00490    | -          | -            | 0.00993    | 0.00390    | -          | 0.00325         | 0.00666    | 0.0108     | 0.00190    | <0.00073    | 0.00398    | 0.0220     | 0.00240    | -                | 0.00505    | 0.00365    | -          | 0.00127         | 0.00490    | 0.00756    | 0.00463    |
| Hexavalent Chromium (VI)-Total | mg/L           | 0.001                       | -                  | <0.0010    | <0.0010    | -          | -            | 0.0011     | <0.0010    | -          | 0.0010          | <0.0010    | <0.0010    | <0.0010    | 0.0011      | <0.0010    | <0.0010    | <0.0010    | -                | <0.0010    | <0.0010    | -          | 0.0010          | <0.0010    | <0.0010    | <0.0010    |
| Cobalt (Co)-Total              | mg/L           | -                           | 0.00057            | 0.00483    | 0.00202    | 0.00107    | 0.00022      | 0.00339    | 0.00119    | 0.00035    | 0.00130         | 0.00281    | 0.00448    | 0.00110    | 0.00075     | 0.00204    | 0.00881    | 0.00205    | 0.00024          | 0.00196    | 0.00156    | 0.00091    | 0.00086         | 0.00214    | 0.00314    | 0.00214    |
| Copper (Cu)-Total              | mg/L           | Varies <sup>10</sup>        | 0.00250            | 0.0161     | 0.00740    | 0.00218    | 0.00151      | 0.00914    | 0.00424    | 0.00152    | 0.00551         | 0.00942    | 0.0160     | 0.00370    | 0.00298     | 0.00625    | 0.0382     | 0.00500    | 0.00291          | 0.00748    | 0.00628    | 0.00298    | 0.00493         | 0.00782    | 0.0111     | 0.00836    |
| Copper CCME-FAL                | mg/L           | -                           | 0.004              | 0.004      | 0.004      | 0.004      | 0.004        | 0.004      | 0.004      | 0.004      | 0.004           | 0.004      | 0.004      | 0.004      | 0.004       | 0.004      | 0.004      | 0.004      | 0.002087         | 0.02       | 0.02       | 0.00300    | 0.002336        | 0.00334    | 0.00255    | 0.00292    |
| Iron (Fe)-Total                | mg/L           | 0.3                         | 0.503              | 9.02       | 3.00       | 0.656      | 0.436        | 7.13       | 2.23       | 0.629      | 3.31            | 5.98       | 10.2       | 1.74       | 0.765       | 2.64       | 14.7       | 1.79       | 0.304            | 3.78       | 2.98       | 0.515      | 1.93            | 4.38       | 5.75       | 3.67       |
| Lead (Pb)-Total                | mg/L           | Varies <sup>11</sup>        | 0.000258           | 0.00657    | 0.00321    | 0.000187   | 0.000077     | 0.00305    | 0.000915   | 0.000075   | 0.00132         | 0.00262    | 0.00487    | 0.000615   | 0.000393    | 0.00135    | 0.0100     | 0.00106    | 0.000063         | 0.00166    | 0.00108    | 0.000064   | 0.000280        | 0.00134    | 0.00213    | 0.00116    |
| Lead CCME-FAL                  | mg/L           | -                           | 0.007              | 0.007      | 0.007      | 0.007      | 0.007        | 0.007      | 0.007      | 0.007      | 0.007           | 0.007      | 0.007      | 0.007      | 0.007       | 0.007      | 0.007      | 0.007      | 0.002641         | 0.002195   | 0.002349   | 0.00453    | 0.003125        | 0.00533    | 0.00355    | 0.00436    |
| Lithium (Li)-Total             | mg/L           | -                           | 0.0037             | 0.0055     | 0.0035     | 0.0031     | 0.0059       | 0.0069     | 0.0046     | 0.0056     | 0.0057          | 0.0066     | 0.0058     | 0.0035     | 0.0037      | 0.0047     | 0.0083     | 0.0028     | 0.0033           | 0.0041     | 0.0039     | 0.0037     | <0.0010         | 0.0015     | 0.0025     | 0.0016     |
| Magnesium (Mg)-Total           | mg/L           | -                           | 37.3               | 21.7       | 26.9       | 41.0       | 46.7         | 29.7       | 26.4       | 50.3       | 54.5            | 60.7       | 28.8       | 47.2       | 37.5        | 41.1       | 23.2       | 30.0       | 7.21             | 6.97       | 6.88       | 11.8       | 9.63            | 16.9       | 13.4       | 16.6       |
| Manganese (Mn)-Total           | mg/L           | -                           | 0.230              | 0.363      | 0.339      | 0.475      | 0.0750       | 0.235      | 0.129      | 0.141      | 0.133           | 0.273      | 0.304      | 0.283      | 0.115       | 0.228      | 0.729      | 0.341      | 0.0253           | 0.101      | 0.108      | 0.0744     | 0.206           | 0.422      | 0.362      | 0.363      |
| Mercury (Hg)-Total             | mg/L           | 0.000026                    | 0.0000051          | 0.000155   | <0.000025  | 0.0000061  | <0.000050    | <0.000025  | <0.000025  | <0.000050  | <0.000050       | 0.0000207  | 0.000042   | 0.0000087  | <0.000050   | <0.000025  | 0.000143   | 0.0000125  | <0.000050        | <0.000025  | <0.000025  | <0.000050  | <0.000050       | <0.000025  | <0.000050  | 0.0000074  |
| Molybdenum (Mo)-Total          | mg/L           | 0.073                       | 0.00134            | 0.00198    | 0.00147    | 0.00132    | 0.000648     | 0.000670   | 0.000601   | 0.000627   | 0.00137         | 0.00164    | 0.00181    | 0.00111    | 0.00130     | 0.00147    | 0.00338    | 0.00137    | 0.000429         | 0.000450   | 0.000402   | 0.000467   | 0.000529        | 0.000720   | 0.000888   | 0.000915   |
| Nickel (Ni)-Total              | mg/L           | Varies <sup>12</sup>        | 0.00431            | 0.0184     | 0.00853    | 0.00577    | 0.00299      | 0.0109     | 0.00778    | 0.00400    | 0.00880         | 0.0112     | 0.0161     | 0.00529    | 0.0171      | 0.0238     | 0.0458     | 0.0167     | 0.00239          | 0.00649    | 0.00549    | 0.00502    | 0.00445         | 0.00724    | 0.0103     | 0.00769    |
| Nickel CCME-FAL                | mg/L           | -                           | 0.15               | 0.15       | 0.15       | 0.15       | 0.15         | 0.15       | 0.15       | 0.15       | 0.15            | 0.15       | 0.15       | 0.15       | 0.15        | 0.15       | 0.15       | 0.15       | 0.08553          | 0.07657    | 0.07975    | 0.118      | 0.09456         | 0.130      | 0.102      | 0.115      |
| Phosphorus (P)-Total           | mg/L           | -                           | <0.050             | 0.232      | 0.067      | <0.050     | <0.050       | 0.165      | 0.058      | <0.050     | 0.060           | 0.126      | 0.363      | 0.055      | <0.050      | 0.068      | 0.672      | 0.066      | <0.050           | 0.088      | 0.067      |            |                 |            |            |            |

Table 9.1: Analytical Chemistry Data

|                                |          | Station Type                | Reference Stations   |            |            |            |            |            |            |            |            |            |            |            | Exposed Stations |            |            |            |            |            |            |            |            |            |            |            |  |
|--------------------------------|----------|-----------------------------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--|
|                                |          | Watercourse                 | Unnamed Watercourses |            |            |            |            |            |            |            |            |            |            |            | Clinton Creek    |            |            |            |            |            |            |            |            |            |            |            |  |
|                                |          | Station ID                  | R8                   |            |            |            | R9         |            |            |            | R11        |            |            |            | E1               |            |            |            | E1-H       |            |            |            | E2         |            |            |            |  |
|                                |          | Date Sampled                | 16/06/2016           | 23/07/2016 | 19/08/2016 | 23/09/2016 | 17/06/2016 | 23/07/2016 | 20/08/2016 | 23/09/2016 | 17/06/2016 | 19/07/2016 | 16/08/2016 | 20/09/2016 | 14/06/2016       | 22/07/2016 | 16/08/2016 | 20/09/2016 | 14/06/2016 | 22/07/2016 | 20/08/2016 | 24/09/2016 | 15/06/2016 | 21/07/2016 | 17/08/2016 | 20/09/2016 |  |
|                                |          | ALS Work Order              | L1785857             | L1803696   | L1816799   | L1834129   | L1785857   | L1803696   | L1816799   | L1834129   | L1785857   | L1802392   | L1816106   | L1833355   | L1785001         | L1803696   | L1816106   | L1833355   | L1785001   | L1803696   | L1816799   | L1834129   | L1785001   | L1803696   | L1816106   | L1833355   |  |
| Parameter                      | Units    | CCME-FAL <sup>1,2,3,4</sup> | Good                 | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good             | Good*      | Good       | Good       | Good       | Good*      | Good       | Good       | Good       | Good*      | Good       | Good       |  |
| Physical Tests                 |          |                             |                      |            |            |            |            |            |            |            |            |            |            |            |                  |            |            |            |            |            |            |            |            |            |            |            |  |
| Lab pH                         | pH units | 6.5-9.0 <sup>5</sup>        | 7.57                 | 7.74       | 7.79       | 8.16       | 7.85       | 7.52       | 7.79       | 8.22       | 7.86       | 8.01       | 7.78       | 8.14       | 8.04             | 8.16       | 8.09       | 8.26       | 8.04       | 7.93       | 7.91       | 8.26       | 8.11       | 8.12       | 8.17       | 8.26       |  |
| Field pH                       | pH units | 6.5-9.0 <sup>5</sup>        | 7.58                 | 7.72       | 7.9        | 8.03       | 7.65       | 7.64       | 7.9        | 7.92       | 7.99       | 8.11       | -          | 8.27       | 8.27             | 8.3        | 8.88       | 8.31       | 8          | 8.04       | 7.89       | 7.62       | 7.92       | 8.1        | 7.79       | 8.12       |  |
| Field Temperature              | C        | -                           | 6.4                  | 6.6        | 6.2        | 2.4        | 5.6        | 6          | 3.5        | 2.4        | 6.7        | 5.7        | 2.9        | 0.6        | 14.9             | 14.4       | 12.8       | 6.7        | 14.9       | 14.3       | 12.1       | 5.8        | 13.7       | 14.4       | 11.9       | 7          |  |
| Lab Conductivity               | uS/cm    | -                           | 260                  | 280        | 235        | 379        | 528        | 240        | 470        | 576        | 406        | 484        | 309        | 460        | 475              | 549        | 473        | 602        | 471        | 546        | 434        | 644        | 657        | 604        | 568        | 750        |  |
| Field Conductivity             | uS/cm    | -                           | 166.4                | 172.3      | 151.8      | 169.1      | 329.4      | 143.4      | 279.5      | 260        | 262.3      | 303.9      | 170.6      | 210.5      | 369.5            | 397.7      | 338.3      | 330.8      | 368.1      | 399.1      | 332.3      | 320.9      | 495.3      | 502        | 410.3      | 425.1      |  |
| Field Specific Conductivity    | uS/cm    | -                           | 258.2                | 265.5      | 237.1      | 297.6      | 523        | 225.3      | 474        | 457.9      | 403        | 481.9      | 295.1      | 395        | 457.7            | 499.1      | 441.1      | 508        | 455.8      | 501        | 441        | 506        | 632        | 630        | 547        | 647        |  |
| Field Dissolved Oxygen         | mg/L     | 9.5 <sup>6</sup>            | 11.65                | 10.87      | 11.83      | 14.16      | 12.04      | 11.49      | 12.61      | 14.19      | 12.77      | 13.92      | 13.25      | 16.36      | 9.68             | 8.88       | 10.13      | 13.04      | 9.74       | 8.5        | 8.9        | 10.13      | 9.21       | 8.12       | 10.15      | 11.92      |  |
| Field Oxidation - Redox Potent | mV       | -                           | 61.2                 | 53.7       | 134.3      | 122.6      | 3.2        | 46.9       | 22.4       | 23.7       | 55.4       | 168.5      | -45.3      | 90         | 99.9             | 154.8      | -27.9      | 98.1       | 102.1      | 159.7      | 117.1      | 166        | 26.4       | 135.5      | 73.6       | 47.6       |  |
| Total Suspended Solids         | mg/L     | -                           | 4.7                  | 6.3        | 2.3        | -          | <3.0       | 400        | 93         | 16         | 38.0       | 4.8        | 1100       | 78         | <3.0             | 2.6        | 4.9        | -          | <3.0       | -          | 2.9        | 4          | -          | -          | 4.1        | -          |  |
| Total Hardness (as CaCO3)      | mg/L     | -                           | 132                  | 134        | 123        | 178        | 310        | 125        | 267        | 302        | 214        | 227        | 142        | 219        | 264              | 289        | 238        | 290        | 262        | 289        | 246        | 302        | 373        | 389        | 301        | 382        |  |
| Anions and Nutrients           |          |                             |                      |            |            |            |            |            |            |            |            |            |            |            |                  |            |            |            |            |            |            |            |            |            |            |            |  |
| Nitrate (as N)                 | mg/L     | 13                          | <0.0050              | <0.0050    | <0.0050    | <0.0050    | 0.170      | 0.212      | 0.182      | 0.242      | 0.117      | 0.0904     | 0.0583     | 0.177      | 0.0253           | 0.116      | 0.122      | 0.119      | 0.0171     | 0.120      | 0.111      | 0.113      | 0.0478     | 0.112      | 0.129      | 0.125      |  |
| Nitrite (as N)                 | mg/L     | 0.06                        | <0.0010              | <0.0010    | <0.0010    | <0.0010    | 0.0011     | <0.0010    | <0.0010    | <0.0010    | <0.0010    | <0.0010    | <0.0010    | <0.0010    | 0.0022           | 0.0018     | 0.0017     | <0.0010    | <0.0010    | 0.0041     | <0.0010    | <0.0010    | <0.0010    | <0.0010    | 0.0024     | <0.0010    |  |
| Ammonia, Total (as N)          | mg/L     | Varies <sup>7</sup>         | <0.0050              | 0.0072     | 0.0056     | 0.0052     | 0.0396     | 0.114      | 0.118      | 0.105      |            | <0.0050    | 0.1150     | 0.0320     | 0.0208           | 0.0179     | 0.0183     | 0.0164     | 0.0108     | 0.0150     | 0.0215     | 0.0235     | 0.0175     | 0.0159     | 0.0204     | 0.0147     |  |
| Ammonia CCME-FAL               | mg/L     | -                           | 3.603                | 2.574      | 1.76       | 1.781      | 3.273      | 3.243      | 2.19       | 2.289      | 1.380      | 1.138      | 1.266      | 1.197      | 0.3959           | 0.3843     | 0.1276     | 0.6704     | 0.7207     | 0.6888     | 1.139      | 3.449      | 0.9433     | 0.5980     | 1.451      | 1.004      |  |
| Sulfate (SO4)                  | mg/L     | -                           | 79.1                 | 80.6       | 60.1       | 104        | 170        | 60.4       | 154        | 178        | 109        | 131        | 84.9       | 134        | 136              | 158        | 130        | 176        | 135        | 159        | 130        | 182        | 210        | 184        | 171        | 247        |  |
| Inorganic/Organic Carbon       |          |                             |                      |            |            |            |            |            |            |            |            |            |            |            |                  |            |            |            |            |            |            |            |            |            |            |            |  |
| Dissolved Organic Carbon       | mg/L     | -                           | 14.7                 | 18.8       | 14.6       | 13.9       | 23.6       | 34.3       | 25.8       | 25.0       |            | 14.1       | 20.5       | 13.1       | 15.5             | 14.4       | 18.5       | 14.5       | 16.2       | 14.5       | 16.9       | 15.0       | 13.9       | 13.4       | 17.2       | 13.8       |  |
| Asbestos                       |          |                             |                      |            |            |            |            |            |            |            |            |            |            |            |                  |            |            |            |            |            |            |            |            |            |            |            |  |
| Total Asbestos                 | MFL      | -                           | -                    | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -                |            |            |            | -          | -          | -          | -          | 7.33       | 1          | 81.29      | 33.84      |  |
| Dissolved Metals               |          |                             |                      |            |            |            |            |            |            |            |            |            |            |            |                  |            |            |            |            |            |            |            |            |            |            |            |  |
| Aluminum (Al)-Dissolved        | mg/L     | Varies <sup>8</sup>         | 0.0296               | 0.0456     | 0.0346     | 0.0229     | 0.0431     | 0.198      | 0.100      | 0.0691     | 0.0374     | 0.0260     | 0.0728     | 0.0517     | 0.0280           | 0.0319     | 0.0546     | 0.0329     | 0.0305     | 0.0385     | 0.0556     | 0.0255     | 0.0215     | 0.0248     | 0.0469     | 0.0236     |  |
| Aluminum CCME-FAL              | mg/L     | -                           | 0.1000               | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.10000    | 0.1000     | 0.1000           | 0.100      | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.100      | 0.1000     | 0.1000     |  |
| Antimony (Sb)-Dissolved        | mg/L     | -                           | 0.00188              | 0.00105    | 0.00074    | 0.00082    | 0.00021    | 0.00023    | 0.00023    | 0.00021    | 0.00022    | 0.00018    | 0.00023    | 0.00015    | 0.00027          | 0.00028    | 0.00032    | 0.00029    | 0.00025    | 0.00029    | 0.00040    | 0.00026    | 0.00042    | 0.00038    | 0.00040    | 0.00037    |  |
| Arsenic (As)-Dissolved         | mg/L     | 0.005                       | 0.00033              | 0.00043    | 0.00030    | 0.00034    | 0.00081    | 0.00136    | 0.00115    | 0.00100    | 0.00049    | 0.00057    | 0.00073    | 0.00050    | 0.00060          | 0.00080    | 0.00083    | 0.00077    | 0.00056    | 0.00075    | 0.00083    | 0.00065    | 0.00087    | 0.00100    | 0.00099    | 0.00103    |  |
| Barium (Ba)-Dissolved          | mg/L     | -                           | 0.0476               | 0.0499     | 0.0415     | 0.0563     | 0.0731     | 0.0879     | 0.102      | 0.116      | 0.0541     | 0.0619     | 0.0507     | 0.0695     | 0.0462           | 0.0586     | 0.0647     | 0.0635     | 0.0458     | 0.0587     | 0.0681     | 0.0628     | 0.0479     | 0.0538     | 0.0641     | 0.0591     |  |
| Beryllium (Be)-Dissolved       | mg/L     | -                           | <0.000020            | <0.000020  | <0.000020  | <0.000020  | <0.000020  | 0.000034   | 0.000023   | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020        | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  |  |
| Bismuth (Bi)-Dissolved         | mg/L     | -                           | <0.000050            | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050        | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  |  |
| Boron (B)-Dissolved            | mg/L     | 1.5                         | <0.010               | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010           | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | 0.031      | 0.028      | 0.016      | 0.025      |  |
| Cadmium (Cd)-Dissolved         | mg/L     | Varies <sup>9</sup>         | 0.0000254            | 0.0000318  | 0.0000183  | 0.0000211  | 0.0000367  | 0.0000361  | 0.0000538  | 0.0000602  | 0.0000193  | 0.0000159  | 0.0000216  | 0.0000378  | 0.0000355        | 0.0000319  | 0.0000422  | 0.0000491  | 0.0000304  | 0.0000322  | 0.0000320  | 0.0000527  | 0.0000474  | 0.0000506  | 0.0000472  | 0.0000537  |  |
| Cadmium CCME-FAL               | mg/L     | -                           | 0.000200             | 0.000202   | 0.000188   | 0.000256   | 0.00037    | 0.000191   | 0.000358   | 0.00037    | 0.000298   | 0.000313   | 0.000212   | 0.000304   | 0.000355         | 0.00037    | 0.000326   |            |            |            |            |            |            |            |            |            |  |

**Table 9.1: Analytical Chemistry Data**

|                                |       |                             | Station Type   |           | Reference Stations   |            |            |            |            |            |            |            |            |            | Exposed Stations |            |            |            |            |            |            |            |            |            |            |            |            |            |  |  |
|--------------------------------|-------|-----------------------------|----------------|-----------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--|--|
|                                |       |                             | Watercourse    |           | Unnamed Watercourses |            |            |            |            |            |            |            |            |            | Clinton Creek    |            |            |            |            |            |            |            |            |            |            |            |            |            |  |  |
|                                |       |                             | Station ID     |           | R8                   |            |            |            | R9         |            |            |            | R11        |            |                  |            | E1         |            |            |            | E1-H       |            |            |            |            |            | E2         |            |  |  |
|                                |       |                             | Date Sampled   |           | 16/06/2016           | 23/07/2016 | 19/08/2016 | 23/09/2016 | 17/06/2016 | 23/07/2016 | 20/08/2016 | 23/09/2016 | 17/06/2016 | 19/07/2016 | 16/08/2016       | 20/09/2016 | 14/06/2016 | 22/07/2016 | 16/08/2016 | 20/09/2016 | 14/06/2016 | 22/07/2016 | 20/08/2016 | 24/09/2016 | 15/06/2016 | 21/07/2016 | 17/08/2016 | 20/09/2016 |  |  |
|                                |       |                             | ALS Work Order |           | L1785857             | L1803696   | L1816799   | L1834129   | L1785857   | L1803696   | L1816799   | L1834129   | L1785857   | L1802392   | L1816106         | L1833355   | L1785001   | L1803696   | L1816106   | L1833355   | L1785001   | L1803696   | L1816799   | L1834129   | L1785001   | L1803696   | L1816106   | L1833355   |  |  |
| Parameter                      | Units | CCME-FAL <sup>1,2,3,4</sup> | Good           | Good      | Good                 | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good             | Good*      | Good       | Good       | Good       | Good       | Good*      | Good       | Good       | Good       | Good       | Good       | Good       |            |  |  |
| Totals Metals                  |       |                             |                |           |                      |            |            |            |            |            |            |            |            |            |                  |            |            |            |            |            |            |            |            |            |            |            |            |            |  |  |
| Aluminum (Al)-Total            | mg/L  | Varies <sup>8</sup>         | 0.0581         | 0.191     | 0.0653               | 0.0273     | 0.0507     | 8.54       | 2.38       | 0.252      | 0.151      | 0.112      | 7.66       | 1.43       | 0.0420           | 0.0761     | 0.170      | 0.0473     | 0.0493     | 0.0530     | 0.122      | 0.0383     | 0.0321     | 0.0313     | 0.128      | 0.123      |            |            |  |  |
| Aluminum CCME-FAL              | mg/L  | -                           | 0.1000         | 0.1000    | 0.1000               | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000           | 0.100      | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.100      | 0.1000     | 0.1000     |            |  |  |
| Antimony (Sb)-Total            | mg/L  | -                           | 0.00184        | 0.00109   | 0.00074              | 0.00085    | 0.00023    | 0.00058    | 0.00042    | 0.00025    | 0.00024    | 0.00020    | 0.00097    | 0.00031    | 0.00029          | 0.00034    | 0.00038    | 0.00032    | 0.00025    | 0.00031    | 0.00040    | 0.00031    | 0.00045    | 0.00042    | 0.00043    | 0.00056    |            |            |  |  |
| Arsenic (As)-Total             | mg/L  | 0.005                       | 0.00040        | 0.00063   | 0.00041              | 0.00038    | 0.00076    | 0.00662    | 0.00274    | 0.00124    | 0.00061    | 0.00061    | 0.00670    | 0.00170    | 0.00066          | 0.00094    | 0.00103    | 0.00082    | 0.00062    | 0.00080    | 0.00098    | 0.00076    | 0.00094    | 0.00119    | 0.00114    | 0.00159    |            |            |  |  |
| Barium (Ba)-Total              | mg/L  | -                           | 0.0483         | 0.0582    | 0.0440               | 0.0566     | 0.0713     | 0.283      | 0.163      | 0.118      | 0.0551     | 0.0661     | 0.270      | 0.113      | 0.0473           | 0.0592     | 0.0678     | 0.0629     | 0.0457     | 0.0587     | 0.0681     | 0.0662     | 0.0478     | 0.0541     | 0.0664     | 0.0643     |            |            |  |  |
| Beryllium (Be)-Total           | mg/L  | -                           | <0.000020      | <0.000020 | <0.000020            | <0.000020  | <0.000020  | 0.000280   | 0.000097   | 0.000029   | <0.000020  | <0.000020  | 0.000282   | 0.000050   | <0.000020        | <0.000020  | 0.000021   | <0.000020  | <0.000020  | <0.000020  | 0.000020   | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  |            |            |  |  |
| Bismuth (Bi)-Total             | mg/L  | -                           | <0.000050      | <0.000050 | <0.000050            | <0.000050  | <0.000050  | 0.000097   | <0.000050  | <0.000050  | <0.000050  | <0.000050  | 0.000206   | <0.000050  | <0.000050        | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  |            |            |  |  |
| Boron (B)-Total                | mg/L  | 1.5                         | <0.010         | <0.010    | <0.010               | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010           | 0.010      | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | 0.031      | 0.031      | 0.016      | 0.027      |            |            |  |  |
| Cadmium (Cd)-Total             | mg/L  | Varies <sup>9</sup>         | 0.0000270      | 0.0000438 | 0.0000218            | 0.0000188  | 0.0000459  | 0.000342   | 0.000191   | 0.0000717  | 0.0000376  | 0.0000348  | 0.000450   | 0.000180   | 0.0000355        | 0.0000450  | 0.0000490  | 0.0000499  | 0.0000304  | 0.0000437  | 0.0000421  | 0.0000572  | 0.0000477  | 0.0000497  | 0.0000526  | 0.0000722  |            |            |  |  |
| Cadmium CCME-FAL               | mg/L  | -                           | 0.000200       | 0.000202  | 0.000188             | 0.000256   | 0.00037    | 0.000191   | 0.000358   | 0.00037    | 0.000298   | 0.000313   | 0.000212   | 0.000304   | 0.000355         | 0.00037    | 0.000326   | 0.00037    | 0.000353   | 0.00037    | 0.000335   | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    |            |            |  |  |
| Calcium (Ca)-Total             | mg/L  | -                           | 31.4           | 32.3      | 29.8                 | 41.9       | 67.2       | 37.6       | 62.1       | 71.1       | 48.2       | 55.1       | 37.7       | 53.0       | 56.2             | 63.7       | 57.4       | 65.3       | 55.8       | 64.6       | 57.2       | 73.6       | 70.0       | 77.5       | 64.5       | 72.8       |            |            |  |  |
| Chromium (Cr)-Total            | mg/L  | -                           | 0.00093        | 0.00155   | 0.00101              | 0.00069    | 0.00089    | 0.0194     | 0.00627    | 0.00147    | 0.00108    | 0.00078    | 0.0173     | 0.00373    | 0.00047          | 0.00117    | 0.00154    | 0.00064    | 0.00046    | 0.00049    | 0.00090    | 0.00058    | 0.00060    | 0.00056    | 0.00117    | 0.00568    |            |            |  |  |
| Trivalent Chromium (III)-Total | mg/L  | 0.0089                      | -              | 0.00155   | 0.00101              | -          | -          | 0.0183     | 0.00627    | 0.00147    | <0.00072   | -          | 0.0159     | 0.00373    | -                | 0.00117    | 0.00154    | -          | -          | -          | -          | -          | -          | -          | 0.00117    | 0.00568    |            |            |  |  |
| Hexavalent Chromium (VI)-Total | mg/L  | 0.001                       | -              | <0.0010   | <0.0010              | -          | -          | 0.0011     | <0.0010    | <0.0010    | 0.0010     | -          | 0.0014     | <0.0010    | -                | <0.0010    | <0.0010    | -          | -          | -          | -          | -          | -          | -          | <0.0010    | <0.0010    |            |            |  |  |
| Cobalt (Co)-Total              | mg/L  | -                           | <0.00010       | 0.00020   | <0.00010             | 0.00011    | 0.00047    | 0.00735    | 0.00286    | 0.00145    | 0.00021    | 0.00017    | 0.00657    | 0.00174    | 0.00030          | 0.00041    | 0.00056    | 0.00052    | 0.00037    | 0.00043    | 0.00051    | 0.00062    | 0.00051    | 0.00054    | 0.00060    | 0.00128    |            |            |  |  |
| Copper (Cu)-Total              | mg/L  | Varies <sup>10</sup>        | 0.00221        | 0.00365   | 0.00210              | 0.00168    | 0.00408    | 0.0247     | 0.0108     | 0.00494    | 0.00280    | 0.00228    | 0.0235     | 0.00723    | 0.00256          | 0.00295    | 0.00324    | 0.00290    | 0.00255    | 0.00295    | 0.00314    | 0.00259    | 0.00231    | 0.00360    | 0.00309    | 0.00302    |            |            |  |  |
| Copper CCME-FAL                | mg/L  | -                           | 0.00300        | 0.00304   | 0.00282              | 0.00387    | 0.004      | 0.00286    | 0.004      | 0.004      | 0.004      | 0.004      | 0.00319    | 0.004      | 0.004            | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      |            |            |  |  |
| Iron (Fe)-Total                | mg/L  | 0.3                         | 0.118          | 0.334     | 0.140                | 0.084      | 0.930      | 14.1       | 4.55       | 2.06       | 0.315      | 0.280      | 15.6       | 2.91       | 0.141            | 0.255      | 0.545      | 0.313      | 0.170      | 0.228      | 0.436      | 0.324      | 0.197      | 0.247      | 0.481      | 0.755      |            |            |  |  |
| Lead (Pb)-Total                | mg/L  | Varies <sup>11</sup>        | <0.000050      | 0.000151  | <0.000050            | <0.000050  | 0.000051   | 0.00593    | 0.00175    | 0.000190   | 0.000163   | 0.000095   | 0.0112     | 0.00154    | <0.000050        | 0.000131   | 0.000254   | 0.000101   | 0.000054   | 0.000118   | 0.000248   | 0.000096   | <0.000050  | 0.000071   | 0.000211   | 0.000277   |            |            |  |  |
| Lead CCME-FAL                  | mg/L  | -                           | 0.00453        | 0.00462   | 0.00414              | 0.00663    | 0.007      | 0.00423    | 0.007      | 0.007      | 0.007      | 0.007      | 0.00497    | 0.007      | 0.007            | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      |            |            |  |  |
| Lithium (Li)-Total             | mg/L  | -                           | <0.0010        | <0.0010   | 0.0010               | <0.0010    | <0.0010    | 0.0069     | 0.0027     | 0.0012     | <0.0010    | <0.0010    | 0.0073     | 0.0020     | 0.0023           | 0.0028     | 0.0025     | 0.0033     | 0.0023     | 0.0026     | 0.0027     | 0.0035     | 0.0065     | 0.0067     | 0.0042     | 0.0082     |            |            |  |  |
| Magnesium (Mg)-Total           | mg/L  | -                           | 11.8           | 12.2      | 10.8                 | 17.6       | 30.5       | 14.8       | 26.1       | 31.2       | 21.9       | 26.1       | 17.1       | 23.9       | 26.7             | 30.5       | 25.0       | 33.0       | 26.5       | 30.6       | 24.3       | 35.3       | 45.5       | 47.8       | 33.4       | 49.1       |            |            |  |  |
| Manganese (Mn)-Total           | mg/L  | -                           | 0.00425        | 0.0182    | 0.00903              | 0.0177     | 0.300      | 0.480      | 0.611      | 0.755      | 0.163      | 0.0244     | 0.407      | 0.190      | 0.0717           | 0.109      | 0.147      | 0.223      | 0.0967     | 0.151      | 0.169      | 0.357      | 0.0812     | 0.0996     | 0.154      | 0.214      |            |            |  |  |
| Mercury (Hg)-Total             | mg/L  | 0.000026                    | <0.0000050     | 0.0000078 | <0.000025            | <0.0000050 | 0.0000061  | <0.000050  | <0.000050  | 0.0000069  | <0.0000050 | <0.0000050 | 0.000164   | 0.0000190  | 0.0000050        | 0.0000057  | <0.000025  | <0.0000050 | 0.0000052  | <0.0000050 | <0.0000050 | <0.0000050 | 0.0000053  | <0.0000050 | <0.000025  | 0.0000063  |            |            |  |  |
| Molybdenum (Mo)-Total          | mg/L  | 0.073                       | 0.000787       | 0.00106   | 0.000858             | 0.000826   | 0.00143    | 0.00126    | 0.00151    | 0.00130    | 0.00109    | 0.00102    | 0.00424    | 0.00147    | 0.00110          | 0.00135    | 0.00119    | 0.00129    | 0.00103    | 0.00133    | 0.00130    | 0.00130    | 0.00140    | 0.00170    | 0.00135    | 0.00159    |            |            |  |  |
| Nickel (Ni)-Total              | mg/L  | Varies <sup>12</sup>        | 0.00347        | 0.00437   | 0.00308              | 0.00326    | 0.00387    | 0.0216     | 0.00964    | 0.00555    | 0.00307    | 0.00252    | 0.0223     | 0.00716    | 0.00459          | 0.00627    | 0.00599    | 0.00489    | 0.00380    | 0.00407    | 0.00411    | 0.00483    | 0.0120     | 0.0135     | 0.00813    | 0.0211     |            |            |  |  |
| Nickel CCME-FAL                | mg/L  | -                           | 0.118          | 0.119     | 0.112                | 0.148      | 0.15       | 0.113      | 0.15       | 0.125      | 0.15       | 0.15       | 0.125      | 0.15       | 0.15             | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       |            |            |  |  |
| Phosphorus (P)-Total           | mg/L  | -                           | <0.050         | <0.050    | <0.050               | <0.050     | <0.050     | 0.436      | 0.106      | <0.050     | <0.050     | <0.050     | 0.335      | 0.077      | <0.050           | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     |            |            |  |  |
| Potassium (K)-Total            | mg/L  | -                           | <0.10          | <0.10     | 0.10                 | <0.10      | 0.54       | 0.92       | 0.72       | 0.48       | 0.54       | 0.41       | 1.49       | 0.60       | 0.62             | 0.62       | 0.49       | 0.57       | 0.62       | 0.60       | 0.50       | 0.59       | 0.84       | 0.85       | 0.57       | 0.77       |            |            |  |  |
| Selenium (Se)-Total            | mg/L  | 0.001                       | 0.000561       | 0.000800  | 0.00338              | 0.00220    | 0.00109    | 0.00119    | 0.00248    | 0.00236    | 0.000696   | 0.000631   | 0.00282    | 0.00195    | 0.00219          | 0.00169    | 0.00166    | 0.00182    | 0.00206    | 0.00170    | 0.00174    | 0.00197    | 0.00198    | 0.00162    | 0.00185    | 0.00195    |            |            |  |  |
| Silicon (Si)-Total             | mg/L  | -                           | 5.53           | 5.89      | 6.54                 | 6.03       | 4.31       | 17.8       | 8.80       | 5.97       | 5.77       | 6.21       | 19.1       | 8.27       | 3.59             | 4.11       | 5.16       | 5.08       | 3.62       | 4.18       | 5.10       | 5.10       | 3.90       | 4.46       | 5.05       | 5.63       |            |            |  |  |
| Silver (Ag)-Total              | mg/L  | 0.0001                      | <0.000010      | 0.000012  | <0.000010            | <0.000010  | <0.000010  | 0.000129   | 0.000050   | 0.000011   | 0.000012   | <0.000010  | 0.000384   | 0.000059   | <0.000010        | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | 0.000012   |            |            |  |  |
| Sodium (Na)-Total              | mg/L  | -                           | 3.83           | 4.19      | 4.24                 | 5.41       | 2.66       | 2.18       | 3.04       | 3.52       | 5.80       | 6.29       | 3.02       | 5.42       | 2.37             | 2.83       | 2.36       | 3.00       | 2.38       | 2.73       | 2.38       | 3.21       | 3.24       | 3.50       | 2.75       | 3.82       |            |            |  |  |
| Strontium (Sr)-Total           | mg/L  | -                           | 0.120          | 0.125     | 0.130                | 0.174      | 0.246      | 0.144      | 0.274      | 0.289      | 0.213      | 0.261      | 0.183      | 0.261      | 0.267            | 0.291      | 0.252      | 0.323      | 0.256      | 0.295      | 0.296      | 0.364      | 0.370      | 0.412      | 0.309      | 0.417      |            |            |  |  |
| Sulfur (S)-Total               | mg/L  | -                           | 27.600         | 26.8      | 21.100               | 34.9       | 61.1       | 20.9       | 52.7       | 65.8       | 38.8       | 48.1       | 28.4       | 46.1       | 48.5             | 53.9       | 46.2       | 63.8       | 46.8       | 54.6       | 45.3       | 63.3       | 74.600     | 81         | 61         | 90.9       |            |            |  |  |
| Thallium (Tl)-Total            | mg/L  | 0.0008                      | <0.000010      | <0.000010 | <0.000010            | <0.000010  | <0.000010  | 0.000062   | 0.000024   | <0.000010  | <0.000010  | <0.000010  | 0.000140   | 0.000026   | <0.000010        | 0.000013   | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | 0.000021   | 0.000024   | 0.000016   | 0.000019   |            |            |  |  |
| Tin (Sn)-Total                 | mg/L  | -                           | <0.000010      | <0.000010 | 0.00017              | <0.000010  | <0.000010  | 0.00011    | <0.000010  | <0.000010  | <0.000010  | <0.000010  | 0.00011    | <0.000010  | <0.000010        | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  |            |            |  |  |
| Titanium (Ti)-Total            | mg/L  | -                           | 0.00107        | 0.00454   | 0.00138              | 0.00069    | 0.00165    | 0.244      | 0.0769     |            |            |            |            |            |                  |            |            |            |            |            |            |            |            |            |            |            |            |            |  |  |

Table 9.1: Analytical Chemistry Data

|                                    |          |                             | Station Type   |           | Exposed Stations |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |      |
|------------------------------------|----------|-----------------------------|----------------|-----------|------------------|------------|------------|------------|---------------|------------|------------|------------|------------------|------------|------------|------------|-------------------|------------|------------|------------|------------|------------|------------|------------|------|
|                                    |          |                             | Watercourse    |           | Wolverine Creek  |            |            |            | Clinton Creek |            |            |            | Forty Mile River |            |            |            | Snowshoe Pit Lake |            |            |            |            |            |            |            |      |
|                                    |          |                             | Station ID     |           | E3               |            |            |            | E4            |            |            |            | E7               |            |            |            | E8                |            |            |            | SL         |            |            |            |      |
|                                    |          |                             | Date Sampled   |           | 14/06/2016       | 20/07/2016 | 16/08/2016 | 20/09/2016 | 15/06/2016    | 21/07/2016 | 18/08/2016 | 22/09/2016 | 15/06/2016       | 22/07/2016 | 18/08/2016 | 22/09/2016 | 15/06/2016        | 22/07/2016 | 18/08/2016 | 22/09/2016 | 17/06/2016 | 24/07/2016 | 20/08/2016 | 21/09/2016 |      |
|                                    |          |                             | ALS Work Order |           | L1785001         | L1802392   | L1816106   | L1833355   | L1785001      | L1803696   | L1816799   | L1834129   | L1785001         | L1803696   | L1816799   | L1834129   | L1785001          | L1803696   | L1816799   | L1834129   | L1785857   | L1803696   | L1816799   | L1833355   |      |
| Parameter                          | Units    | CCME-FAL <sup>1,2,3,4</sup> | Good           | Good      | Good             | Good       | Good       | Good*      | Good*         | Good*      | Good*      | Good       | Good*            | Good*      | Good*      | Good*      | Good              | Good*      | Good*      | Good*      | Good*      | Good       | Good       | Good       | Good |
| Physical Tests                     |          |                             |                |           |                  |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |      |
| Lab pH                             | pH units | 6.5-9.0 <sup>5</sup>        | 8.20           | 8.20      | 8.06             | 8.25       | 8.12       | 8.08       | 7.88          | 8.17       | 8.12       | 8.09       | 7.94             | 8.22       | 7.69       | 7.78       | 7.78              | 8.05       | 8.25       | 8.37       | 8.13       | 8.34       |            |            |      |
| Field pH                           | pH units | 6.5-9.0 <sup>5</sup>        | 8.28           | 8.15      | -                | 8.26       | 7.76       | -          | 7.85          | 7.9        | 7.81       | 8.06       | 8                | 8.01       | 7.87       | 7.89       | 8.37              | 8.03       | 8.26       | 8.5        | 8.28       | 8.2        |            |            |      |
| Field Temperature                  | C        | -                           | 8.4            | 8.2       | 5.9              | 3          | 13.3       | 13         | 12            | 6.9        | 11.8       | 11.7       | 8                | 5.1        | 12.4       | 10.6       | 9.3               | 4.9        | 17.7       | 14.6       | 8.2        | 6.3        |            |            |      |
| Lab Conductivity                   | uS/cm    | -                           | 703            | 823       | 446              | 665        | 715        | 630        | 561           | 824        | 737        | 624        | 509              | 774        | 166        | 162        | 192               | 290        | 1470       | 1600       | 1110       | 1530       |            |            |      |
| Field Conductivity                 | uS/cm    | -                           | 461.1          | 604       | 272.8            | 327.4      | 542        | 532        | 416.7         | 423.1      | 538        | 496.5      | 353.5            | 389.9      | 121.9      | 118.6      | 119.5             | 140.5      | 1261       | 1216       | 777        | 851        |            |            |      |
| Field Specific Conductivity        | uS/cm    | -                           | 675            | 890       | 430              | 564        | 697        | 689        | 554           | 647        | 719        | 665        | 523              | 628        | 160.3      | 163.8      | 171               | 227.9      | 1466       | 1519       | 1143       | 1420       |            |            |      |
| Field Dissolved Oxygen             | mg/L     | 9.5 <sup>6</sup>            | 11.58          | 10.93     | 12.11            | 14.16      | 10.29      | 9.19       | 10.25         | 12.6       | 10.52      | 9.44       | 11.11            | 13.21      | 11.43      | 10.29      | 11.04             | 13.79      | 7.76       | 8.84       | 11         | 10.47      |            |            |      |
| Field Oxidation - Redox Potent     | mV       | -                           | 111.2          | 368.5     | -100.8           | 122.6      | 86.7       | 138.5      | 125.9         | 107.1      | 92         | 135.2      | 113.1            | 106.4      | 69.6       | 98.6       | 220               | 95.2       | 61.5       | 75.5       | 134.1      | 75.3       |            |            |      |
| Total Suspended Solids             | mg/L     | -                           | -              | 7.9       | 600              | 38         | 3.3        | 2.8        | 51            | 7.3        | 4.0        | 92         | 120              | 13         | 5.3        | 96         | 77                | -          | 20.7       | 6.4        | 4.9        | 6.4        |            |            |      |
| Total Hardness (as CaCO3)          | mg/L     | -                           | 393            | 484       | 231              | 322        | 415        | 429        | 307           | 425        | 427        | 413        | 296              | 406        | 75.8       | 80.0       | 81.5              | 129        | 967        | 1020       | 711        | 937        |            |            |      |
| Anions and Nutrients               |          |                             |                |           |                  |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |      |
| Nitrate (as N)                     | mg/L     | 13                          | 0.0824         | 0.189     | 0.0891           | 0.188      | 0.0446     | 0.108      | 0.116         | 0.137      | 0.0595     | 0.139      | 0.126            | 0.163      | 0.0365     | 0.0982     | 0.0939            | 0.126      | 0.019      | <0.010     | 0.122      | 0.123      |            |            |      |
| Nitrite (as N)                     | mg/L     | 0.06                        | <0.0010        | 0.0047    | 0.0024           | <0.0010    | <0.0010    | <0.0010    | <0.0010       | <0.0010    | <0.0010    | <0.0010    | <0.0010          | <0.0010    | <0.0010    | <0.0010    | <0.0010           | <0.0010    | <0.0020    | <0.0020    | <0.0020    | <0.0020    |            |            |      |
| Ammonia, Total (as N)              | mg/L     | Varies <sup>7</sup>         | 0.0083         | 0.0095    | 0.0705           | 0.0289     | 0.0119     | 0.0110     | 0.0306        | 0.0105     | 0.0067     | 0.0336     | 0.0494           | 0.0279     | 0.0066     | 0.0172     | 0.0146            | 0.00721    |            | <0.0050    | <0.0050    | 0.0059     |            |            |      |
| Ammonia CCME-FAL                   | mg/L     | -                           | 0.6285         | 0.8543    | 0.282            | 1.007      | 1.397      | 0.020734   | 1.257         | 1.67       | 1.397      | 0.8000     | 1.22             | 1.498      | 1.165      | 1.277      | 0.4804            | 1.455      | 0.3316     | 0.2460     | 0.6383     | 0.886      |            |            |      |
| Sulfate (SO4)                      | mg/L     | -                           | 220            | 265       | 128              | 209        | 230        | 193        | 176           | 256        | 233        | 187        | 154              | 241        | 27.9       | 26.4       | 36.4              | 59.1       | 669        | 735        | 502        | 694        |            |            |      |
| Inorganic/Organic Carbon           |          |                             |                |           |                  |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |      |
| Dissolved Organic Carbon           | mg/L     | -                           | 13.8           | 12.5      | 19.3             | 12.5       | 13.1       | 12.5       | 17.7          | 14.2       | 13.3       | 13.7       | 17.3             | 13.5       | 17.9       | 15.3       | 22.2              | 13.6       |            | 8.56       | 11.3       | 7.42       |            |            |      |
| Asbestos                           |          |                             |                |           |                  |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |      |
| Total Asbestos                     | MFL      | -                           | 17.1           | 43.98     | 373.26           | 11.94      | -          | -          | -             | -          | -          | -          | -                | -          | -          | -          | -                 | -          | -          | -          | -          | -          |            |            |      |
| Dissolved Metals                   |          |                             |                |           |                  |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |      |
| Aluminum (Al)-Dissolved            | mg/L     | Varies <sup>8</sup>         | 0.0256         | 0.0166    | 0.0601           | 0.0593     | 0.0158     | 0.0168     | 0.0482        | 0.0195     | 0.0148     | 0.0268     | 0.0479           | 0.0208     | 0.0977     | 0.0995     | 0.126             | 0.0798     | 0.0020     | 0.0018     | 0.0131     | 0.0037     |            |            |      |
| Aluminum CCME-FAL                  | mg/L     | -                           | 0.1000         | 0.1000    | 0.10000          | 0.1000     | 0.1000     | 0.10000    | 0.1000        | 0.100      | 0.1000     | 0.1000     | 0.100            | 0.1000     | 0.1000     | 0.1000     | 0.1000            | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     |            |            |      |
| Antimony (Sb)-Dissolved            | mg/L     | -                           | 0.00071        | 0.00097   | 0.00043          | 0.00046    | 0.00048    | 0.00047    | 0.00045       | 0.00039    | 0.00039    | 0.00038    | 0.00036          | 0.00033    | <0.00010   | 0.00011    | 0.00012           | 0.00011    | 0.00270    | 0.00281    | 0.00272    | 0.00307    |            |            |      |
| Arsenic (As)-Dissolved             | mg/L     | 0.005                       | 0.00101        | 0.00117   | 0.00097          | 0.00083    | 0.00090    | 0.00110    | 0.00107       | 0.00098    | 0.00079    | 0.00099    | 0.00103          | 0.00096    | 0.00054    | 0.00063    | 0.00072           | 0.00050    | 0.0168     | 0.0144     | 0.0133     | 0.0158     |            |            |      |
| Barium (Ba)-Dissolved              | mg/L     | -                           | 0.0519         | 0.0639    | 0.0640           | 0.0658     | 0.0472     | 0.0526     | 0.0692        | 0.0612     | 0.0486     | 0.0638     | 0.0746           | 0.0673     | 0.0296     | 0.0369     | 0.0428            | 0.0438     | 0.0288     | 0.0279     | 0.0184     | 0.0283     |            |            |      |
| Beryllium (Be)-Dissolved           | mg/L     | -                           | <0.000020      | <0.000020 | <0.000020        | <0.000020  | <0.000020  | <0.000020  | <0.000020     | <0.000020  | <0.000020  | <0.000020  | <0.000020        | <0.000020  | 0.000031   | 0.000021   | 0.000028          | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  |            |            |      |
| Bismuth (Bi)-Dissolved             | mg/L     | -                           | <0.000050      | <0.000050 | <0.000050        | <0.000050  | <0.000050  | <0.000050  | <0.000050     | <0.000050  | <0.000050  | <0.000050  | <0.000050        | <0.000050  | <0.000050  | <0.000050  | <0.000050         | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  |            |            |      |
| Boron (B)-Dissolved                | mg/L     | 1.5                         | 0.052          | 0.083     | 0.023            | 0.034      | 0.043      | 0.043      | 0.024         | 0.039      | 0.039      | 0.034      | 0.016            | 0.030      | <0.010     | <0.010     | <0.010            | <0.010     | 0.041      | 0.041      | 0.033      | 0.040      |            |            |      |
| Cadmium (Cd)-Dissolved             | mg/L     | Varies <sup>9</sup>         | 0.0000121      | 0.0000112 | 0.0000206        | 0.0000285  | 0.0000377  | 0.0000353  | 0.0000297     | 0.0000492  | 0.0000422  | 0.0000382  | 0.0000275        | 0.0000635  | 0.0000137  | 0.0000083  | 0.0000094         | 0.0000469  | 0.0000187  | 0.0000139  | 0.0000268  | 0.0000299  |            |            |      |
| Cadmium CCME-FAL                   | mg/L     | -                           | 0.00037        | 0.00037   | 0.000318         | 0.00037    | 0.00037    | 0.00037    | 0.00037       | 0.00037    | 0.00037    | 0.00037    | 0.00037          | 0.00037    | 0.0001259  | 0.0001317  | 0.0001337         | 0.000196   | 0.00037    | 0.00037    | 0.00037    | 0.00037    |            |            |      |
| Calcium (Ca)-Dissolved             | mg/L     | -                           | 67.8           | 77.4      | 42.9             | 55.3       | 77.7       | 78.7       | 63.7          | 82.3       | 79.5       | 76.1       | 62.2             | 80.4       | 19.3       | 20.9       | 21.4              | 32.5       | 220        | 230        | 172        | 214        |            |            |      |
| Chromium (Cr)-Dissolved            | mg/L     | -                           | 0.00085        | 0.00061   | 0.00107          | 0.00079    | 0.00053    | 0.00047    | 0.00087       | 0.00060    | 0.00052    | 0.00049    | 0.00082          | 0.00055    | 0.00041    | 0.00037    | 0.00066           | 0.00038    | 0.00124    | 0.00104    | 0.00087    | 0.00120    |            |            |      |
| Trivalent Chromium (III)-Dissolved | mg/L     | 0.0089                      | -              | -         | 0.00107          | -          | -          | -          | -             | -          | -          | -          | -                | -          | -          | -          | -                 | -          | <0.00042   | <0.00042   | -          | <0.00071   |            |            |      |
| Hexavalent Chromium (VI)-Dissolved | mg/L     | 0.001                       | -              | -         | <0.0010          | -          | -          | -          | -             | -          | -          | -          | -                | -          | -          | -          | -                 | -          | 0.0016     | 0.0016     | -          | 0.0010     |            |            |      |
| Cobalt (Co)-Dissolved              | mg/L     | -                           | 0.00022        | 0.00025   | 0.00056          | 0.00049    | 0.00048    | 0.00047    | 0.00056       | 0.00083    | 0.00051    | 0.00063    | 0.00063          | 0.00126    | 0.00021    | 0.00028    | 0.00045           | 0.00090    | 0.00014    | <0.00010   | 0.00012    | 0.00012    |            |            |      |
| Copper (Cu)-Dissolved              | mg/L     | Varies <sup>10</sup>        | 0.00193        | 0.00156   | 0.00256          | 0.00179    | 0.00194    | 0.00193    | 0.00273       | 0.00182    | 0.00211    | 0.00222    | 0.00281          | 0.00196    | 0.00312    | 0.00274    | 0.00358           | 0.00261    | 0.00104    | 0.00095    | 0.00182    | 0.00096    |            |            |      |
| Copper CCME-FAL                    | mg/L     | -                           | 0.004          | 0.004     | 0.004            | 0.004      | 0.004      | 0.004      | 0.004         | 0.004      | 0.004      | 0.004      | 0.004            | 0.004      | 0.02       | 0.02       | 0.02              | 0.00294    | 0.004      | 0.004      | 0.004      | 0.004      |            |            |      |
| Iron (Fe)-Dissolved                | mg/L     | 0.3                         | 0.126          | 0.121     | 0.350            | 0.279      | 0.186      | 0.185      | 0.286         | 0.258      | 0.202      | 0.182      | 0.320            | 0.310      | 0.230      | 0.279      | 0.400             | 0.324      | <0.010     | <0.010     | 0.037      | <0.010     |            |            |      |
| Lead (Pb)-Dissolved                | mg/L     | Varies <sup>11</sup>        | <0.000050      | <0.000050 | 0.000124         | <0.000050  | <0.000050  | <0.000050  | 0.000069      | 0.000051   | <0.000050  | 0.000079   | 0.000086         | <0.000050  | <0.000050  | 0.000063   | 0.000067          | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  |            |            |      |
| Lead CCME-FAL                      | mg/L     | -                           | 0.007          | 0.007     | 0.007            | 0.007      | 0.007      | 0.007      | 0.007         | 0.007      | 0.007      | 0.007      | 0.007            | 0.007      | 0.002236   | 0.002395   | 0.002452          | 0.00440    | 0.007      | 0.007      | 0.007      | 0.007      |            |            |      |
| Lithium (Li)-Dissolved             | mg/L     | -                           | 0.0040         | 0.0050    | 0.0015           | 0.0032     | 0.0103     | 0.0094     | 0.0057        | 0.0107     | 0.0110     |            |                  |            |            |            |                   |            |            |            |            |            |            |            |      |



Table 9.1: Analytical Chemistry Data

|                                |       | Station Type                | Exposed Stations |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |
|--------------------------------|-------|-----------------------------|------------------|------------|------------|------------|---------------|------------|------------|------------|------------------|------------|------------|------------|-------------------|------------|------------|------------|------------|------------|------------|------------|
|                                |       | Watercourse                 | Wolverine Creek  |            |            |            | Clinton Creek |            |            |            | Forty Mile River |            |            |            | Snowshoe Pit Lake |            |            |            |            |            |            |            |
|                                |       | Station ID                  | E3               |            |            |            | E4            |            |            |            | E7               |            |            |            | E8                |            |            |            | SL         |            |            |            |
|                                |       | Date Sampled                | 14/06/2016       | 20/07/2016 | 16/08/2016 | 20/09/2016 | 15/06/2016    | 21/07/2016 | 18/08/2016 | 22/09/2016 | 15/06/2016       | 22/07/2016 | 18/08/2016 | 22/09/2016 | 15/06/2016        | 22/07/2016 | 18/08/2016 | 22/09/2016 | 17/06/2016 | 24/07/2016 | 20/08/2016 | 21/09/2016 |
|                                |       | ALS Work Order              | L1785001         | L1802392   | L1816106   | L1833355   | L1785001      | L1803696   | L1816799   | L1834129   | L1785001         | L1803696   | L1816799   | L1834129   | L1785001          | L1803696   | L1816799   | L1834129   | L1785857   | L1803696   | L1816799   | L1833355   |
| Parameter                      | Units | CCME-FAL <sup>1,2,3,4</sup> | Good             | Good       | Good       | Good       | Good          | Good*      | Good*      | Good*      | Good             | Good*      | Good*      | Good*      | Good              | Good*      | Good*      | Good*      | Good       | Good       | Good       | Good       |
| Totals Metals                  |       |                             |                  |            |            |            |               |            |            |            |                  |            |            |            |                   |            |            |            |            |            |            |            |
| Aluminum (Al)-Total            | mg/L  | Varies <sup>8</sup>         | 0.361            | 0.402      | 6.99       | 1.18       | 0.0430        | 0.0459     | 1.29       | 0.0990     | 0.0473           | 2.71       | 2.76       | 0.193      | 0.351             | 2.58       | 2.48       | 0.180      | 0.215      | 0.0439     | 0.0319     | 0.0367     |
| Aluminum CCME-FAL              | mg/L  | -                           | 0.1000           | 0.1000     | 0.10000    | 0.1000     | 0.1000        | 0.10000    | 0.1000     | 0.100      | 0.1000           | 0.1000     | 0.100      | 0.1000     | 0.1000            | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     |
| Antimony (Sb)-Total            | mg/L  | -                           | 0.00076          | 0.00104    | 0.00098    | 0.00068    | 0.00048       | 0.00048    | 0.00062    | 0.00050    | 0.00043          | 0.00057    | 0.00096    | 0.00044    | 0.00012           | 0.00022    | 0.00022    | 0.00018    | 0.00281    | 0.00284    | 0.00293    | 0.00316    |
| Arsenic (As)-Total             | mg/L  | 0.005                       | 0.00137          | 0.00159    | 0.00718    | 0.00227    | 0.00095       | 0.00120    | 0.00227    | 0.00124    | 0.00085          | 0.00442    | 0.00472    | 0.00134    | 0.00074           | 0.00203    | 0.00189    | 0.00063    | 0.0163     | 0.0151     | 0.0152     | 0.0152     |
| Barium (Ba)-Total              | mg/L  | -                           | 0.0657           | 0.0771     | 0.293      | 0.108      | 0.0465        | 0.0523     | 0.104      | 0.0640     | 0.0498           | 0.127      | 0.148      | 0.0713     | 0.0328            | 0.0804     | 0.0801     | 0.0444     | 0.0298     | 0.0289     | 0.0221     | 0.0275     |
| Beryllium (Be)-Total           | mg/L  | -                           | <0.000020        | 0.000023   | 0.000266   | 0.000053   | <0.000020     | <0.000020  | 0.000055   | <0.000020  | <0.000020        | 0.000096   | 0.000121   | 0.000020   | 0.000033          | 0.000097   | 0.000092   | 0.000021   | <0.000020  | <0.000020  | <0.000020  | <0.000020  |
| Bismuth (Bi)-Total             | mg/L  | -                           | <0.000050        | <0.000050  | 0.000326   | <0.000050  | <0.000050     | <0.000050  | <0.000050  | <0.000050  | <0.000050        | <0.000050  | <0.000050  | <0.000050  | <0.000050         | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  |
| Boron (B)-Total                | mg/L  | 1.5                         | 0.058            | 0.088      | 0.024      | 0.038      | 0.045         | 0.045      | 0.025      | 0.042      | 0.040            | 0.034      | 0.024      | 0.032      | <0.010            | <0.010     | <0.010     | <0.010     | 0.042      | 0.044      | 0.036      | 0.043      |
| Cadmium (Cd)-Total             | mg/L  | Varies <sup>9</sup>         | 0.0000211        | 0.0000222  | 0.000796   | 0.000145   | 0.0000404     | 0.0000419  | 0.000169   | 0.0000734  | 0.0000484        | 0.000178   | 0.000251   | 0.0000850  | 0.0000259         | 0.0000814  | 0.0000638  | 0.0000514  | 0.0000282  | 0.0000270  | 0.0000309  | 0.0000322  |
| Cadmium CCME-FAL               | mg/L  | -                           | 0.00037          | 0.00037    | 0.000318   | 0.00037    | 0.00037       | 0.00037    | 0.00037    | 0.00037    | 0.00037          | 0.00037    | 0.00037    | 0.00037    | 0.0001259         | 0.0001317  | 0.0001337  | 0.000196   | 0.00037    | 0.00037    | 0.00037    | 0.00037    |
| Calcium (Ca)-Total             | mg/L  | -                           | 68.0             | 80.5       | 47.4       | 58.5       | 73.9          | 78.0       | 61.4       | 81.7       | 76.4             | 74.5       | 61.9       | 79.8       | 19.5              | 21.4       | 22.7       | 34.2       | 210        | 227        | 168        | 221        |
| Chromium (Cr)-Total            | mg/L  | -                           | 0.00171          | 0.00183    | 0.0190     | 0.00631    | 0.00068       | 0.00066    | 0.00500    | 0.00117    | 0.00072          | 0.00779    | 0.0108     | 0.00117    | 0.00086           | 0.00495    | 0.00461    | 0.00059    | 0.00725    | 0.00221    | 0.00123    | 0.00253    |
| Trivalent Chromium (III)-Total | mg/L  | 0.0089                      | <0.00074         | <0.00074   | 0.0180     | 0.00631    | -             | -          | 0.00500    | 0.00117    | -                | 0.00779    | 0.0108     | 0.00117    | -                 | 0.00495    | 0.00461    | -          | 0.00535    | <0.00076   | 0.00123    | 0.00143    |
| Hexavalent Chromium (VI)-Total | mg/L  | 0.001                       | 0.0012           | 0.0012     | 0.0010     | <0.0010    | -             | -          | <0.0010    | <0.0010    | -                | <0.0010    | <0.0010    | <0.0010    | -                 | <0.0010    | <0.0010    | -          | 0.0019     | 0.0018     | <0.0010    | 0.0011     |
| Cobalt (Co)-Total              | mg/L  | -                           | 0.00039          | 0.00045    | 0.00718    | 0.00184    | 0.00052       | 0.00051    | 0.00175    | 0.00095    | 0.00056          | 0.00315    | 0.00329    | 0.00151    | 0.00040           | 0.00190    | 0.00197    | 0.00096    | 0.00075    | 0.00019    | 0.00016    | 0.00025    |
| Copper (Cu)-Total              | mg/L  | Varies <sup>10</sup>        | 0.00253          | 0.00242    | 0.0252     | 0.00630    | 0.00214       | 0.00213    | 0.00654    | 0.00238    | 0.00217          | 0.00960    | 0.0113     | 0.00283    | 0.00370           | 0.0104     | 0.00742    | 0.00295    | 0.00205    | 0.00120    | 0.00202    | 0.00138    |
| Copper CCME-FAL                | mg/L  | -                           | 0.004            | 0.004      | 0.004      | 0.004      | 0.004         | 0.004      | 0.004      | 0.004      | 0.004            | 0.004      | 0.004      | 0.004      | 0.02              | 0.02       | 0.02       | 0.00294    | 0.004      | 0.004      | 0.004      | 0.004      |
| Iron (Fe)-Total                | mg/L  | 0.3                         | 0.766            | 0.905      | 13.1       | 2.81       | 0.255         | 0.285      | 2.33       | 0.554      | 0.287            | 4.79       | 5.40       | 0.792      | 0.609             | 3.47       | 3.52       | 0.546      | 0.483      | 0.084      | 0.074      | 0.103      |
| Lead (Pb)-Total                | mg/L  | Varies <sup>11</sup>        | 0.000280         | 0.000322   | 0.00940    | 0.00157    | <0.000050     | 0.000085   | 0.00135    | 0.000209   | 0.000084         | 0.00319    | 0.00365    | 0.000355   | 0.000164          | 0.00148    | 0.00134    | 0.000075   | 0.000244   | 0.000053   | <0.000050  | 0.000090   |
| Lead CCME-FAL                  | mg/L  | -                           | 0.007            | 0.007      | 0.007      | 0.007      | 0.007         | 0.007      | 0.007      | 0.007      | 0.007            | 0.007      | 0.007      | 0.007      | 0.002236          | 0.002395   | 0.002452   | 0.00440    | 0.007      | 0.007      | 0.007      | 0.007      |
| Lithium (Li)-Total             | mg/L  | -                           | 0.0049           | 0.0053     | 0.0072     | 0.0042     | 0.0100        | 0.0094     | 0.0064     | 0.0105     | 0.0105           | 0.0097     | 0.0085     | 0.0093     | 0.0034            | 0.0039     | 0.0040     | 0.0039     | 0.0114     | 0.0104     | 0.0081     | 0.0104     |
| Magnesium (Mg)-Total           | mg/L  | -                           | 52.2             | 65.9       | 32.1       | 46.5       | 51.7          | 54.0       | 36.2       | 53.0       | 54.2             | 51.4       | 34.9       | 49.6       | 7.10              | 7.42       | 7.64       | 11.7       | 98.2       | 108        | 67.5       | 95.5       |
| Manganese (Mn)-Total           | mg/L  | -                           | 0.0706           | 0.105      | 0.463      | 0.241      | 0.0965        | 0.100      | 0.212      | 0.268      | 0.169            | 0.367      | 0.329      | 0.421      | 0.0249            | 0.0989     | 0.132      | 0.0791     | 0.0138     | 0.00465    | 0.0134     | 0.0169     |
| Mercury (Hg)-Total             | mg/L  | 0.000026                    | 0.0000050        | <0.0000050 | 0.000081   | 0.0000147  | <0.0000050    | <0.0000050 | 0.0000183  | <0.0000050 | <0.0000050       | 0.0000123  | <0.000050  | 0.0000067  | <0.0000050        | <0.000025  | <0.000025  | <0.0000050 | <0.0000050 | <0.0000050 | 0.0000068  | <0.0000050 |
| Molybdenum (Mo)-Total          | mg/L  | 0.073                       | 0.00131          | 0.00150    | 0.00349    | 0.00175    | 0.00146       | 0.00169    | 0.00173    | 0.00146    | 0.00129          | 0.00164    | 0.00224    | 0.00149    | 0.000392          | 0.000459   | 0.000439   | 0.000512   | 0.00200    | 0.00202    | 0.00192    | 0.00209    |
| Nickel (Ni)-Total              | mg/L  | Varies <sup>12</sup>        | 0.00970          | 0.00944    | 0.0303     | 0.0143     | 0.0139        | 0.0146     | 0.0154     | 0.0143     | 0.0126           | 0.0220     | 0.0239     | 0.0154     | 0.00299           | 0.00679    | 0.00670    | 0.00526    | 0.0241     | 0.0195     | 0.0157     | 0.0189     |
| Nickel CCME-FAL                | mg/L  | -                           | 0.15             | 0.15       | 0.15       | 0.15       | 0.15          | 0.15       | 0.15       | 0.15       | 0.15             | 0.15       | 0.15       | 0.15       | 0.07743           | 0.08067    | 0.08181    | 0.116      | 0.15       | 0.15       | 0.15       | 0.15       |
| Phosphorus (P)-Total           | mg/L  | -                           | <0.050           | <0.050     | 0.436      | 0.105      | <0.050        | <0.050     | 0.067      | <0.050     | <0.050           | 0.136      | 0.168      | <0.050     | <0.050            | 0.069      | 0.090      | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     |
| Potassium (K)-Total            | mg/L  | -                           | 0.90             | 1.00       | 1.24       | 0.81       | 0.89          | 0.92       | 0.73       | 0.82       | 0.98             | 1.49       | 1.01       | 0.82       | 1.01              | 1.07       | 0.97       | 0.87       | 1.40       | 1.47       | 1.17       | 1.41       |
| Selenium (Se)-Total            | mg/L  | 0.001                       | 0.000881         | 0.000838   | 0.00275    | 0.00170    | 0.00165       | 0.00134    | 0.00202    | 0.00151    | 0.00126          | 0.00135    | 0.00231    | 0.00160    | 0.000150          | 0.000231   | 0.000327   | 0.000287   | 0.0157     | 0.0160     | 0.0137     | 0.0109     |
| Silicon (Si)-Total             | mg/L  | -                           | 6.22             | 6.64       | 16.3       | 8.22       | 4.13          | 4.54       | 6.81       | 5.22       | 4.20             | 8.67       | 9.95       | 5.35       | 5.12              | 8.72       | 10.1       | 5.70       | 4.74       | 3.72       | 5.07       | 5.80       |
| Silver (Ag)-Total              | mg/L  | 0.0001                      | 0.000011         | 0.000010   | 0.000295   | 0.000058   | <0.000010     | <0.000010  | 0.000056   | <0.000010  | <0.000010        | 0.000065   | 0.000125   | 0.000016   | <0.000010         | 0.000031   | 0.000022   | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  |
| Sodium (Na)-Total              | mg/L  | -                           | 4.49             | 5.35       | 3.54       | 4.68       | 3.82          | 4.31       | 3.53       | 4.59       | 4.05             | 4.06       | 3.12       | 4.28       | 3.19              | 2.99       | 3.21       | 4.04       | 2.42       | 2.65       | 2.14       | 2.64       |
| Strontium (Sr)-Total           | mg/L  | -                           | 0.345            | 0.410      | 0.235      | 0.314      | 0.427         | 0.451      | 0.328      | 0.492      | 0.432            | 0.416      | 0.369      | 0.468      | 0.115             | 0.115      | 0.122      | 0.189      | 0.949      | 0.988      | 0.804      | 1.04       |
| Sulfur (S)-Total               | mg/L  | -                           | 79.2             | 98.200     | 44.4       | 77.4       | 79.9          | 85.3       | 58         | 88.2       | 81.9             | 77.8       | 53.6       | 82.2       | 9.68              | 9.6        | 10.6       | 19.5       | 227        | 256        | 174        | 273        |
| Thallium (Tl)-Total            | mg/L  | 0.0008                      | <0.000010        | <0.000010  | 0.000092   | 0.000023   | 0.000016      | 0.000018   | 0.000027   | 0.000013   | <0.000010        | 0.000048   | 0.000052   | 0          |                   |            |            |            |            |            |            |            |



Table 9.1: Analytical Chemistry Data

|                                    |          | Station Type                |           | Exposed Groundwater Seep Sites |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            | Abandoned Channel |  |  |  |
|------------------------------------|----------|-----------------------------|-----------|--------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------------|--|--|--|
|                                    |          | Watercourse                 |           | Waste Rock Seepage             |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |  |  |  |
|                                    |          | Station ID                  |           | GWCC-1                         |            |            |            | GWCC-2     |            |            |            | GWCC-3     |            |            |            | GWCC-4     |            |            |            | GWCC-5     |            |            |                   |  |  |  |
|                                    |          | Date Sampled                |           | 15/06/2016                     | 20/07/2016 | 17/08/2016 | 21/09/2016 | 15/06/2016 | 20/07/2016 | 17/08/2016 | 21/09/2016 | 15/06/2016 | 20/07/2016 | 17/08/2016 | 21/09/2016 | 15/06/2016 | 20/07/2016 | 17/08/2016 | 21/09/2016 | 14/06/2016 | 22/07/2016 | 18/08/2016 | 21/09/2016        |  |  |  |
|                                    |          | ALS Work Order              |           | L1785001                       | L1802392   | L1816106   | L1833355   | L1785001   | L1802392   | L1816106   | L1833355   | L1785001   | L1802392   | L1816106   | L1833355   | L1785001   | L1802392   | L1816106   | L1833355   | L1785001   | L1803696   | L1816799   | L1833355          |  |  |  |
| Parameter                          | Units    | CCME-FAL <sup>1,2,3,4</sup> | Good      | Good                           | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good*      | Good*      | Good              |  |  |  |
| Physical Tests                     |          |                             |           |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |  |  |  |
| Lab pH                             | pH units | 6.5-9.0 <sup>5</sup>        | 8.05      | 7.63                           | 8.11       | 8.12       | 8.12       | 7.80       | 8.15       | 8.20       | 8.07       | 7.73       | 7.63       | 8.20       | 8.05       | 7.69       | 8.01       | 8.23       | 8.09       | 7.98       | 7.86       | 8.26       |                   |  |  |  |
| Field pH                           | pH units | 6.5-9.0 <sup>5</sup>        | 7.32      | 7.4                            | 7.83       | 7          | 7.57       | 7.62       | 8.34       | 7.6        | 7.44       | 7.48       | 7.76       | 7.3        | 7.57       | 7.49       | 7.74       | 7.6        | 7.54       | 7.51       | 7.65       | 7.3        |                   |  |  |  |
| Field Temperature                  | C        | -                           | 2.7       | 4.2                            | 7.7        | 3.6        | 4.4        | 7.6        | 6.7        | 5.1        | 6.4        | 10.9       | 7.2        | 7.7        | 6.4        | 11.6       | 8.1        | 9.1        | 9.4        | 9.1        | 9.3        | 6.6        |                   |  |  |  |
| Lab Conductivity                   | uS/cm    | -                           | 2500      | 2420                           | 1300       | 2610       | 1810       | 1680       | 1900       | 2130       | 1030       | 1030       | 1610       | 1310       | 814        | 822        | 1360       | 910        | 911        | 962        | 950        | 975        |                   |  |  |  |
| Field Conductivity                 | uS/cm    | -                           | 1412      | 1375                           | 848        | 1338       | 1071       | 1046       | 1218       | 1142       | 641        | 690        | 1048       | 749        | 501        | 559        | 870        | 539        | 620        | 651        | 702        | 533        |                   |  |  |  |
| Field Specific Conductivity        | uS/cm    | -                           | 2456      | 2283                           | 1265       | 2480       | 1763       | 1564       | 1870       | 2000       | 993        | 946        | 1590       | 1194       | 777        | 750        | 1284       | 833        | 882        | 935        | 1003       | 889        |                   |  |  |  |
| Field Dissolved Oxygen             | mg/L     | 9.5 <sup>6</sup>            | 4.76      | 4.26                           | 7.92       | 4.35       | 8.36       | 7.24       | 7.81       | 9.1        | 5.17       | 4.23       | 5.39       | 5.22       | 4.26       | 2.19       | 4.78       | 3.67       | 4.27       | 3.94       | 6.61       | 2.51       |                   |  |  |  |
| Field Oxidation - Redox Potent     | mV       | -                           | 71        | 211                            | 129.7      | -173.2     | 85.4       | 199.4      | 105.2      | -177.3     | 94.8       | 158.9      | 162.6      | -197.8     | 99.9       | 200        | 177        | -219.1     | 108.3      | 109.4      | 154        | -437.6     |                   |  |  |  |
| Total Suspended Solids             | mg/L     | -                           | <3.0      | -                              | 4.8        | 3.8        | <3.0       | -          | <2.0       | 4          | <3.0       | -          | <2.0       | 2.8        | <3.0       | -          | <2.0       | -          | <3.0       | -          | <2.0       | -          |                   |  |  |  |
| Total Hardness (as CaCO3)          | mg/L     | -                           | 1680      | 1680                           | 758        | 1700       | 1160       | 1110       | 1180       | 1350       | 622        | 612        | 1000       | 773        | 474        | 471        | 810        | 507        | 530        | 562        | 601        | 541        |                   |  |  |  |
| Anions and Nutrients               |          |                             |           |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |  |  |  |
| Nitrate (as N)                     | mg/L     | 13                          | 0.550     | 0.521                          | 0.174      | 0.528      | 0.385      | 0.356      | 0.351      | 0.530      | 0.154      | 0.170      | 0.343      | 0.203      | 0.0850     | 0.0861     | 0.242      | 0.108      | 0.0156     | 0.0053     | <0.010     | 0.0155     |                   |  |  |  |
| Nitrite (as N)                     | mg/L     | 0.06                        | <0.0050   | <0.0050                        | <0.0020    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0020    | <0.0020    | <0.0050    | <0.0020    | <0.0010    | <0.0010    | <0.0020    | <0.0010    | <0.0010    | <0.0010    | <0.0020    | <0.0010    |                   |  |  |  |
| Ammonia, Total (as N)              | mg/L     | Varies <sup>7</sup>         | <0.0050   | <0.0050                        | 0.0073     | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    | <0.0050    |                   |  |  |  |
| Ammonia CCME-FAL                   | mg/L     | -                           | 8.836     | 6.50                           | 1.835      | 17.1       | 4.331      | 2.988      | 0.6270     | 3.82       | 4.966      | 3.179      | 2.240      | 6.17       | 3.686      | 2.943      | 2.183      | 2.78       | 3.114      | 3.415      | 2.440      | 6.74       |                   |  |  |  |
| Sulfate (SO4)                      | mg/L     | -                           | 1290      | 1270                           | 549        | 1360       | 860        | 790        | 916        | 1070       | 380        | 388        | 760        | 541        | 258        | 257        | 562        | 310        | 279        | 310        | 333        | 308        |                   |  |  |  |
| Inorganic/Organic Carbon           |          |                             |           |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |  |  |  |
| Dissolved Organic Carbon           | mg/L     | -                           | 5.72      | 5.33                           | 9.83       | 4.90       | 7.22       | 7.04       | 7.92       | 6.55       | 9.24       | 8.95       | 7.86       | 8.49       | 10.1       | 9.53       | 8.43       | 9.23       | 7.45       | 7.16       | 8.27       | 7.66       |                   |  |  |  |
| Asbestos                           |          |                             |           |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |  |  |  |
| Total Asbestos                     | MFL      | -                           | -         | -                              | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          | -          |                   |  |  |  |
| Dissolved Metals                   |          |                             |           |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |  |  |  |
| Aluminum (Al)-Dissolved            | mg/L     | Varies <sup>8</sup>         | 0.0012    | 0.0010                         | 0.0025     | 0.0011     | 0.0013     | 0.0011     | 0.0023     | 0.0016     | 0.0018     | 0.0015     | 0.0016     | 0.0017     | 0.0024     | 0.0014     | 0.0017     | 0.0016     | 0.0021     | 0.0015     | 0.0014     | 0.0013     |                   |  |  |  |
| Aluminum CCME-FAL                  | mg/L     | -                           | 0.1000    | 0.1000                         | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     |                   |  |  |  |
| Antimony (Sb)-Dissolved            | mg/L     | -                           | 0.00128   | 0.00133                        | 0.00269    | 0.00130    | 0.00113    | 0.00125    | 0.00207    | 0.00108    | 0.00103    | 0.00106    | 0.00115    | 0.00088    | 0.00116    | 0.00119    | 0.00098    | 0.00089    | 0.00094    | 0.00076    | 0.00083    | 0.00058    |                   |  |  |  |
| Arsenic (As)-Dissolved             | mg/L     | 0.005                       | 0.00232   | 0.00209                        | 0.00472    | 0.00253    | 0.00152    | 0.00141    | 0.00323    | 0.00157    | 0.00080    | 0.00091    | 0.00106    | 0.00087    | 0.00107    | 0.00124    | 0.00104    | 0.00120    | 0.00062    | 0.00069    | 0.00060    | 0.00056    |                   |  |  |  |
| Barium (Ba)-Dissolved              | mg/L     | -                           | 0.0189    | 0.0183                         | 0.0178     | 0.0239     | 0.0173     | 0.0207     | 0.0245     | 0.0199     | 0.0270     | 0.0349     | 0.0256     | 0.0266     | 0.0273     | 0.0365     | 0.0288     | 0.0277     | 0.0504     | 0.0536     | 0.0486     | 0.0507     |                   |  |  |  |
| Beryllium (Be)-Dissolved           | mg/L     | -                           | <0.000020 | <0.000020                      | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  |                   |  |  |  |
| Bismuth (Bi)-Dissolved             | mg/L     | -                           | <0.000050 | <0.000050                      | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  |                   |  |  |  |
| Boron (B)-Dissolved                | mg/L     | 1.5                         | 0.253     | 0.278                          | 0.083      | 0.309      | 0.127      | 0.123      | 0.166      | 0.142      | 0.067      | 0.073      | 0.120      | 0.064      | 0.056      | 0.060      | 0.093      | 0.046      | 0.035      | 0.030      | 0.058      | 0.030      |                   |  |  |  |
| Cadmium (Cd)-Dissolved             | mg/L     | Varies <sup>9</sup>         | 0.000164  | 0.000187                       | 0.0000398  | 0.000200   | 0.000147   | 0.000142   | 0.000168   | 0.000191   | 0.0000690  | 0.0000754  | 0.000131   | 0.000102   | 0.0000421  | 0.0000463  | 0.0000807  | 0.0000579  | 0.000110   | 0.000109   | 0.000107   | 0.000128   |                   |  |  |  |
| Cadmium CCME-FAL                   | mg/L     | -                           | 0.00037   | 0.00037                        | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    |                   |  |  |  |
| Calcium (Ca)-Dissolved             | mg/L     | -                           | 199       | 194                            | 152        | 197        | 162        | 155        | 186        | 173        | 106        | 105        | 136        | 119        | 85.0       | 85.9       | 118        | 83.6       | 122        | 126        | 137        | 123        |                   |  |  |  |
| Chromium (Cr)-Dissolved            | mg/L     | -                           | 0.00296   | 0.00257                        | 0.00070    | 0.00364    | 0.00125    | 0.00098    | 0.00161    | 0.00266    | 0.00042    | 0.00043    | 0.00130    | 0.00059    | 0.00043    | 0.00042    | 0.00075    | 0.00045    | 0.00065    | 0.00062    | 0.00065    | 0.00049    |                   |  |  |  |
| Trivalent Chromium (III)-Dissolved | mg/L     | 0.0089                      | <0.00064  | <0.00058                       | -          | <0.00080   | <0.00042   | -          | <0.00043   | <0.00075   | -          | -          | <0.00042   | -          | -          | -          | -          | -          | -          | -          | -          | -          |                   |  |  |  |
| Hexavalent Chromium (VI)-Dissolved | mg/L     | 0.001                       | 0.0037    | 0.0034                         | -          | 0.0034     | 0.0019     | -          | 0.0020     | 0.0024     | -          | -          | 0.0020     | -          | -          | -          | -          | -          | -          | -          | -          | -          |                   |  |  |  |
| Cobalt (Co)-Dissolved              | mg/L     | -                           | <0.00010  | <0.00010                       | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   |                   |  |  |  |
| Copper (Cu)-Dissolved              | mg/L     | Varies <sup>10</sup>        | 0.00093   | 0.00095                        | 0.00149    | 0.00083    | 0.00119    | 0.00115    | 0.00151    | 0.00107    | 0.00133    | 0.00114    | 0.00104    | 0.00105    | 0.00149    | 0.00121    | 0.00097    | 0.00109    | 0.00086    | 0.00078    | 0.00073    | 0.00088    |                   |  |  |  |
| Copper CCME-FAL                    | mg/L     | -                           | 0.004     | 0.004                          | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      |                   |  |  |  |
| Iron (Fe)-Dissolved                | mg/L     | 0.3                         | <0.010    | <0.010                         | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | 0.020      | 0.038      | 0.017      | 0.019      |                   |  |  |  |
| Lead (Pb)-Dissolved                | mg/L     | Varies <sup>11</sup>        | <0.000050 | <0.000050                      | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  |                   |  |  |  |
| Lead CCME-FAL                      | mg/L     | -                           | 0.007     | 0.007                          | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      |                   |  |  |  |
| Lithium (Li)-Dissolved             | mg/L     | -                           | 0.0731    | 0.0764                         | 0.0239     | 0.0931     | 0.0131     | 0.0124     | 0.0551     | 0.0215     | 0.0072     | 0.0079     | 0.0220     | 0.0087     | 0.0068     | 0.0074     | 0          |            |            |            |            |            |                   |  |  |  |

Table 9.1: Analytical Chemistry Data

|                                |       |                             | Exposed Groundwater Seep Sites |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |            |            |            |  |  |  |  |
|--------------------------------|-------|-----------------------------|--------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------------|------------|------------|------------|--|--|--|--|
|                                |       | Station Type                |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |            |            |            |  |  |  |  |
|                                |       | Watercourse                 |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |            |            |            |  |  |  |  |
|                                |       | Station ID                  | GWCC-1                         |            |            |            | GWCC-2     |            |            |            | GWCC-3     |            |            |            | GWCC-4     |            |            |            | Abandoned Channel |            |            |            |  |  |  |  |
|                                |       | Date Sampled                | 15/06/2016                     | 20/07/2016 | 17/08/2016 | 21/09/2016 | 15/06/2016 | 20/07/2016 | 17/08/2016 | 21/09/2016 | 15/06/2016 | 20/07/2016 | 17/08/2016 | 21/09/2016 | 15/06/2016 | 20/07/2016 | 17/08/2016 | 21/09/2016 | 14/06/2016        | 22/07/2016 | 18/08/2016 | 21/09/2016 |  |  |  |  |
|                                |       | ALS Work Order              | L1785001                       | L1802392   | L1816106   | L1833355   | L1785001   | L1802392   | L1816106   | L1833355   | L1785001   | L1802392   | L1816106   | L1833355   | L1785001   | L1802392   | L1816106   | L1833355   | L1785001          | L1803696   | L1816799   | L1833355   |  |  |  |  |
| Parameter                      | Units | CCME-FAL <sup>1,2,3,4</sup> | Good                           | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good       | Good              | Good*      | Good*      | Good       |  |  |  |  |
| Totals Metals                  |       |                             |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |            |            |            |  |  |  |  |
| Aluminum (Al)-Total            | mg/L  | Varies <sup>8</sup>         | <0.0030                        | 0.157      | 0.107      | 0.0035     | <0.0030    | <0.0030    | 0.0032     | 0.0108     | <0.0030    | <0.0030    | <0.0030    | <0.0030    | 0.0036     | 0.0032     | <0.0030    | 0.0050     | 0.0031            | 0.0046     | <0.0030    | <0.0030    |  |  |  |  |
| Aluminum CCME-FAL              | mg/L  | -                           | 0.1000                         | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000     | 0.1000            | 0.1000     | 0.1000     | 0.1000     |  |  |  |  |
| Antimony (Sb)-Total            | mg/L  | -                           | 0.00130                        | 0.00137    | 0.00281    | 0.00133    | 0.00115    | 0.00127    | 0.00207    | 0.00120    | 0.00103    | 0.00109    | 0.00116    | 0.00089    | 0.00110    | 0.00123    | 0.00104    | 0.00094    | 0.00098           | 0.00076    | 0.00081    | 0.00057    |  |  |  |  |
| Arsenic (As)-Total             | mg/L  | 0.005                       | 0.00226                        | 0.00213    | 0.00518    | 0.00271    | 0.00148    | 0.00145    | 0.00331    | 0.00210    | 0.00079    | 0.00094    | 0.00093    | 0.00089    | 0.00103    | 0.00125    | 0.00108    | 0.00127    | 0.00065           | 0.00082    | 0.00061    | 0.00058    |  |  |  |  |
| Barium (Ba)-Total              | mg/L  | -                           | 0.0182                         | 0.0185     | 0.0279     | 0.0243     | 0.0170     | 0.0205     | 0.0250     | 0.0227     | 0.0270     | 0.0356     | 0.0225     | 0.0262     | 0.0257     | 0.0368     | 0.0281     | 0.0152     | 0.0492            | 0.0516     | 0.0491     | 0.0513     |  |  |  |  |
| Beryllium (Be)-Total           | mg/L  | -                           | <0.000020                      | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | 0.000038   | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020  | <0.000020         | <0.000020  | <0.000020  | <0.000020  |  |  |  |  |
| Bismuth (Bi)-Total             | mg/L  | -                           | <0.000050                      | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | 0.000088   | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050         | <0.000050  | <0.000050  | <0.000050  |  |  |  |  |
| Boron (B)-Total                | mg/L  | 1.5                         | 0.273                          | 0.301      | 0.088      | 0.339      | 0.129      | 0.132      | 0.181      | 0.154      | 0.071      | 0.078      | 0.139      | 0.069      | 0.059      | 0.063      | 0.103      | 0.048      | 0.038             | 0.031      | 0.058      | 0.034      |  |  |  |  |
| Cadmium (Cd)-Total             | mg/L  | Varies <sup>9</sup>         | 0.000170                       | 0.000191   | 0.0000585  | 0.000207   | 0.000141   | 0.000158   | 0.000167   | 0.000251   | 0.0000643  | 0.0000693  | 0.0000883  | 0.000102   | 0.0000451  | 0.0000532  | 0.0000688  | 0.0000534  | 0.000107          | 0.000107   | 0.000113   | 0.000144   |  |  |  |  |
| Cadmium CCME-FAL               | mg/L  | -                           | 0.00037                        | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037    | 0.00037           | 0.00037    | 0.00037    | 0.00037    |  |  |  |  |
| Calcium (Ca)-Total             | mg/L  | -                           | 195                            | 191        | 157        | 205        | 158        | 153        | 188        | 187        | 99.9       | 106        | 136        | 125        | 81.8       | 86.6       | 118        | 36.3       | 119               | 126        | 130        | 129        |  |  |  |  |
| Chromium (Cr)-Total            | mg/L  | -                           | 0.00287                        | 0.00283    | 0.00131    | 0.00429    | 0.00135    | 0.00108    | 0.00188    | 0.00363    | 0.00045    | 0.00051    | 0.00121    | 0.00061    | 0.00050    | 0.00055    | 0.00080    | 0.00078    | 0.00067           | 0.00068    | 0.00074    | 0.00056    |  |  |  |  |
| Trivalent Chromium (III)-Total | mg/L  | 0.0089                      | <0.00088                       | <0.00088   | <0.00073   | <0.00097   | <0.00073   | <0.00072   | <0.00075   | 0.00093    |            |            | <0.00072   |            |            |            |            |            |                   |            |            |            |  |  |  |  |
| Hexavalent Chromium (VI)-Total | mg/L  | 0.001                       | 0.0036                         | 0.0034     | 0.0013     | 0.0037     | 0.0021     | 0.0017     | 0.0022     | 0.0027     |            |            | 0.0017     |            |            |            |            |            |                   |            |            |            |  |  |  |  |
| Cobalt (Co)-Total              | mg/L  | -                           | <0.00010                       | <0.00010   | 0.00015    | <0.00010   | <0.00010   | <0.00010   | <0.00010   | 0.00027    | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010   | <0.00010          | <0.00010   | <0.00010   | <0.00010   |  |  |  |  |
| Copper (Cu)-Total              | mg/L  | Varies <sup>10</sup>        | 0.00109                        | 0.00120    | 0.00183    | 0.00138    | 0.00134    | 0.00138    | 0.00155    | 0.00190    | 0.00138    | 0.00131    | 0.00093    | 0.00132    | 0.00145    | 0.00132    | 0.00100    | 0.00199    | 0.00089           | 0.00086    | 0.00081    | 0.00157    |  |  |  |  |
| Copper CCME-FAL                | mg/L  | -                           | 0.004                          | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004      | 0.004             | 0.004      | 0.004      | 0.004      |  |  |  |  |
| Iron (Fe)-Total                | mg/L  | 0.3                         | <0.010                         | <0.010     | 0.200      | <0.010     | <0.010     | <0.010     | <0.010     | 2.59       | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | <0.010     | 0.011      | 0.019             | 0.053      | 0.018      | 0.026      |  |  |  |  |
| Lead (Pb)-Total                | mg/L  | Varies <sup>11</sup>        | <0.000050                      | <0.000050  | 0.000090   | <0.000050  | <0.000050  | <0.000050  | <0.000050  | 0.000161   | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050  | <0.000050         | <0.000050  | <0.000050  | <0.000050  |  |  |  |  |
| Lead CCME-FAL                  | mg/L  | -                           | 0.007                          | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007      | 0.007             | 0.007      | 0.007      | 0.007      |  |  |  |  |
| Lithium (Li)-Total             | mg/L  | -                           | 0.0764                         | 0.0774     | 0.0244     | 0.0983     | 0.0131     | 0.0126     | 0.0580     | 0.0227     | 0.0069     | 0.0080     | 0.0230     | 0.0088     | 0.0070     | 0.0074     | 0.0140     | 0.0069     | 0.0092            | 0.0097     | 0.0102     | 0.0090     |  |  |  |  |
| Magnesium (Mg)-Total           | mg/L  | -                           | 284                            | 283        | 87.3       | 309        | 184        | 171        | 169        | 243        | 82.7       | 84.3       | 151        | 119        | 61.4       | 60.7       | 120        | 76.7       | 55.1              | 58.0       | 60.1       | 60.5       |  |  |  |  |
| Manganese (Mn)-Total           | mg/L  | -                           | 0.00028                        | 0.00030    | 0.00389    | 0.00059    | <0.00010   | 0.00015    | 0.00027    | 0.0384     | <0.00010   | 0.00018    | 0.00023    | 0.00016    | 0.00030    | 0.00080    | 0.00036    | 0.00030    | 0.00118           | 0.00346    | 0.00130    | 0.00270    |  |  |  |  |
| Mercury (Hg)-Total             | mg/L  | 0.000026                    | <0.0000050                     | <0.0000050 | <0.0000050 | <0.0000050 | 0.0000058  | <0.0000050 | <0.0000050 | 0.0000054  | 0.0000060  | <0.0000050 | <0.0000050 | 0.0000063  | 0.0000059  | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050        | <0.0000050 | <0.0000050 | <0.0000050 |  |  |  |  |
| Molybdenum (Mo)-Total          | mg/L  | 0.073                       | 0.00261                        | 0.00285    | 0.0155     | 0.00248    | 0.00269    | 0.00312    | 0.00305    | 0.00286    | 0.00229    | 0.00282    | 0.00287    | 0.00286    | 0.00219    | 0.00261    | 0.00256    | 0.00266    | 0.00208           | 0.00192    | 0.00210    | 0.00184    |  |  |  |  |
| Nickel (Ni)-Total              | mg/L  | Varies <sup>12</sup>        | 0.0693                         | 0.0711     | 0.0308     | 0.0877     | 0.0396     | 0.0389     | 0.0503     | 0.0606     | 0.0282     | 0.0317     | 0.0376     | 0.0340     | 0.0304     | 0.0337     | 0.0376     | 0.0351     | 0.0180            | 0.0191     | 0.0195     | 0.0226     |  |  |  |  |
| Nickel CCME-FAL                | mg/L  | -                           | 0.15                           | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15       | 0.15              | 0.15       | 0.15       | 0.15       |  |  |  |  |
| Phosphorus (P)-Total           | mg/L  | -                           | <0.050                         | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050     | <0.050            | <0.050     | <0.050     | <0.050     |  |  |  |  |
| Potassium (K)-Total            | mg/L  | -                           | 3.21                           | 3.21       | 1.55       | 3.59       | 1.91       | 1.91       | 2.27       | 2.24       | 1.21       | 1.35       | 1.68       | 1.32       | 1.03       | 1.21       | 1.45       | 1.18       | 0.81              | 0.77       | 0.88       | 0.95       |  |  |  |  |
| Selenium (Se)-Total            | mg/L  | 0.001                       | 0.00501                        | 0.00409    | 0.0113     | 0.00500    | 0.00341    | 0.00324    | 0.0102     | 0.00441    | 0.00153    | 0.00144    | 0.00297    | 0.00182    | 0.00104    | 0.000898   | 0.00189    | 0.000994   | 0.00935           | 0.00742    | 0.0122     | 0.00434    |  |  |  |  |
| Silicon (Si)-Total             | mg/L  | -                           | 6.17                           | 6.19       | 6.52       | 7.24       | 4.99       | 5.30       | 6.27       | 5.71       | 4.74       | 5.50       | 5.02       | 5.29       | 5.19       | 6.07       | 5.29       | 6.12       | 4.49              | 4.45       | 4.46       | 5.11       |  |  |  |  |
| Silver (Ag)-Total              | mg/L  | 0.0001                      | <0.000010                      | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010  | <0.000010         | <0.000010  | <0.000010  | <0.000010  |  |  |  |  |
| Sodium (Na)-Total              | mg/L  | -                           | 16.1                           | 17.5       | 3.77       | 23.2       | 5.85       | 5.78       | 11.5       | 9.01       | 3.40       | 3.72       | 5.37       | 4.67       | 2.83       | 3.30       | 4.43       | 651        | 3.59              | 3.94       | 3.99       | 4.36       |  |  |  |  |
| Strontium (Sr)-Total           | mg/L  | -                           | 1.80                           | 1.87       | 0.995      | 2.32       | 0.813      | 0.814      | 1.46       | 1.14       | 0.489      | 0.541      | 0.921      | 0.651      | 0.393      | 0.452      | 0.632      | 0.214      | 0.679             | 0.717      | 0.843      | 0.732      |  |  |  |  |
| Sulfur (S)-Total               | mg/L  | -                           | 432.00                         | 459        | 191        | 503        | 284        | 291        | 319        | 389        | 126        | 138        | 252        | 208        | 89.2       | 96.4       | 194        | 129        | 98.7              | 111        | 112        | 118        |  |  |  |  |
| Thallium (Tl)-Total            | mg/L  | 0.0008                      | 0.000080                       | 0.000086   | 0.000050   | 0.000094   | 0.000055   | 0.000065   | 0.000076   | 0.000072   | 0.000054   | 0.000073   | 0.000087   | 0.000063   | 0.000051   | 0.000073   | 0.000069   | 0.000059   | 0.000014          | 0.000016   | 0.000014   | 0.000021   |  |  |  |  |
| Tin (Sn)-Total                 |       |                             |                                |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |                   |            |            |            |  |  |  |  |

Table 9.2: Analytical Quality Assurance and Control

|                                 |          | Sample Station                 | R6         |            |                       | E1         |            |                       | E7         |            |                       | Field Blanks | Travel Blanks |               |
|---------------------------------|----------|--------------------------------|------------|------------|-----------------------|------------|------------|-----------------------|------------|------------|-----------------------|--------------|---------------|---------------|
|                                 |          | Sample ID                      | DUP-3      | R6         | RPD (%) <sup>13</sup> | DUP01      | E1         | RPD (%) <sup>13</sup> | DUP-2      | E7         | RPD (%) <sup>13</sup> | E1 (FB-1)    | TRAVEL_BLANK  | TRAVEL_BLANK  |
|                                 |          | Date Sampled                   | 18/06/2016 | 18/06/2016 |                       | 14/06/2016 | 14/06/2016 |                       | 15/06/2016 | 15/06/2016 |                       | 14/06/2016   | 17/06/2016    | 20/06/2016    |
|                                 |          | ALS Work Order                 | L1785857   | L1785857   |                       | L1785001   | L1785001   |                       | L1785001   | L1785001   |                       | L1785001     | L1785001      | L1785857      |
|                                 |          | CCME-FAL <sup>1, 2, 3, 4</sup> | Good       | Good       |                       | Good       | Good       |                       | Good       | Good       |                       | -            | -             | -             |
| Parameter                       | Units    |                                |            |            |                       |            |            |                       |            |            |                       |              |               |               |
| <b>Physical Tests</b>           |          |                                |            |            |                       |            |            |                       |            |            |                       |              |               |               |
| Lab pH                          | pH units | 6.5-9.0 <sup>b</sup>           | 7.84       | 7.86       | 0.25                  | 8.08       | 8.04       | 0.50                  | 8.13       | 8.12       | 0.12                  | 5.19         | 5.44          | 5.18          |
| Field pH                        | pH units | 6.5-9.0 <sup>b</sup>           | 7.8        | 7.8        | -                     | 8.27       | 8.27       | -                     | 7.81       | 7.81       | -                     | -            | -             | -             |
| Field Temperature               | C        | -                              | 16         | 16         | -                     | 14.9       | 14.9       | -                     | 11.8       | 11.8       | -                     | -            | -             | -             |
| Lab Conductivity                | uS/cm    | -                              | 189        | 189        | 0.00                  | 476        | 475        | 0.21                  | 734        | 737        | 0.41                  | <2.0         | <2.0          | <2.0          |
| Field Conductivity              | uS/cm    | -                              | 154.7      | 154.7      | -                     | 369.5      | 369.5      | -                     | 538        | 538        | -                     | -            | -             | -             |
| Field Specific Conductivity     | uS/cm    | -                              | 186.8      | 186.8      | -                     | 457.7      | 457.7      | -                     | 719        | 719        | -                     | -            | -             | -             |
| Field Dissolved Oxygen          | mg/L     | 9.5 <sup>b</sup>               | 8.45       | 8.45       | -                     | 9.68       | 9.68       | -                     | 10.52      | 10.52      | -                     | -            | -             | -             |
| Field Oxidation - Redox Potent  | mV       | -                              | 7.5        | 7.5        | -                     | 99.9       | 99.9       | -                     | 92         | 92         | -                     | -            | -             | -             |
| Total Suspended Solids          | mg/L     | -                              | 8.7        | 10.7       | nc                    | <3.0       | <3.0       | nc                    | 6.0        | 4.0        | nc                    | <3.0         | <3.0          | <3.0          |
| Total Hardness (as CaCO3)       | mg/L     | -                              | 87.3       | 86.4       | 1.04                  | 265        | 264        | 0.38                  | 428        | 427        | 0.23                  | <0.50        | <0.50         | <0.50         |
| <b>Anions and Nutrients</b>     |          |                                |            |            |                       |            |            |                       |            |            |                       |              |               |               |
| Nitrate (as N)                  | mg/L     | 13                             | 0.0269     | 0.0265     | 1.50                  | 0.0241     | 0.0253     | 4.86                  | 0.0601     | 0.0595     | 1.00                  | <0.0050      | <0.0050       | <0.0050       |
| Nitrite (as N)                  | mg/L     | 0.06                           | <0.0010    | <0.0010    | nc                    | 0.0015     | 0.0022     | nc                    | <0.0010    | <0.0010    | nc                    | <0.0010      | <0.0010       | <0.0010       |
| Ammonia, Total (as N)           | mg/L     | Varies <sup>c</sup>            | 0.0102     | 0.0082     | nc                    | 0.0194     | 0.0208     | 6.97                  | 0.0078     | 0.0067     | 15.17                 | <0.0050      | <0.0050       | <u>0.0401</u> |
| Ammonia CCME-FAL                | mg/L     | -                              | 1.04       | 1.04       | 0.00                  | 0.3959     | 0.3959     | 0.00                  | 1.397      | 1.397      | 0.00                  | -            | -             | -             |
| Sulfate (SO4)                   | mg/L     | -                              | 31.6       | 31.7       | 0.32                  | 136        | 136        | 0.00                  | 233        | 233        | 0.00                  | <0.30        | <0.30         | <0.30         |
| <b>Inorganic/Organic Carbon</b> |          |                                |            |            |                       |            |            |                       |            |            |                       |              |               |               |
| Dissolved Organic Carbon        | mg/L     | -                              | 15.2       | 15.2       | 0.00                  | 15.4       | 15.5       | 0.65                  | 13.1       | 13.3       | 1.52                  | <0.50        | -             | -             |
| <b>Asbestos</b>                 |          |                                |            |            |                       |            |            |                       |            |            |                       |              |               |               |
| Total Asbestos                  | MFL      | -                              | -          | -          | -                     | -          | -          | -                     | -          | -          | -                     | -            | -             | -             |

Table 9.2: Analytical Quality Assurance and Control

|                                    |       | Sample Station                 | R6         |                                                                                                                                                        |                       | E1         |                                                                                                 |                       | E7         |                                                              |                       | Field Blanks                                | Travel Blanks              |              |
|------------------------------------|-------|--------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------|-------------------------------------------------------------------------------------------------|-----------------------|------------|--------------------------------------------------------------|-----------------------|---------------------------------------------|----------------------------|--------------|
|                                    |       | Sample ID                      | DUP-3      | R6                                                                                                                                                     | RPD (%) <sup>13</sup> | DUP01      | E1                                                                                              | RPD (%) <sup>13</sup> | DUP-2      | E7                                                           | RPD (%) <sup>13</sup> | E1 (FB-1)                                   | TRAVEL_BLANK               | TRAVEL_BLANK |
|                                    |       | Date Sampled                   | 18/06/2016 | 18/06/2016 <th>14/06/2016</th> <th>14/06/2016</th> <th>15/06/2016</th> <th>15/06/2016</th> <th>14/06/2016</th> <th>17/06/2016</th> <th>20/06/2016</th> |                       | 14/06/2016 | 14/06/2016                                                                                      |                       | 15/06/2016 | 15/06/2016                                                   |                       | 14/06/2016                                  | 17/06/2016                 | 20/06/2016   |
|                                    |       | ALS Work Order                 | L1785857   | L1785857 <td>L1785001</td> <td>L1785001<td>L1785001</td><td>L1785001<td>L1785001<td>L1785001<td>L1785857</td></td></td></td></td>                      |                       | L1785001   | L1785001 <td>L1785001</td> <td>L1785001<td>L1785001<td>L1785001<td>L1785857</td></td></td></td> |                       | L1785001   | L1785001 <td>L1785001<td>L1785001<td>L1785857</td></td></td> |                       | L1785001 <td>L1785001<td>L1785857</td></td> | L1785001 <td>L1785857</td> | L1785857     |
| Parameter                          | Units | CCME-FAL <sup>1, 2, 3, 4</sup> | Good       | Good                                                                                                                                                   |                       | Good       | Good                                                                                            |                       | Good       | Good                                                         |                       | -                                           | -                          | -            |
| Dissolved Metals                   |       |                                |            |                                                                                                                                                        |                       |            |                                                                                                 |                       |            |                                                              |                       |                                             |                            |              |
| Aluminum (Al)-Dissolved            | mg/L  | Varies <sup>8</sup>            | 0.101      | 0.0997                                                                                                                                                 | 1.30                  | 0.0301     | 0.0280                                                                                          | 7.23                  | 0.0138     | 0.0148                                                       | 6.99                  | <0.0010                                     | -                          | -            |
| Aluminum CCME-FAL                  | mg/L  | -                              | 0.1000     | 0.1000                                                                                                                                                 | 0.00                  | 0.1000     | 0.1000                                                                                          | 0.00                  | 0.1000     | 0.1000                                                       | 0.00                  | -                                           | -                          | -            |
| Antimony (Sb)-Dissolved            | mg/L  | -                              | 0.00012    | 0.00012                                                                                                                                                | 0.00                  | 0.00027    | 0.00027                                                                                         | 0.00                  | 0.00041    | 0.00039                                                      | 5.00                  | <0.00010                                    | -                          | -            |
| Arsenic (As)-Dissolved             | mg/L  | 0.005                          | 0.00056    | 0.00055                                                                                                                                                | 1.80                  | 0.00061    | 0.00060                                                                                         | 1.65                  | 0.00071    | 0.00079                                                      | 10.67                 | <0.00010                                    | -                          | -            |
| Barium (Ba)-Dissolved              | mg/L  | -                              | 0.0348     | 0.0346                                                                                                                                                 | 0.58                  | 0.0457     | 0.0462                                                                                          | 1.09                  | 0.0494     | 0.0486                                                       | 1.63                  | <0.000050                                   | -                          | -            |
| Beryllium (Be)-Dissolved           | mg/L  | -                              | <0.000020  | <0.000020                                                                                                                                              | nc                    | <0.000020  | <0.000020                                                                                       | nc                    | <0.000020  | <0.000020                                                    | nc                    | <0.000020                                   | -                          | -            |
| Bismuth (Bi)-Dissolved             | mg/L  | -                              | <0.000050  | <0.000050                                                                                                                                              | nc                    | <0.000050  | <0.000050                                                                                       | nc                    | <0.000050  | <0.000050                                                    | nc                    | <0.000050                                   | -                          | -            |
| Boron (B)-Dissolved                | mg/L  | 1.5                            | <0.010     | <0.010                                                                                                                                                 | nc                    | <0.010     | <0.010                                                                                          | nc                    | 0.039      | 0.039                                                        | 0.00                  | <0.010                                      | -                          | -            |
| Cadmium (Cd)-Dissolved             | mg/L  | Varies <sup>9</sup>            | 0.0000130  | 0.0000143                                                                                                                                              | 9.52                  | 0.0000364  | 0.0000355                                                                                       | 2.50                  | 0.0000365  | 0.0000422                                                    | 14.49                 | <0.0000050                                  | -                          | -            |
| Cadmium CCME-FAL                   | mg/L  | -                              | 0.0001416  | 0.0001404                                                                                                                                              | 0.85                  | 0.000356   | 0.000355                                                                                        | 0.28                  | 0.00037    | 0.00037                                                      | 0.00                  | -                                           | -                          | -            |
| Calcium (Ca)-Dissolved             | mg/L  | -                              | 22.3       | 22.1                                                                                                                                                   | 0.90                  | 58.9       | 58.2                                                                                            | 1.20                  | 79.8       | 79.5                                                         | 0.38                  | <0.050                                      | -                          | -            |
| Chromium (Cr)-Dissolved            | mg/L  | -                              | 0.00040    | 0.00037                                                                                                                                                | 7.79                  | 0.00037    | 0.00036                                                                                         | 2.74                  | 0.00053    | 0.00052                                                      | 1.90                  | <0.00010                                    | -                          | -            |
| Trivalent Chromium (III)-Dissolved | mg/L  | 0.0089                         | -          | -                                                                                                                                                      | -                     | -          | -                                                                                               | -                     | -          | -                                                            | -                     | -                                           | -                          | -            |
| Hexavalent Chromium (VI)-Dissolved | mg/L  | 0.001                          | -          | -                                                                                                                                                      | -                     | -          | -                                                                                               | -                     | -          | -                                                            | -                     | -                                           | -                          | -            |
| Cobalt (Co)-Dissolved              | mg/L  | -                              | 0.00021    | 0.00021                                                                                                                                                | 0.00                  | 0.00026    | 0.00026                                                                                         | 0.00                  | 0.00050    | 0.00051                                                      | 1.98                  | <0.00010                                    | -                          | -            |
| Copper (Cu)-Dissolved              | mg/L  | Varies <sup>10</sup>           | 0.00291    | 0.00287                                                                                                                                                | 1.38                  | 0.00245    | 0.00242                                                                                         | 1.23                  | 0.00207    | 0.00211                                                      | 1.91                  | <0.00020                                    | -                          | -            |
| Copper CCME-FAL                    | mg/L  | -                              | 0.002106   | 0.002087                                                                                                                                               | 0.91                  | 0.004      | 0.004                                                                                           | 0.00                  | 0.004      | 0.004                                                        | 0.00                  | -                                           | -                          | -            |
| Iron (Fe)-Dissolved                | mg/L  | 0.3                            | 0.207      | 0.217                                                                                                                                                  | 4.72                  | 0.100      | 0.100                                                                                           | 0.00                  | 0.203      | 0.202                                                        | 0.49                  | <0.010                                      | -                          | -            |
| Lead (Pb)-Dissolved                | mg/L  | Varies <sup>11</sup>           | <0.000050  | 0.000051                                                                                                                                               | nc                    | <0.000050  | <0.000050                                                                                       | nc                    | <0.000050  | <0.000050                                                    | nc                    | <0.000050                                   | -                          | -            |
| Lead CCME-FAL                      | mg/L  | -                              | 0.002676   | 0.002641                                                                                                                                               | 1.32                  | 0.007      | 0.007                                                                                           | 0.00                  | 0.007      | 0.007                                                        | 0.00                  | -                                           | -                          | -            |
| Lithium (Li)-Dissolved             | mg/L  | -                              | 0.0035     | 0.0035                                                                                                                                                 | 0.00                  | 0.0024     | 0.0024                                                                                          | 0.00                  | 0.0111     | 0.0110                                                       | 0.90                  | <0.0010                                     | -                          | -            |
| Magnesium (Mg)-Dissolved           | mg/L  | -                              | 7.71       | 7.60                                                                                                                                                   | 1.44                  | 28.7       | 28.9                                                                                            | 0.69                  | 55.5       | 55.6                                                         | 0.18                  | <0.10                                       | -                          | -            |
| Manganese (Mn)-Dissolved           | mg/L  | -                              | 0.0239     | 0.0235                                                                                                                                                 | 1.69                  | 0.0583     | 0.0575                                                                                          | 1.38                  | 0.167      | 0.176                                                        | 5.25                  | <0.00010                                    | -                          | -            |
| Mercury (Hg)-Dissolved             | mg/L  | 0.000026                       | <0.0000050 | <0.0000050                                                                                                                                             | nc                    | <0.0000050 | 0.0000050                                                                                       | nc                    | <0.0000050 | <0.0000050                                                   | nc                    | <0.0000050                                  | -                          | -            |
| Molybdenum (Mo)-Dissolved          | mg/L  | 0.073                          | 0.000384   | 0.000397                                                                                                                                               | 3.33                  | 0.000965   | 0.00101                                                                                         | 4.56                  | 0.00123    | 0.00130                                                      | 5.53                  | <0.000050                                   | -                          | -            |
| Nickel (Ni)-Dissolved              | mg/L  | Varies <sup>12</sup>           | 0.00239    | 0.00242                                                                                                                                                | 1.25                  | 0.00435    | 0.00430                                                                                         | 1.16                  | 0.0125     | 0.0128                                                       | 2.37                  | <0.00050                                    | -                          | -            |
| Nickel CCME-FAL                    | mg/L  | -                              | 0.08620    | 0.08553                                                                                                                                                | 0.78                  | 0.15       | 0.15                                                                                            | 0.00                  | 0.15       | 0.15                                                         | 0.00                  | -                                           | -                          | -            |
| Phosphorus (P)-Dissolved           | mg/L  | -                              | <0.050     | <0.050                                                                                                                                                 | nc                    | <0.050     | <0.050                                                                                          | nc                    | <0.050     | <0.050                                                       | nc                    | <0.050                                      | -                          | -            |
| Potassium (K)-Dissolved            | mg/L  | -                              | 0.97       | 0.95                                                                                                                                                   | 2.08                  | 0.66       | 0.64                                                                                            | 3.08                  | 1.04       | 1.02                                                         | 1.94                  | <0.10                                       | -                          | -            |
| Selenium (Se)-Dissolved            | mg/L  | 0.001                          | 0.000179   | 0.000161                                                                                                                                               | 10.59                 | 0.00217    | 0.00220                                                                                         | 1.37                  | 0.00123    | 0.00126                                                      | 2.41                  | <0.000050                                   | -                          | -            |
| Silicon (Si)-Dissolved             | mg/L  | -                              | 4.50       | 4.45                                                                                                                                                   | 1.12                  | 3.63       | 3.59                                                                                            | 1.11                  | 4.23       | 4.22                                                         | 0.24                  | <0.050                                      | -                          | -            |
| Silver (Ag)-Dissolved              | mg/L  | 0.00025                        | <0.000010  | <0.000010                                                                                                                                              | nc                    | <0.000010  | <0.000010                                                                                       | nc                    | <0.000010  | <0.000010                                                    | nc                    | <0.000010                                   | -                          | -            |
| Sodium (Na)-Dissolved              | mg/L  | -                              | 3.69       | 3.70                                                                                                                                                   | 0.27                  | 2.39       | 2.38                                                                                            | 0.42                  | 4.11       | 3.97                                                         | 3.47                  | <0.050                                      | -                          | -            |
| Strontium (Sr)-Dissolved           | mg/L  | -                              | 0.123      | 0.124                                                                                                                                                  | 0.81                  | 0.256      | 0.263                                                                                           | 2.70                  | 0.431      | 0.435                                                        | 0.92                  | <0.00020                                    | -                          | -            |
| Sulfur (S)-Dissolved               | mg/L  | -                              | 11.2       | 11.2                                                                                                                                                   | 0.00                  | 47.1       | 48.2                                                                                            | 2.31                  | 81.2       | 82.3                                                         | 1.35                  | <0.50                                       | -                          | -            |
| Thallium (Tl)-Dissolved            | mg/L  | 0.0008                         | <0.000010  | <0.000010                                                                                                                                              | nc                    | <0.000010  | 0.000015                                                                                        | nc                    | <0.000010  | <0.000010                                                    | nc                    | <0.000010                                   | -                          | -            |
| Tin (Sn)-Dissolved                 | mg/L  | -                              | <0.00010   | <0.00010                                                                                                                                               | nc                    | <0.00010   | <0.00010                                                                                        | nc                    | <0.00010   | <0.00010                                                     | nc                    | <0.00010                                    | -                          | -            |
| Titanium (Ti)-Dissolved            | mg/L  | -                              | 0.00098    | 0.00102                                                                                                                                                | 4.00                  | 0.00042    | 0.00030                                                                                         | nc                    | 0.00034    | 0.00037                                                      | 8.45                  | <0.00030                                    | -                          | -            |
| Uranium (U)-Dissolved              | mg/L  | 0.015                          | 0.000731   | 0.000730                                                                                                                                               | 0.14                  | 0.00173    | 0.00178                                                                                         | 2.85                  | 0.00205    | 0.00206                                                      | 0.49                  | <0.000010                                   | -                          | -            |
| Vanadium (V)-Dissolved             | mg/L  | -                              | 0.00072    | 0.00072                                                                                                                                                | 0.00                  | <0.00050   | <0.00050                                                                                        | nc                    | <0.00050   | <0.00050                                                     | nc                    | <0.00050                                    | -                          | -            |
| Zinc (Zn)-Dissolved                | mg/L  | 0.03                           | 0.0068     | 0.0077                                                                                                                                                 | 12.41                 | 0.0019     | 0.0019                                                                                          | 0.00                  | 0.0024     | 0.0025                                                       | 4.08                  | <0.0010                                     | -                          | -            |
| Zirconium (Zr)-Dissolved           | mg/L  | -                              | 0.00073    | 0.00072                                                                                                                                                | 1.38                  | 0.00058    | 0.00060                                                                                         | 3.39                  | 0.00086    | 0.00088                                                      | 2.30                  | <0.00030                                    | -                          | -            |

Table 9.2: Analytical Quality Assurance and Control

| Parameter                      | Units | Sample Station                 | R6         |            |                       | E1         |            |                       | E7         |            |                       | Field Blanks | Travel Blanks |              |
|--------------------------------|-------|--------------------------------|------------|------------|-----------------------|------------|------------|-----------------------|------------|------------|-----------------------|--------------|---------------|--------------|
|                                |       | Sample ID                      | DUP-3      | R6         | RPD (%) <sup>13</sup> | DUP01      | E1         | RPD (%) <sup>13</sup> | DUP-2      | E7         | RPD (%) <sup>13</sup> | E1 (FB-1)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                |       | Date Sampled                   | 18/06/2016 | 18/06/2016 |                       | 14/06/2016 | 14/06/2016 |                       | 15/06/2016 | 15/06/2016 |                       | 14/06/2016   | 17/06/2016    | 20/06/2016   |
|                                |       | ALS Work Order                 | L1785857   | L1785857   |                       | L1785001   | L1785001   |                       | L1785001   | L1785001   |                       | L1785001     | L1785001      | L1785857     |
|                                |       | CCME-FAL <sup>1, 2, 3, 4</sup> | Good       | Good       |                       | Good       | Good       |                       | Good       | Good       |                       | -            | -             | -            |
| Total Metals                   |       |                                |            |            |                       |            |            |                       |            |            |                       |              |               |              |
| Aluminum (Al)-Total            | mg/L  | Varies <sup>8</sup>            | 0.156      | 0.149      | 4.59                  | 0.0373     | 0.0420     | 11.85                 | 0.0434     | 0.0473     | 8.60                  | <0.0030      | <0.0030       | <0.0030      |
| Aluminum CCME-FAL              | mg/L  | -                              | 0.1000     | 0.1000     | 0.00                  | 0.1000     | 0.1000     | 0.00                  | 0.1000     | 0.1000     | 0.00                  | -            | -             | -            |
| Antimony (Sb)-Total            | mg/L  | -                              | 0.00012    | 0.00012    | 0.00                  | 0.00031    | 0.00029    | 6.67                  | 0.00045    | 0.00043    | 4.55                  | <0.00010     | <0.00010      | <0.00010     |
| Arsenic (As)-Total             | mg/L  | 0.005                          | 0.00060    | 0.00061    | 1.65                  | 0.00061    | 0.00066    | 7.87                  | 0.00084    | 0.00085    | 1.18                  | <0.00010     | <0.00010      | <0.00010     |
| Barium (Ba)-Total              | mg/L  | -                              | 0.0345     | 0.0352     | 2.01                  | 0.0466     | 0.0473     | 1.49                  | 0.0524     | 0.0498     | 5.09                  | <0.000050    | <0.000050     | <0.000050    |
| Beryllium (Be)-Total           | mg/L  | -                              | <0.000020  | <0.000020  | nc                    | <0.000020  | <0.000020  | nc                    | <0.000020  | <0.000020  | nc                    | <0.000020    | <0.000020     | <0.000020    |
| Bismuth (Bi)-Total             | mg/L  | -                              | <0.000050  | <0.000050  | nc                    | <0.000050  | <0.000050  | nc                    | <0.000050  | <0.000050  | nc                    | <0.000050    | <0.000050     | <0.000050    |
| Boron (B)-Total                | mg/L  | 1.5                            | <0.010     | <0.010     | nc                    | <0.010     | <0.010     | nc                    | 0.042      | 0.040      | 4.88                  | <0.010       | <0.010        | <0.010       |
| Cadmium (Cd)-Total             | mg/L  | Varies <sup>9</sup>            | 0.0000169  | 0.0000160  | 5.47                  | 0.0000408  | 0.0000355  | 13.89                 | 0.0000471  | 0.0000484  | 2.72                  | <0.0000050   | <0.0000050    | <0.0000050   |
| Cadmium CCME-FAL               | mg/L  | -                              | 0.0001416  | 0.0001404  | 0.85                  | 0.000356   | 0.000355   | 0.28                  | 0.00037    | 0.00037    | 0.00                  | -            | -             | -            |
| Calcium (Ca)-Total             | mg/L  | -                              | 21.9       | 21.0       | 4.20                  | 56.9       | 56.2       | 1.24                  | 78.5       | 76.4       | 2.71                  | <0.050       | <0.050        | <0.050       |
| Chromium (Cr)-Total            | mg/L  | -                              | <0.00050   | <0.00050   | nc                    | 0.00048    | 0.00047    | 2.11                  | 0.00068    | 0.00072    | 5.71                  | <0.00010     | <0.00010      | <0.00010     |
| Trivalent Chromium (III)-Total | mg/L  | 0.0089                         | -          | -          | nc                    | -          | -          | nc                    | -          | -          | nc                    | -            | -             | -            |
| Hexavalent Chromium (VI)-Total | mg/L  | 0.001                          | -          | -          | nc                    | -          | -          | nc                    | -          | -          | nc                    | -            | -             | -            |
| Cobalt (Co)-Total              | mg/L  | -                              | 0.00027    | 0.00024    | 11.76                 | 0.00031    | 0.00030    | 3.28                  | 0.00054    | 0.00056    | 3.64                  | <0.00010     | <0.00010      | <0.00010     |
| Copper (Cu)-Total              | mg/L  | Varies <sup>10</sup>           | 0.00305    | 0.00291    | 4.70                  | 0.00262    | 0.00256    | 2.32                  | 0.00216    | 0.00217    | 0.46                  | <0.00050     | <0.00050      | <0.00050     |
| Copper CCME-FAL                | mg/L  | -                              | 0.002106   | 0.002087   | 0.91                  | 0.004      | 0.004      | 0.00                  | 0.004      | 0.004      | 0.00                  | -            | -             | -            |
| Iron (Fe)-Total                | mg/L  | 0.3                            | 0.314      | 0.304      | 3.24                  | 0.140      | 0.141      | 0.71                  | 0.292      | 0.287      | 1.73                  | <0.010       | <0.010        | <0.010       |
| Lead (Pb)-Total                | mg/L  | Varies <sup>11</sup>           | 0.000088   | 0.000063   | nc                    | <0.000050  | <0.000050  | nc                    | 0.000065   | 0.000084   | nc                    | <0.000050    | <0.000050     | <0.000050    |
| Lead CCME-FAL                  | mg/L  | -                              | 0.002676   | 0.002641   | 1.32                  | 0.007      | 0.007      | 0.00                  | 0.007      | 0.007      | 0.00                  | -            | -             | -            |
| Lithium (Li)-Total             | mg/L  | -                              | 0.0034     | 0.0033     | 2.99                  | 0.0022     | 0.0023     | 4.44                  | 0.0109     | 0.0105     | 3.74                  | <0.0010      | <0.0010       | <0.0010      |
| Magnesium (Mg)-Total           | mg/L  | -                              | 7.56       | 7.21       | 4.74                  | 28.2       | 26.7       | 5.46                  | 55.4       | 54.2       | 2.19                  | <0.10        | <0.10         | <0.10        |
| Manganese (Mn)-Total           | mg/L  | -                              | 0.0268     | 0.0253     | 5.76                  | 0.0727     | 0.0717     | 1.39                  | 0.175      | 0.169      | 3.49                  | <0.00010     | <0.00010      | <0.00010     |
| Mercury (Hg)-Total             | mg/L  | 0.000026                       | <0.0000050 | <0.0000050 | nc                    | <0.0000050 | 0.0000050  | nc                    | <0.0000050 | <0.0000050 | nc                    | <0.0000050   | <0.0000050    | <0.0000050   |
| Molybdenum (Mo)-Total          | mg/L  | 0.073                          | 0.000431   | 0.000429   | 0.47                  | 0.00109    | 0.00110    | 0.91                  | 0.00131    | 0.00129    | 1.54                  | <0.000050    | <0.000050     | <0.000050    |
| Nickel (Ni)-Total              | mg/L  | Varies <sup>12</sup>           | 0.00252    | 0.00239    | 5.30                  | 0.00463    | 0.00459    | 0.87                  | 0.0130     | 0.0126     | 3.13                  | <0.00050     | <0.00050      | <0.00050     |
| Nickel CCME-FAL                | mg/L  | -                              | 0.08620    | 0.08553    | 0.78                  | 0.15       | 0.15       | 0.00                  | 0.15       | 0.15       | 0.00                  | -            | -             | -            |
| Phosphorus (P)-Total           | mg/L  | -                              | <0.050     | <0.050     | nc                    | <0.050     | <0.050     | nc                    | <0.050     | <0.050     | nc                    | <0.050       | <0.050        | <0.050       |
| Potassium (K)-Total            | mg/L  | -                              | 0.91       | 0.87       | 4.49                  | 0.65       | 0.62       | 4.72                  | 1.01       | 0.98       | 3.02                  | <0.10        | <0.10         | <0.10        |
| Selenium (Se)-Total            | mg/L  | 0.001                          | 0.000170   | 0.000150   | 12.50                 | 0.00208    | 0.00219    | 5.15                  | 0.00118    | 0.00126    | 6.56                  | <0.000050    | <0.000050     | <0.000050    |
| Silicon (Si)-Total             | mg/L  | -                              | 4.59       | 4.38       | 4.68                  | 3.64       | 3.59       | 1.38                  | 4.27       | 4.20       | 1.65                  | <0.050       | <0.050        | <0.050       |
| Silver (Ag)-Total              | mg/L  | 0.00025                        | <0.000010  | <0.000010  | nc                    | <0.000010  | <0.000010  | nc                    | <0.000010  | <0.000010  | nc                    | <0.000010    | <0.000010     | <0.000010    |
| Sodium (Na)-Total              | mg/L  | -                              | 3.69       | 3.51       | 5.00                  | 2.41       | 2.37       | 1.67                  | 4.16       | 4.05       | 2.68                  | <0.050       | <0.050        | <0.050       |
| Strontium (Sr)-Total           | mg/L  | -                              | 0.124      | 0.123      | 0.81                  | 0.264      | 0.267      | 1.13                  | 0.440      | 0.432      | 1.83                  | <0.00020     | <0.00020      | <0.00020     |
| Sulfur (S)-Total               | mg/L  | -                              | 11.2       | 11.1       | 0.90                  | 48.3       | 48.5       | 0.41                  | 83.3       | 81.9       | 1.69                  | <0.50        | <0.50         | <0.50        |
| Thallium (Tl)-Total            | mg/L  | 0.0008                         | <0.000010  | <0.000010  | nc                    | 0.000011   | <0.000010  | nc                    | <0.000010  | <0.000010  | nc                    | <0.000010    | <0.000010     | <0.000010    |
| Tin (Sn)-Total                 | mg/L  | -                              | <0.00010   | <0.00010   | nc                    | <0.00010   | <0.00010   | nc                    | <0.00010   | <0.00010   | nc                    | <0.00010     | <0.00010      | <0.00010     |
| Titanium (Ti)-Total            | mg/L  | -                              | 0.00280    | 0.00296    | 5.56                  | 0.00058    | 0.00059    | 1.71                  | 0.00107    | 0.00135    | nc                    | <0.00030     | <0.00030      | <0.00030     |
| Uranium (U)-Total              | mg/L  | 0.015                          | 0.000761   | 0.000786   | 3.23                  | 0.00184    | 0.00185    | 0.54                  | 0.00219    | 0.00216    | 1.38                  | <0.000010    | <0.000010     | <0.000010    |
| Vanadium (V)-Total             | mg/L  | -                              | 0.00093    | 0.00088    | 5.52                  | <0.00050   | <0.00050   | nc                    | <0.00050   | <0.00050   | nc                    | <0.00050     | <0.00050      | <0.00050     |
| Zinc (Zn)-Total                | mg/L  | 0.03                           | <0.0030    | <0.0030    | nc                    | <0.0030    | <0.0030    | nc                    | 0.0031     | <0.0030    | nc                    | <0.0030      | <0.0030       | <0.0030      |
| Zirconium (Zr)-Total           | mg/L  | -                              | 0.00070    | 0.00069    | 1.44                  | 0.00058    | 0.00056    | 3.51                  | 0.00082    | 0.00084    | 2.41                  | <0.00030     | <0.00030      | <0.00030     |

Table 9.3: Analytical Quality Assurance and Control

|                                |          | Sample Station                 | GWCC-3     |            |                       | GWCC-5     |            |                       | Field Blanks | Travel Blanks |              |
|--------------------------------|----------|--------------------------------|------------|------------|-----------------------|------------|------------|-----------------------|--------------|---------------|--------------|
|                                |          | Sample ID                      | DUP-1      | GWCC-3     | RPD (%) <sup>13</sup> | DUP-2*     | GWCC-5*    | RPD (%) <sup>13</sup> | E3 (FB-1)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                |          | Date Sampled                   | 20/07/2016 | 20/07/2016 |                       | 22/07/2016 | 22/07/2016 |                       | 20/07/2016   | 20/07/2016    | 24/07/2016   |
|                                |          | ALS Work Order                 | L1802392   | L1802392   |                       | L1803696   | L1803696   |                       | L1802392     | L1802392      | L1803696     |
|                                |          | CCME-FAL <sup>1, 2, 3, 4</sup> | Good       | Good       |                       | Good       | Good       |                       | -            | -             | -            |
| Parameter                      | Units    |                                |            |            |                       |            |            |                       |              |               |              |
| Physical Tests                 |          |                                |            |            |                       |            |            |                       |              |               |              |
| Lab pH                         | pH units | 6.5-9.0 <sup>5</sup>           | 7.69       | 7.73       | 0.52                  | 7.99       | 7.98       | 0.13                  | 5.85         | 5.36          | 5.42         |
| Field pH                       | pH units | 6.5-9.0 <sup>5</sup>           | 7.48       | 7.48       | -                     | 7.51       | 7.51       | -                     | -            | -             | -            |
| Field Temperature              | C        | -                              | 10.9       | 10.9       | -                     | 9.1        | 9.1        | -                     | -            | -             | -            |
| Lab Conductivity               | uS/cm    | -                              | 1040       | 1030       | 0.97                  | 963        | 962        | 0.10                  | <2.0         | <2.0          | <2.0         |
| Field Conductivity             | uS/cm    | -                              | 690        | 690        | -                     | 651        | 651        | -                     | -            | -             | -            |
| Field Specific Conductivity    | uS/cm    | -                              | 946        | 946        | -                     | 935        | 935        | -                     | -            | -             | -            |
| Field Dissolved Oxygen         | mg/L     | 9.5 <sup>6</sup>               | 4.23       | 4.23       | -                     | 3.94       | 3.94       | -                     | -            | -             | -            |
| Field Oxidation - Redox Potent | mV       | -                              | 158.9      | 158.9      | -                     | 109.4      | 109.4      | -                     | -            | -             | -            |
| Total Suspended Solids         | mg/L     | -                              | -          | -          | nc                    | -          | -          | nc                    | -            | -             | -            |
| Total Hardness (as CaCO3)      | mg/L     | -                              | 613        | 612        | 0.16                  | 556        | 562        | 1.07                  | <0.50        | -             | <0.50        |
| Anions and Nutrients           |          |                                |            |            |                       |            |            |                       |              |               |              |
| Nitrate (as N)                 | mg/L     | 13                             | 0.171      | 0.170      | 0.59                  | <0.0050    | 0.0053     | nc                    | <0.0050      | <0.0050       | <0.0050      |
| Nitrite (as N)                 | mg/L     | 0.06                           | <0.0020    | <0.0020    | nc                    | <0.0010    | <0.0010    | nc                    | <0.0010      | <0.0010       | <0.0010      |
| Ammonia, Total (as N)          | mg/L     | Varies <sup>7</sup>            | <0.0050    | <0.0050    | nc                    | <0.0050    | <0.0050    | nc                    | <0.0050      | 0.0072        | 0.0150       |
| Ammonia CCME-FAL               | mg/L     | -                              | 3.179      | 3.179      | -                     | 3.415      | 3.415      | -                     | -            | -             | -            |
| Sulfate (SO4)                  | mg/L     | -                              | 381        | 388        | 1.82                  | 310        | 310        | 0.00                  | <0.30        | <0.30         | <0.30        |
| Inorganic/Organic Carbon       |          |                                |            |            |                       |            |            |                       |              |               |              |
| Dissolved Organic Carbon       | mg/L     | -                              | 8.99       | 8.95       | 0.45                  | 7.10       | 7.16       | 0.84                  | <0.50        | -             | -            |
| Asbestos                       |          |                                |            |            |                       |            |            |                       |              |               |              |
| Total Asbestos                 | MFL      | -                              | -          | -          | -                     | -          | -          | -                     | -            | -             | -            |



Table 9.3: Analytical Quality Assurance and Control

|                                    |             | Sample Station                 | GWCC-3         |                |                       | GWCC-5         |                |                       | Field Blanks | Travel Blanks |              |
|------------------------------------|-------------|--------------------------------|----------------|----------------|-----------------------|----------------|----------------|-----------------------|--------------|---------------|--------------|
|                                    |             | Sample ID                      | DUP-1          | GWCC-3         | RPD (%) <sup>13</sup> | DUP-2*         | GWCC-5*        | RPD (%) <sup>13</sup> | E3 (FB-1)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                    |             | Date Sampled                   | 20/07/2016     | 20/07/2016     |                       | 22/07/2016     | 22/07/2016     |                       | 20/07/2016   | 20/07/2016    | 24/07/2016   |
|                                    |             | ALS Work Order                 | L1802392       | L1802392       |                       | L1803696       | L1803696       |                       | L1802392     | L1802392      | L1803696     |
|                                    |             | CCME-FAL <sup>1, 2, 3, 4</sup> | Good           | Good           |                       | Good           | Good           |                       | -            | -             | -            |
| Parameter                          | Units       |                                |                |                |                       |                |                |                       |              |               |              |
| Dissolved Metals                   |             |                                |                |                |                       |                |                |                       |              |               |              |
| Aluminum (Al)-Dissolved            | mg/L        | Varies <sup>8</sup>            | 0.0014         | 0.0015         | 6.90                  | 0.0019         | 0.0015         | nc                    | <0.0010      | -             | -            |
| <i>Aluminum CCME-FAL</i>           | <i>mg/L</i> | -                              | <i>0.1000</i>  | <i>0.1000</i>  | -                     | <i>0.1000</i>  | <i>0.1000</i>  | -                     | -            | -             | -            |
| Antimony (Sb)-Dissolved            | mg/L        | -                              | 0.00106        | 0.00106        | 0.00                  | 0.00074        | 0.00076        | 2.67                  | <0.00010     | -             | -            |
| Arsenic (As)-Dissolved             | mg/L        | 0.005                          | 0.00088        | 0.00091        | 3.35                  | 0.00072        | 0.00069        | 4.26                  | <0.00010     | -             | -            |
| Barium (Ba)-Dissolved              | mg/L        | -                              | 0.0349         | 0.0349         | 0.00                  | 0.0561         | 0.0536         | 4.56                  | <0.000050    | -             | -            |
| Beryllium (Be)-Dissolved           | mg/L        | -                              | <0.000020      | <0.000020      | nc                    | <0.000020      | <0.000020      | nc                    | <0.000020    | -             | -            |
| Bismuth (Bi)-Dissolved             | mg/L        | -                              | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050      | nc                    | <0.000050    | -             | -            |
| Boron (B)-Dissolved                | mg/L        | 1.5                            | 0.074          | 0.073          | 1.36                  | 0.030          | 0.030          | 0.00                  | <0.010       | -             | -            |
| Cadmium (Cd)-Dissolved             | mg/L        | Varies <sup>9</sup>            | 0.0000751      | 0.0000754      | 0.40                  | 0.000115       | 0.000109       | 5.36                  | <0.0000050   | -             | -            |
| <i>Cadmium CCME-FAL</i>            | <i>mg/L</i> | -                              | <i>0.00037</i> | <i>0.00037</i> | -                     | <i>0.00037</i> | <i>0.00037</i> | -                     | -            | -             | -            |
| Calcium (Ca)-Dissolved             | mg/L        | -                              | 104            | 105            | 0.96                  | 124            | 126            | 1.60                  | <0.050       | -             | -            |
| Chromium (Cr)-Dissolved            | mg/L        | -                              | 0.00045        | 0.00043        | 4.55                  | 0.00064        | 0.00062        | 3.17                  | <0.00010     | -             | -            |
| Trivalent Chromium (III)-Dissolved | mg/L        | 0.0089                         | -              | -              | -                     | -              | -              | nc                    | -            | -             | -            |
| Hexavalent Chromium (VI)-Dissolved | mg/L        | 0.001                          | -              | -              | -                     | -              | -              | nc                    | -            | -             | -            |
| Cobalt (Co)-Dissolved              | mg/L        | -                              | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010       | nc                    | <0.00010     | -             | -            |
| Copper (Cu)-Dissolved              | mg/L        | Varies <sup>10</sup>           | 0.00110        | 0.00114        | 3.57                  | 0.00079        | 0.00078        | 1.27                  | <0.00020     | -             | -            |
| <i>Copper CCME-FAL</i>             | <i>mg/L</i> | -                              | <i>0.004</i>   | <i>0.004</i>   | -                     | <i>0.004</i>   | <i>0.004</i>   | -                     | -            | -             | -            |
| Iron (Fe)-Dissolved                | mg/L        | 0.3                            | <0.010         | <0.010         | nc                    | 0.039          | 0.038          | 2.60                  | <0.010       | -             | -            |
| Lead (Pb)-Dissolved                | mg/L        | Varies <sup>11</sup>           | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050      | nc                    | <0.000050    | -             | -            |
| <i>Lead CCME-FAL</i>               | <i>mg/L</i> | -                              | <i>0.007</i>   | <i>0.007</i>   | -                     | <i>0.007</i>   | <i>0.007</i>   | -                     | -            | -             | -            |
| Lithium (Li)-Dissolved             | mg/L        | -                              | 0.0081         | 0.0079         | 2.50                  | 0.0098         | 0.0096         | 2.06                  | <0.0010      | -             | -            |
| Magnesium (Mg)-Dissolved           | mg/L        | -                              | 85.6           | 85.2           | 0.47                  | 59.7           | 59.9           | 0.33                  | <0.10        | -             | -            |
| Manganese (Mn)-Dissolved           | mg/L        | -                              | 0.00011        | 0.00012        | 8.70                  | 0.00312        | 0.00316        | 1.27                  | <0.00010     | -             | -            |
| Mercury (Hg)-Dissolved             | mg/L        | 0.000026                       | <0.0000050     | <0.0000050     | nc                    | <0.0000050     | <0.0000050     | nc                    | <0.0000050   | -             | -            |
| Molybdenum (Mo)-Dissolved          | mg/L        | 0.073                          | 0.00244        | 0.00241        | 1.24                  | 0.00168        | 0.00167        | 0.60                  | <0.000050    | -             | -            |
| Nickel (Ni)-Dissolved              | mg/L        | Varies <sup>12</sup>           | 0.0306         | 0.0305         | 0.33                  | 0.0194         | 0.0193         | 0.52                  | <0.00050     | -             | -            |
| <i>Nickel CCME-FAL</i>             | <i>mg/L</i> | -                              | <i>0.15</i>    | <i>0.15</i>    | -                     | <i>0.15</i>    | <i>0.15</i>    | -                     | -            | -             | -            |
| Phosphorus (P)-Dissolved           | mg/L        | -                              | <0.050         | <0.050         | nc                    | <0.050         | <0.050         | nc                    | <0.050       | -             | -            |
| Potassium (K)-Dissolved            | mg/L        | -                              | 1.32           | 1.29           | 2.30                  | 0.75           | 0.79           | 5.19                  | <0.10        | -             | -            |
| Selenium (Se)-Dissolved            | mg/L        | 0.001                          | 0.00154        | 0.00165        | 6.90                  | 0.00731        | 0.00769        | 5.07                  | <0.000050    | -             | -            |
| Silicon (Si)-Dissolved             | mg/L        | -                              | 5.40           | 5.37           | 0.56                  | 4.40           | 4.52           | 2.69                  | <0.050       | -             | -            |
| Silver (Ag)-Dissolved              | mg/L        | 0.00025                        | <0.000010      | <0.000010      | nc                    | <0.000010      | <0.000010      | nc                    | <0.000010    | -             | -            |
| Sodium (Na)-Dissolved              | mg/L        | -                              | 3.64           | 3.62           | 0.55                  | 4.05           | 4.02           | 0.74                  | <0.050       | -             | -            |
| Strontium (Sr)-Dissolved           | mg/L        | -                              | 0.527          | 0.524          | 0.57                  | 0.699          | 0.697          | 0.29                  | <0.00020     | -             | -            |
| Sulfur (S)-Dissolved               | mg/L        | -                              | 131            | 131            | 0.00                  | 104            | 105            | 0.96                  | <0.50        | -             | -            |
| Thallium (Tl)-Dissolved            | mg/L        | 0.0008                         | 0.000060       | 0.000059       | 1.68                  | 0.000015       | 0.000016       | 6.45                  | <0.000010    | -             | -            |
| Tin (Sn)-Dissolved                 | mg/L        | -                              | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010       | nc                    | <0.00010     | -             | -            |
| Titanium (Ti)-Dissolved            | mg/L        | -                              | <0.00030       | <0.00030       | nc                    | <0.00030       | <0.00030       | nc                    | <0.00030     | -             | -            |
| Uranium (U)-Dissolved              | mg/L        | 0.015                          | 0.00135        | 0.00134        | 0.74                  | 0.00228        | 0.00230        | 0.87                  | <0.000010    | -             | -            |
| Vanadium (V)-Dissolved             | mg/L        | -                              | <0.00050       | <0.00050       | nc                    | <0.00050       | <0.00050       | nc                    | <0.00050     | -             | -            |
| Zinc (Zn)-Dissolved                | mg/L        | 0.03                           | 0.0021         | 0.0020         | 4.88                  | <0.0010        | <0.0010        | nc                    | <0.0010      | -             | -            |
| Zirconium (Zr)-Dissolved           | mg/L        | -                              | <0.00030       | <0.00030       | nc                    | <0.00030       | <0.00030       | nc                    | <0.00030     | -             | -            |

Table 9.3: Analytical Quality Assurance and Control

|                                |             | Sample Station                 | GWCC-3         |                |                       | GWCC-5         |                |                       | Field Blanks   | Travel Blanks |              |
|--------------------------------|-------------|--------------------------------|----------------|----------------|-----------------------|----------------|----------------|-----------------------|----------------|---------------|--------------|
|                                |             | Sample ID                      | DUP-1          | GWCC-3         | RPD (%) <sup>13</sup> | DUP-2*         | GWCC-5*        | RPD (%) <sup>13</sup> | E3 (FB-1)      | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                |             | Date Sampled                   | 20/07/2016     | 20/07/2016     |                       | 22/07/2016     | 22/07/2016     |                       | 20/07/2016     | 20/07/2016    | 24/07/2016   |
|                                |             | ALS Work Order                 | L1802392       | L1802392       |                       | L1803696       | L1803696       |                       | L1802392       | L1802392      | L1803696     |
|                                |             | CCME-FAL <sup>1, 2, 3, 4</sup> | Good           | Good           |                       | Good           | Good           |                       | -              | -             | -            |
| Parameter                      | Units       |                                |                |                |                       |                |                |                       |                |               |              |
| Total Metals                   |             |                                |                |                |                       |                |                |                       |                |               |              |
| Aluminum (Al)-Total            | mg/L        | Varies <sup>8</sup>            | <0.0030        | <0.0030        | nc                    | <0.0030        | 0.0046         | nc                    | <0.0030        | <0.0030       | <0.0030      |
| <i>Aluminum CCME-FAL</i>       | <i>mg/L</i> | -                              | <i>0.1000</i>  | <i>0.1000</i>  | -                     | <i>0.1000</i>  | <i>0.1000</i>  | -                     | -              | -             | -            |
| Antimony (Sb)-Total            | mg/L        | -                              | 0.00108        | 0.00109        | 0.92                  | 0.00076        | 0.00076        | 0.00                  | <0.00010       | <0.00010      | <0.00010     |
| Arsenic (As)-Total             | mg/L        | 0.005                          | 0.00094        | 0.00094        | 0.00                  | 0.00076        | 0.00082        | 7.59                  | <0.00010       | <0.00010      | <0.00010     |
| Barium (Ba)-Total              | mg/L        | -                              | 0.0355         | 0.0356         | 0.28                  | 0.0533         | 0.0516         | 3.24                  | <0.000050      | <0.000050     | <0.000050    |
| Beryllium (Be)-Total           | mg/L        | -                              | <0.000020      | <0.000020      | nc                    | <0.000020      | <0.000020      | nc                    | <0.000020      | <0.000020     | <0.000020    |
| Bismuth (Bi)-Total             | mg/L        | -                              | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050     | <0.000050    |
| Boron (B)-Total                | mg/L        | 1.5                            | 0.078          | 0.078          | 0.00                  | 0.032          | 0.031          | 3.17                  | <0.010         | <0.010        | <0.010       |
| Cadmium (Cd)-Total             | mg/L        | Varies <sup>9</sup>            | 0.0000797      | 0.0000693      | 13.96                 | 0.000110       | 0.000107       | 2.76                  | <0.0000050     | <0.0000050    | <0.0000050   |
| <i>Cadmium CCME-FAL</i>        | <i>mg/L</i> | -                              | <i>0.00037</i> | <i>0.00037</i> | -                     | <i>0.00037</i> | <i>0.00037</i> | -                     | -              | -             | -            |
| Calcium (Ca)-Total             | mg/L        | -                              | 107            | 106            | 0.94                  | 127            | 126            | 0.79                  | <0.050         | <0.050        | <0.050       |
| Chromium (Cr)-Total            | mg/L        | -                              | 0.00048        | 0.00051        | 6.06                  | 0.00070        | 0.00068        | 2.90                  | <0.00010       | <0.00010      | <0.00010     |
| Trivalent Chromium (III)-Total | mg/L        | 0.0089                         | -              | -              | -                     | -              | -              | nc                    | -              | -             | -            |
| Hexavalent Chromium (VI)-Total | mg/L        | 0.001                          | -              | -              | -                     | -              | -              | nc                    | -              | -             | -            |
| Cobalt (Co)-Total              | mg/L        | -                              | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010      | <0.00010     |
| Copper (Cu)-Total              | mg/L        | Varies <sup>10</sup>           | 0.00141        | 0.00131        | 7.35                  | 0.00088        | 0.00086        | 2.30                  | <0.00050       | <0.00050      | <0.00050     |
| <i>Copper CCME-FAL</i>         | <i>mg/L</i> | -                              | <i>0.004</i>   | <i>0.004</i>   | -                     | <i>0.004</i>   | <i>0.004</i>   | -                     | -              | -             | -            |
| Iron (Fe)-Total                | mg/L        | 0.3                            | <0.010         | <0.010         | nc                    | 0.052          | 0.053          | 1.90                  | <0.010         | <0.010        | <0.010       |
| Lead (Pb)-Total                | mg/L        | Varies <sup>11</sup>           | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050     | <0.000050    |
| <i>Lead CCME-FAL</i>           | <i>mg/L</i> | -                              | <i>0.007</i>   | <i>0.007</i>   | -                     | <i>0.007</i>   | <i>0.007</i>   | -                     | -              | -             | -            |
| Lithium (Li)-Total             | mg/L        | -                              | 0.0081         | 0.0080         | 1.24                  | 0.0097         | 0.0097         | 0.00                  | <0.0010        | <0.0010       | <0.0010      |
| Magnesium (Mg)-Total           | mg/L        | -                              | 84.9           | 84.3           | 0.71                  | 58.3           | 58.0           | 0.52                  | <0.10          | <0.10         | <0.10        |
| Manganese (Mn)-Total           | mg/L        | -                              | 0.00017        | 0.00018        | 5.71                  | 0.00341        | 0.00346        | 1.46                  | <b>0.00011</b> | <0.00010      | <0.00010     |
| Mercury (Hg)-Total             | mg/L        | 0.000026                       | <0.0000050     | <0.0000050     | nc                    | <0.0000050     | <0.0000050     | nc                    | <0.0000050     | <0.0000050    | <0.0000050   |
| Molybdenum (Mo)-Total          | mg/L        | 0.073                          | 0.00281        | 0.00282        | 0.36                  | 0.00192        | 0.00192        | 0.00                  | <0.000050      | <0.000050     | <0.000050    |
| Nickel (Ni)-Total              | mg/L        | Varies <sup>12</sup>           | 0.0315         | 0.0317         | 0.63                  | 0.0195         | 0.0191         | 2.07                  | <0.00050       | <0.00050      | <0.00050     |
| <i>Nickel CCME-FAL</i>         | <i>mg/L</i> | -                              | <i>0.15</i>    | <i>0.15</i>    | -                     | <i>0.15</i>    | <i>0.15</i>    | -                     | -              | -             | -            |
| Phosphorus (P)-Total           | mg/L        | -                              | <0.050         | <0.050         | nc                    | <0.050         | <0.050         | nc                    | <0.050         | <0.050        | <0.050       |
| Potassium (K)-Total            | mg/L        | -                              | 1.39           | 1.35           | 2.92                  | 0.77           | 0.77           | 0.00                  | <0.10          | <0.10         | <0.10        |
| Selenium (Se)-Total            | mg/L        | 0.001                          | 0.00147        | 0.00144        | 2.06                  | 0.00738        | 0.00742        | 0.54                  | <0.000050      | <0.000050     | <0.000050    |
| Silicon (Si)-Total             | mg/L        | -                              | 5.55           | 5.50           | 0.90                  | 4.47           | 4.45           | 0.45                  | <0.050         | <0.050        | <0.050       |
| Silver (Ag)-Total              | mg/L        | 0.00025                        | <0.000010      | <0.000010      | nc                    | <0.000010      | <0.000010      | nc                    | <0.000010      | <0.000010     | <0.000010    |
| Sodium (Na)-Total              | mg/L        | -                              | 3.73           | 3.72           | 0.27                  | 3.99           | 3.94           | 1.26                  | <0.050         | <0.050        | <0.050       |
| Strontium (Sr)-Total           | mg/L        | -                              | 0.535          | 0.541          | 1.12                  | 0.703          | 0.717          | 1.97                  | <0.00020       | <0.00020      | <0.00020     |
| Sulfur (S)-Total               | mg/L        | -                              | 142            | 138            | 2.86                  | 111            | 111            | 0.00                  | <0.50          | <0.50         | <0.50        |
| Thallium (Tl)-Total            | mg/L        | 0.0008                         | 0.000081       | 0.000073       | 10.39                 | 0.000015       | 0.000016       | 6.45                  | <0.000010      | <0.000010     | <0.000010    |
| Tin (Sn)-Total                 | mg/L        | -                              | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010      | <0.00010     |
| Titanium (Ti)-Total            | mg/L        | -                              | <0.00030       | <0.00030       | nc                    | <0.00030       | <0.00030       | nc                    | <0.00030       | <0.00030      | <0.00030     |
| Uranium (U)-Total              | mg/L        | 0.015                          | 0.00145        | 0.00146        | 0.69                  | 0.00239        | 0.00247        | 3.29                  | <0.000010      | <0.000010     | <0.000010    |
| Vanadium (V)-Total             | mg/L        | -                              | <0.00050       | <0.00050       | nc                    | <0.00050       | <0.00050       | nc                    | <0.00050       | <0.00050      | <0.00050     |
| Zinc (Zn)-Total                | mg/L        | 0.03                           | 0.0030         | <0.0030        | nc                    | <0.0030        | <0.0030        | nc                    | <0.0030        | <0.0030       | <0.0030      |
| Zirconium (Zr)-Total           | mg/L        | -                              | <0.00030       | <0.00030       | nc                    | <0.00030       | <0.00030       | nc                    | <0.00030       | <0.00030      | <0.00030     |



Table 9.4: Analytical Quality Assurance and Control

|                                |          | Sample Station                 | E1         |            |                       | E1(H)      |            |                       | Field Blanks | Travel Blanks |              |
|--------------------------------|----------|--------------------------------|------------|------------|-----------------------|------------|------------|-----------------------|--------------|---------------|--------------|
|                                |          | Sample ID                      | E1         | DUP-1      | RPD (%) <sup>13</sup> | E1(H)      | DUP-2      | RPD (%) <sup>13</sup> | FB-1 (E1)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                |          | Date Sampled                   | 16/08/2016 | 16/08/2016 |                       | 20/08/2016 | 20/08/2016 |                       | 16/08/2016   | 17/08/2016    | 22/08/2016   |
|                                |          | ALS Work Order                 | L1816106   | L1816106   |                       | L1816799   | L1816799   |                       | L1816106     | L1816106      | L1816799     |
| Parameter                      | Units    | CCME-FAL <sup>1, 2, 3, 4</sup> | Good       | Good       |                       | Good       | Good       |                       | Good         | -             | -            |
| Physical Tests                 |          |                                |            |            |                       |            |            |                       |              |               |              |
| Lab pH                         | pH units | 6.5-9.0 <sup>ᵇ</sup>           | 8.09       | 8.18       | 1.11                  | 7.91       | 7.91       | 0.00                  | 5.73         | 5.63          | 5.17         |
| Field pH                       | pH units | 6.5-9.0 <sup>ᵇ</sup>           | 8.88       | 8.88       | -                     | 7.89       | 7.89       | -                     | -            | -             | -            |
| Field Temperature              | C        | -                              | 12.8       | 12.8       | -                     | 12.1       | 12.1       | -                     | -            | -             | -            |
| Lab Conductivity               | uS/cm    | -                              | 473        | 475        | 0.42                  | 434        | 442        | 1.83                  | <2.0         | <2.0          | <2.0         |
| Field Conductivity             | uS/cm    | -                              | 338.3      | 338.3      | -                     | 332.3      | 332.3      | -                     | -            | -             | -            |
| Field Specific Conductivity    | uS/cm    | -                              | 441.1      | 441.1      | -                     | 441        | 441        | -                     | -            | -             | -            |
| Field Dissolved Oxygen         | mg/L     | 9.5 <sup>ᵇ</sup>               | 10.13      | 10.13      | -                     | 8.9        | 8.9        | -                     | -            | -             | -            |
| Field Oxidation - Redox Potent | mV       | -                              | -27.9      | -27.9      | -                     | 117.1      | 117.1      | -                     | -            | -             | -            |
| Total Suspended Solids         | mg/L     | -                              | 4.9        | <2.0       | nc                    | 2.9        | <2.0       | nc                    | <2.0         | <2.0          | <2.0         |
| Total Hardness (as CaCO3)      | mg/L     | -                              | 238        | 238        | 0.00                  | 246        | 250        | 1.61                  | <0.50        | <0.50         | <0.50        |
| Anions and Nutrients           |          |                                |            |            |                       |            |            |                       |              |               |              |
| Nitrate (as N)                 | mg/L     | 13                             | 0.122      | 0.118      | 3.33                  | 0.111      | 0.113      | 1.79                  | <0.0050      | <0.0050       | <0.0050      |
| Nitrite (as N)                 | mg/L     | 0.06                           | 0.0017     | <0.0010    | nc                    | <0.0010    | 0.0026     | nc                    | <0.0010      | <0.0010       | <0.0010      |
| Ammonia, Total (as N)          | mg/L     | Varies <sup>ᶜ</sup>            | 0.0183     | 0.0170     | 7.37                  | 0.0215     | 0.0206     | 4.28                  | <0.0050      | <0.0050       | <0.0050      |
| Ammonia CCME-FAL               | mg/L     | -                              | -          | 0.1276     | -                     | 1.139      | 1.139      | -                     | -            | -             | -            |
| Sulfate (SO4)                  | mg/L     | -                              | 130        | 130        | 0.00                  | 130        | 130        | 0.00                  | <0.30        | <0.30         | <0.30        |
| Inorganic/Organic Carbon       |          |                                |            |            |                       |            |            |                       |              |               |              |
| Dissolved Organic Carbon       | mg/L     | -                              | 18.5       | 18.7       | 1.08                  | 16.9       | 18.8       | 10.64                 | <0.50        | -             | -            |
| Asbestos                       |          |                                |            |            |                       |            |            |                       |              |               |              |
| Total Asbestos                 | MFL      | -                              | -          | -          | -                     | -          | -          | -                     | -            | -             | -            |

Table 9.4: Analytical Quality Assurance and Control

|                                    |             | Sample Station                 | E1              |                 |                       | E1(H)           |                 |                       | Field Blanks | Travel Blanks |              |
|------------------------------------|-------------|--------------------------------|-----------------|-----------------|-----------------------|-----------------|-----------------|-----------------------|--------------|---------------|--------------|
|                                    |             | Sample ID                      | E1              | DUP-1           | RPD (%) <sup>13</sup> | E1(H)           | DUP-2           | RPD (%) <sup>13</sup> | FB-1 (E1)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                    |             | Date Sampled                   | 16/08/2016      | 16/08/2016      |                       | 20/08/2016      | 20/08/2016      |                       | 16/08/2016   | 17/08/2016    | 22/08/2016   |
|                                    |             | ALS Work Order                 | L1816106        | L1816106        |                       | L1816799        | L1816799        |                       | L1816106     | L1816106      | L1816799     |
| Parameter                          | Units       | CCME-FAL <sup>1, 2, 3, 4</sup> | Good            | Good            |                       | Good            | Good            |                       | Good         | -             | -            |
| Dissolved Metals                   |             |                                |                 |                 |                       |                 |                 |                       |              |               |              |
| Aluminum (Al)-Dissolved            | mg/L        | Varies <sup>8</sup>            | 0.0546          | 0.0457          | 17.75                 | 0.0556          | 0.0617          | 10.40                 | <0.0010      | -             | -            |
| <i>Aluminum CCME-FAL</i>           | <i>mg/L</i> | -                              | <i>0.1000</i>   | <i>0.1000</i>   | -                     | <i>0.1000</i>   | <i>0.1000</i>   | -                     | -            | -             | -            |
| Antimony (Sb)-Dissolved            | mg/L        | -                              | 0.00032         | 0.00028         | 13.33                 | 0.00040         | 0.00032         | nc                    | <0.00010     | -             | -            |
| Arsenic (As)-Dissolved             | mg/L        | 0.005                          | 0.00083         | 0.00065         | <b>24.32</b>          | 0.00083         | 0.00081         | 2.44                  | <0.00010     | -             | -            |
| Barium (Ba)-Dissolved              | mg/L        | -                              | 0.0647          | 0.0544          | 17.30                 | 0.0681          | 0.0694          | 1.89                  | <0.000050    | -             | -            |
| Beryllium (Be)-Dissolved           | mg/L        | -                              | <0.000020       | <0.000020       | nc                    | <0.000020       | <0.000020       | nc                    | <0.000020    | -             | -            |
| Bismuth (Bi)-Dissolved             | mg/L        | -                              | <0.000050       | <0.000050       | nc                    | <0.000050       | <0.000050       | nc                    | <0.000050    | -             | -            |
| Boron (B)-Dissolved                | mg/L        | 1.5                            | <0.010          | <0.010          | nc                    | <0.010          | <0.010          | nc                    | <0.010       | -             | -            |
| Cadmium (Cd)-Dissolved             | mg/L        | Varies <sup>9</sup>            | 0.0000422       | 0.0000187       | nc                    | 0.0000320       | 0.0000437       | <b>30.91</b>          | <0.0000050   | -             | -            |
| <i>Cadmium CCME-FAL</i>            | <i>mg/L</i> | -                              | <i>0.000326</i> | <i>0.000326</i> | -                     | <i>0.000335</i> | <i>0.000339</i> | -                     | -            | -             | -            |
| Calcium (Ca)-Dissolved             | mg/L        | -                              | 55.4            | 55.7            | 0.54                  | 58.2            | 59.2            | 1.70                  | <0.050       | -             | -            |
| Chromium (Cr)-Dissolved            | mg/L        | -                              | 0.00066         | 0.00055         | 18.18                 | 0.00064         | 0.00071         | 10.37                 | <0.00010     | -             | -            |
| Trivalent Chromium (III)-Dissolved | mg/L        | 0.0089                         | -               | -               | -                     | -               | -               | -                     | -            | -             | -            |
| Hexavalent Chromium (VI)-Dissolved | mg/L        | 0.001                          | -               | -               | -                     | -               | -               | -                     | -            | -             | -            |
| Cobalt (Co)-Dissolved              | mg/L        | -                              | 0.00040         | 0.00034         | 16.22                 | 0.00046         | 0.00050         | 8.33                  | <0.00010     | -             | -            |
| Copper (Cu)-Dissolved              | mg/L        | Varies <sup>10</sup>           | 0.00303         | 0.00248         | 19.96                 | 0.00299         | 0.00318         | 6.16                  | <0.00020     | -             | -            |
| <i>Copper CCME-FAL</i>             | <i>mg/L</i> | -                              | <i>0.004</i>    | <i>0.004</i>    | -                     | <i>0.004</i>    | <i>0.004</i>    | -                     | -            | -             | -            |
| Iron (Fe)-Dissolved                | mg/L        | 0.3                            | 0.243           | 0.251           | 3.24                  | 0.277           | 0.288           | 3.89                  | <0.010       | -             | -            |
| Lead (Pb)-Dissolved                | mg/L        | Varies <sup>11</sup>           | 0.000078        | 0.000068        | 13.70                 | 0.000110        | 0.000107        | 2.76                  | <0.000050    | -             | -            |
| <i>Lead CCME-FAL</i>               | <i>mg/L</i> | -                              | <i>0.007</i>    | <i>0.007</i>    | -                     | <i>0.007</i>    | <i>0.007</i>    | -                     | -            | -             | -            |
| Lithium (Li)-Dissolved             | mg/L        | -                              | 0.0024          | 0.0022          | 8.70                  | 0.0029          | 0.0023          | nc                    | <0.0010      | -             | -            |
| Magnesium (Mg)-Dissolved           | mg/L        | -                              | 24.1            | 24.1            | 0.00                  | 24.4            | 24.7            | 1.22                  | <0.10        | -             | -            |
| Manganese (Mn)-Dissolved           | mg/L        | -                              | 0.135           | 0.110           | <b>20.41</b>          | 0.164           | 0.170           | 3.59                  | <0.00010     | -             | -            |
| Mercury (Hg)-Dissolved             | mg/L        | 0.000026                       | <0.0000050      | <0.0000050      | nc                    | <0.0000050      | <0.0000050      | nc                    | <0.0000050   | -             | -            |
| Molybdenum (Mo)-Dissolved          | mg/L        | 0.073                          | 0.00104         | 0.000858        | 19.18                 | 0.00128         | 0.000958        | <b>28.78</b>          | <0.000050    | -             | -            |
| Nickel (Ni)-Dissolved              | mg/L        | Varies <sup>12</sup>           | 0.00445         | 0.00374         | 17.34                 | 0.00391         | 0.00418         | 6.67                  | <0.00050     | -             | -            |
| <i>Nickel CCME-FAL</i>             | <i>mg/L</i> | -                              | <i>0.15</i>     | <i>0.15</i>     | -                     | <i>0.15</i>     | <i>0.15</i>     | -                     | -            | -             | -            |
| Phosphorus (P)-Dissolved           | mg/L        | -                              | <0.050          | <0.050          | nc                    | <0.050          | <0.050          | nc                    | <0.050       | -             | -            |
| Potassium (K)-Dissolved            | mg/L        | -                              | 0.43            | 0.44            | 2.30                  | 0.47            | 0.46            | 2.15                  | <0.10        | -             | -            |
| Selenium (Se)-Dissolved            | mg/L        | 0.001                          | 0.00157         | 0.00152         | 3.24                  | 0.00166         | 0.00170         | 2.38                  | <0.000050    | -             | -            |
| Silicon (Si)-Dissolved             | mg/L        | -                              | 4.88            | 4.93            | 1.02                  | 4.98            | 5.03            | 1.00                  | <0.050       | -             | -            |
| Silver (Ag)-Dissolved              | mg/L        | 0.00025                        | <0.000010       | <0.000010       | nc                    | <0.000010       | <0.000010       | nc                    | <0.000010    | -             | -            |
| Sodium (Na)-Dissolved              | mg/L        | -                              | 2.41            | 1.90            | <b>23.67</b>          | 2.42            | 2.50            | 3.25                  | <0.050       | -             | -            |
| Strontium (Sr)-Dissolved           | mg/L        | -                              | 0.251           | 0.215           | 15.45                 | 0.314           | 0.238           | <b>27.54</b>          | <0.00020     | -             | -            |
| Sulfur (S)-Dissolved               | mg/L        | -                              | 45.7            | 44.7            | 2.21                  | 43.2            | 43.4            | 0.46                  | <0.50        | -             | -            |
| Thallium (Tl)-Dissolved            | mg/L        | 0.0008                         | <0.000010       | <0.000010       | nc                    | <0.000010       | <0.000010       | nc                    | <0.000010    | -             | -            |
| Tin (Sn)-Dissolved                 | mg/L        | -                              | <0.00010        | <0.00010        | nc                    | <0.00010        | <0.00010        | nc                    | <0.00010     | -             | -            |
| Titanium (Ti)-Dissolved            | mg/L        | -                              | 0.00121         | 0.00101         | 18.02                 | 0.00123         | 0.00134         | 8.56                  | <0.00030     | -             | -            |
| Uranium (U)-Dissolved              | mg/L        | 0.015                          | 0.00148         | 0.00128         | 14.49                 | 0.00185         | 0.00140         | <b>27.69</b>          | <0.000010    | -             | -            |
| Vanadium (V)-Dissolved             | mg/L        | -                              | 0.00058         | 0.00052         | 10.91                 | 0.00059         | 0.00063         | 6.56                  | <0.00050     | -             | -            |
| Zinc (Zn)-Dissolved                | mg/L        | 0.03                           | 0.0030          | <0.0010         | nc                    | 0.0011          | 0.0011          | 0.00                  | <0.0010      | -             | -            |
| Zirconium (Zr)-Dissolved           | mg/L        | -                              | 0.00094         | 0.00081         | 14.86                 | 0.00121         | 0.00093         | nc                    | <0.00030     | -             | -            |

Table 9.4: Analytical Quality Assurance and Control

|                                |             | Sample Station                 | E1              |                 |                       | E1(H)           |                 |                       | Field Blanks | Travel Blanks   |              |
|--------------------------------|-------------|--------------------------------|-----------------|-----------------|-----------------------|-----------------|-----------------|-----------------------|--------------|-----------------|--------------|
|                                |             | Sample ID                      | E1              | DUP-1           | RPD (%) <sup>13</sup> | E1(H)           | DUP-2           | RPD (%) <sup>13</sup> | FB-1 (E1)    | TRAVEL_BLANK    | TRAVEL_BLANK |
|                                |             | Date Sampled                   | 16/08/2016      | 16/08/2016      |                       | 20/08/2016      | 20/08/2016      |                       | 16/08/2016   | 17/08/2016      | 22/08/2016   |
|                                |             | ALS Work Order                 | L1816106        | L1816106        |                       | L1816799        | L1816799        |                       | L1816106     | L1816106        | L1816799     |
| Parameter                      | Units       | CCME-FAL <sup>1, 2, 3, 4</sup> | Good            | Good            |                       | Good            | Good            |                       | Good         | -               | -            |
| Total Metals                   |             |                                |                 |                 |                       |                 |                 |                       |              |                 |              |
| Aluminum (Al)-Total            | mg/L        | Varies <sup>8</sup>            | 0.170           | 0.145           | 15.87                 | 0.122           | 0.119           | 2.49                  | <0.0030      | <0.0030         | <0.0030      |
| <i>Aluminum CCME-FAL</i>       | <i>mg/L</i> | -                              | <i>0.1000</i>   | <i>0.1000</i>   | -                     | <i>0.1000</i>   | <i>0.1000</i>   | -                     | -            | -               | -            |
| Antimony (Sb)-Total            | mg/L        | -                              | 0.00038         | 0.00031         | nc                    | 0.00040         | 0.00035         | 13.33                 | <0.00010     | <0.00010        | <0.00010     |
| Arsenic (As)-Total             | mg/L        | 0.005                          | 0.00103         | 0.00090         | 13.47                 | 0.00098         | 0.00095         | 3.11                  | <0.00010     | <0.00010        | <0.00010     |
| Barium (Ba)-Total              | mg/L        | -                              | 0.0678          | 0.0607          | 11.05                 | 0.0681          | 0.0659          | 3.28                  | <0.000050    | <b>0.000051</b> | <0.000050    |
| Beryllium (Be)-Total           | mg/L        | -                              | 0.000021        | <0.000020       | nc                    | 0.000020        | <0.000020       | nc                    | <0.000020    | <0.000020       | <0.000020    |
| Bismuth (Bi)-Total             | mg/L        | -                              | <0.000050       | <0.000050       | nc                    | <0.000050       | <0.000050       | nc                    | <0.000050    | <0.000050       | <0.000050    |
| Boron (B)-Total                | mg/L        | 1.5                            | <0.010          | <0.010          | nc                    | <0.010          | <0.010          | nc                    | <0.010       | <0.010          | <0.010       |
| Cadmium (Cd)-Total             | mg/L        | Varies <sup>9</sup>            | 0.0000490       | 0.0000232       | nc                    | 0.0000421       | 0.0000429       | 1.88                  | <0.0000050   | <0.0000050      | <0.0000050   |
| <i>Cadmium CCME-FAL</i>        | <i>mg/L</i> | -                              | <i>0.000326</i> | <i>0.000326</i> | -                     | <i>0.000335</i> | <i>0.000339</i> | -                     | -            | -               | -            |
| Calcium (Ca)-Total             | mg/L        | -                              | 57.4            | 56.9            | 0.87                  | 57.2            | 57.1            | 0.17                  | <0.050       | <0.050          | <0.050       |
| Chromium (Cr)-Total            | mg/L        | -                              | 0.00154         | 0.00112         | <b>31.58</b>          | 0.00090         | 0.00088         | 2.25                  | <0.00010     | <0.00010        | <0.00010     |
| Trivalent Chromium (III)-Total | mg/L        | 0.0089                         | 0.00154         | 0.00112         | <b>31.58</b>          | -               | -               | nc                    | -            | -               | -            |
| Hexavalent Chromium (VI)-Total | mg/L        | 0.001                          | <0.0010         | <0.0010         | nc                    | -               | -               | nc                    | -            | -               | -            |
| Cobalt (Co)-Total              | mg/L        | -                              | 0.00056         | 0.00051         | 9.35                  | 0.00051         | 0.00050         | 1.98                  | <0.00010     | <0.00010        | <0.00010     |
| Copper (Cu)-Total              | mg/L        | Varies <sup>10</sup>           | 0.00324         | 0.00297         | 8.70                  | 0.00314         | 0.00327         | 4.06                  | <0.00050     | <0.00050        | <0.00050     |
| <i>Copper CCME-FAL</i>         | <i>mg/L</i> | -                              | <i>0.004</i>    | <i>0.004</i>    | -                     | <i>0.004</i>    | <i>0.004</i>    | -                     | -            | -               | -            |
| Iron (Fe)-Total                | mg/L        | 0.3                            | 0.545           | 0.524           | 3.93                  | 0.436           | 0.439           | 0.69                  | <0.010       | <0.010          | <0.010       |
| Lead (Pb)-Total                | mg/L        | Varies <sup>11</sup>           | 0.000254        | 0.000213        | 17.56                 | 0.000248        | 0.000236        | 4.96                  | <0.000050    | <0.000050       | <0.000050    |
| <i>Lead CCME-FAL</i>           | <i>mg/L</i> | -                              | <i>0.007</i>    | <i>0.007</i>    | -                     | <i>0.007</i>    | <i>0.007</i>    | -                     | -            | -               | -            |
| Lithium (Li)-Total             | mg/L        | -                              | 0.0025          | 0.0022          | 12.77                 | 0.0027          | 0.0026          | 3.77                  | <0.0010      | <0.0010         | <0.0010      |
| Magnesium (Mg)-Total           | mg/L        | -                              | 25.0            | 24.9            | 0.40                  | 24.3            | 24.3            | 0.00                  | <0.10        | <0.10           | <0.10        |
| Manganese (Mn)-Total           | mg/L        | -                              | 0.147           | 0.128           | 13.82                 | 0.169           | 0.163           | 3.61                  | <0.00010     | <0.00010        | <0.00010     |
| Mercury (Hg)-Total             | mg/L        | 0.000026                       | <0.000025       | 0.0000057       | nc                    | <0.0000050      | <0.000025       | nc                    | <0.0000050   | <0.0000050      | <0.0000050   |
| Molybdenum (Mo)-Total          | mg/L        | 0.073                          | 0.00119         | 0.00100         | 17.35                 | 0.00130         | 0.00114         | 13.11                 | <0.000050    | <0.000050       | <0.000050    |
| Nickel (Ni)-Total              | mg/L        | Varies <sup>12</sup>           | 0.00599         | 0.00469         | <b>24.34</b>          | 0.00411         | 0.00410         | 0.24                  | <0.00050     | <0.00050        | <0.00050     |
| <i>Nickel CCME-FAL</i>         | <i>mg/L</i> | -                              | <i>0.15</i>     | <i>0.15</i>     | -                     | <i>0.15</i>     | <i>0.15</i>     | -                     | -            | -               | -            |
| Phosphorus (P)-Total           | mg/L        | -                              | <0.050          | <0.050          | nc                    | <0.050          | <0.050          | nc                    | <0.050       | <0.050          | <0.050       |
| Potassium (K)-Total            | mg/L        | -                              | 0.49            | 0.48            | 2.06                  | 0.50            | 0.47            | 6.19                  | <0.10        | <0.10           | <0.10        |
| Selenium (Se)-Total            | mg/L        | 0.001                          | 0.00166         | 0.00146         | 12.82                 | 0.00174         | 0.00177         | 1.71                  | <0.000050    | <0.000050       | <0.000050    |
| Silicon (Si)-Total             | mg/L        | -                              | 5.16            | 5.16            | 0.00                  | 5.10            | 5.03            | 1.38                  | <0.050       | <0.050          | <0.050       |
| Silver (Ag)-Total              | mg/L        | 0.00025                        | <0.000010       | <0.000010       | nc                    | <0.000010       | <0.000010       | nc                    | <0.000010    | <0.000010       | <0.000010    |
| Sodium (Na)-Total              | mg/L        | -                              | 2.36            | 1.95            | 19.03                 | 2.38            | 2.34            | 1.69                  | <0.050       | <0.050          | <0.050       |
| Strontium (Sr)-Total           | mg/L        | -                              | 0.252           | 0.212           | 17.24                 | 0.296           | 0.252           | 16.06                 | <0.00020     | <0.00020        | <0.00020     |
| Sulfur (S)-Total               | mg/L        | -                              | 46.5            | 46.2            | 0.65                  | 45.8            | 45.3            | 1.10                  | <0.50        | <0.50           | <0.50        |
| Thallium (Tl)-Total            | mg/L        | 0.0008                         | <0.000010       | 0.000013        | nc                    | <0.000010       | <0.000010       | nc                    | <0.000010    | <0.000010       | <0.000010    |
| Tin (Sn)-Total                 | mg/L        | -                              | <0.00010        | <0.00010        | nc                    | <0.00010        | <0.00010        | nc                    | <0.00010     | <0.00010        | <0.00010     |
| Titanium (Ti)-Total            | mg/L        | -                              | 0.00451         | 0.00341         | <b>27.78</b>          | 0.00292         | 0.00290         | 0.69                  | <0.00030     | <0.00030        | <0.00030     |
| Uranium (U)-Total              | mg/L        | 0.015                          | 0.00153         | 0.00127         | 18.57                 | 0.00179         | 0.00148         | 18.96                 | <0.000010    | <0.000010       | <0.000010    |
| Vanadium (V)-Total             | mg/L        | -                              | 0.00121         | 0.00114         | 5.96                  | 0.00099         | 0.00102         | 2.99                  | <0.00050     | <0.00050        | <0.00050     |
| Zinc (Zn)-Total                | mg/L        | 0.03                           | 0.0031          | <0.0030         | nc                    | <0.0030         | <0.0030         | nc                    | <0.0030      | <0.0030         | <0.0030      |
| Zirconium (Zr)-Total           | mg/L        | -                              | 0.00101         | 0.00084         | 18.38                 | 0.00114         | 0.00098         | 15.09                 | <0.00030     | <0.00030        | <0.00030     |

Table 9.5: Analytical Quality Assurance and Control

|                                 |             | Sample Station                 | E2           |              |                       | E4          |             |                       | Field Blanks | Travel Blanks |              |
|---------------------------------|-------------|--------------------------------|--------------|--------------|-----------------------|-------------|-------------|-----------------------|--------------|---------------|--------------|
|                                 |             | Sample ID                      | DUP-1        | E2           | RPD (%) <sup>13</sup> | DUP-2*      | E4*         | RPD (%) <sup>13</sup> | FB-1 (R7)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                 |             | Date Sampled                   | 20/09/2016   | 20/09/2016   |                       | 22/09/2016  | 22/09/2016  |                       | 21/09/2016   | 21/09/2016    | 23/09/2016   |
|                                 |             | ALS Work Order                 | L1833355     | L1833355     |                       | L1834129    | L1834129    |                       | L1833355     | L1833355      | L1834129     |
|                                 |             | CCME-FAL <sup>1, 2, 3, 4</sup> | Good         | Good         |                       | Good        | Good        |                       | Good         | -             | -            |
| Parameter                       | Units       |                                |              |              |                       |             |             |                       |              |               |              |
| <b>Physical Tests</b>           |             |                                |              |              |                       |             |             |                       |              |               |              |
| Lab pH                          | pH units    | 6.5-9.0 <sup>b</sup>           | 8.27         | 8.26         | 0.12                  | 8.18        | 8.17        | 0.12                  | 5.75         | 6.01          | 5.55         |
| Field pH                        | pH units    | 6.5-9.0 <sup>b</sup>           | 8.12         | 8.12         | -                     | 7.9         | 7.9         | -                     | -            | -             | -            |
| Field Temperature               | C           | -                              | 7            | 7            | -                     | 6.9         | 6.9         | -                     | -            | -             | -            |
| Lab Conductivity                | uS/cm       | -                              | 760          | 750          | 1.32                  | 814         | 824         | 1.22                  | <2.0         | <2.0          | <2.0         |
| Field Conductivity              | uS/cm       | -                              | 425.1        | 425.1        | -                     | 423.1       | 423.1       | -                     | -            | -             | -            |
| Field Specific Conductivity     | uS/cm       | -                              | 647          | 647          | -                     | 647         | 647         | -                     | -            | -             | -            |
| Field Dissolved Oxygen          | mg/L        | 9.5 <sup>b</sup>               | 11.92        | 11.92        | -                     | 12.6        | 12.6        | -                     | -            | -             | -            |
| Field Oxidation - Redox Potent  | mV          | -                              | 47.6         | 47.6         | -                     | 107.1       | 107.1       | -                     | -            | -             | -            |
| Total Suspended Solids          | mg/L        | -                              | -            | -            | nc                    | -           | -           | nc                    | -            | -             | -            |
| Total Hardness (as CaCO3)       | mg/L        | -                              | 385          | 382          | 0.78                  | 408         | 425         | 4.08                  | <0.50        | -             | <0.50        |
| <b>Anions and Nutrients</b>     |             |                                |              |              |                       |             |             |                       |              |               |              |
| Nitrate (as N)                  | mg/L        | 13                             | 0.125        | 0.125        | 0.00                  | 0.138       | 0.137       | 0.73                  | <0.0050      | <0.0050       | <0.0050      |
| Nitrite (as N)                  | mg/L        | 0.06                           | <0.0010      | <0.0010      | nc                    | <0.0010     | <0.0010     | nc                    | <0.0010      | <0.0010       | <0.0010      |
| Ammonia, Total (as N)           | mg/L        | Varies <sup>c</sup>            | 0.0145       | 0.0147       | 1.37                  | 0.0103      | 0.0105      | 1.92                  | <0.0050      | <0.0050       | <0.010       |
| <i>Ammonia CCME-FAL</i>         | <i>mg/L</i> | -                              | <i>1.004</i> | <i>1.004</i> | -                     | <i>1.67</i> | <i>1.67</i> | -                     | -            | -             | -            |
| Sulfate (SO4)                   | mg/L        | -                              | 247          | 247          | 0.00                  | 254         | 256         | 0.78                  | <0.30        | <0.30         | <0.30        |
| <b>Inorganic/Organic Carbon</b> |             |                                |              |              |                       |             |             |                       |              |               |              |
| Dissolved Organic Carbon        | mg/L        | -                              | 13.6         | 13.8         | 1.46                  | 13.0        | 14.2        | 8.82                  | <0.50        | -             | -            |
| <b>Asbestos</b>                 |             |                                |              |              |                       |             |             |                       |              |               |              |
| Total Asbestos                  | MFL         | -                              | -            | -            | -                     | -           | -           | -                     | -            | -             | -            |

Table 9.5: Analytical Quality Assurance and Control

|                                    |             | Sample Station                 | E2             |                |                       | E4             |                |                       | Field Blanks | Travel Blanks |              |
|------------------------------------|-------------|--------------------------------|----------------|----------------|-----------------------|----------------|----------------|-----------------------|--------------|---------------|--------------|
|                                    |             | Sample ID                      | DUP-1          | E2             | RPD (%) <sup>13</sup> | DUP-2*         | E4*            | RPD (%) <sup>13</sup> | FB-1 (R7)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                    |             | Date Sampled                   | 20/09/2016     | 20/09/2016     |                       | 22/09/2016     | 22/09/2016     |                       | 21/09/2016   | 21/09/2016    | 23/09/2016   |
|                                    |             | ALS Work Order                 | L1833355       | L1833355       |                       | L1834129       | L1834129       |                       | L1833355     | L1833355      | L1834129     |
| Parameter                          | Units       | CCME-FAL <sup>1, 2, 3, 4</sup> | Good           | Good           |                       | Good           | Good           |                       | Good         | -             | -            |
| Dissolved Metals                   |             |                                |                |                |                       |                |                |                       |              |               |              |
| Aluminum (Al)-Dissolved            | mg/L        | Varies <sup>8</sup>            | 0.0246         | 0.0236         | 4.15                  | 0.0175         | 0.0195         | 10.81                 | <0.0010      | -             | -            |
| <i>Aluminum CCME-FAL</i>           | <i>mg/L</i> | -                              | <i>0.1000</i>  | <i>0.1000</i>  | 0.00                  | <i>0.100</i>   | <i>0.100</i>   | -                     | -            | -             | -            |
| Antimony (Sb)-Dissolved            | mg/L        | -                              | 0.00037        | 0.00037        | 0.00                  | 0.00038        | 0.00039        | nc                    | <0.00010     | -             | -            |
| Arsenic (As)-Dissolved             | mg/L        | 0.005                          | 0.00101        | 0.00103        | 1.96                  | 0.00094        | 0.00098        | 4.17                  | <0.00010     | -             | -            |
| Barium (Ba)-Dissolved              | mg/L        | -                              | 0.0587         | 0.0591         | 0.68                  | 0.0598         | 0.0612         | 2.31                  | <0.000050    | -             | -            |
| Beryllium (Be)-Dissolved           | mg/L        | -                              | <0.000020      | <0.000020      | nc                    | <0.000020      | <0.000020      | nc                    | <0.000020    | -             | -            |
| Bismuth (Bi)-Dissolved             | mg/L        | -                              | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050      | nc                    | <0.000050    | -             | -            |
| Boron (B)-Dissolved                | mg/L        | 1.5                            | 0.026          | 0.025          | 3.92                  | 0.039          | 0.039          | 0.00                  | <0.010       | -             | -            |
| Cadmium (Cd)-Dissolved             | mg/L        | Varies <sup>9</sup>            | 0.0000532      | 0.0000537      | 0.94                  | 0.0000486      | 0.0000492      | 1.23                  | <0.0000050   | -             | -            |
| <i>Cadmium CCME-FAL</i>            | <i>mg/L</i> | -                              | <i>0.00037</i> | <i>0.00037</i> | 0.00                  | <i>0.00037</i> | <i>0.00037</i> | -                     | -            | -             | -            |
| Calcium (Ca)-Dissolved             | mg/L        | -                              | 72.2           | 71.4           | 1.11                  | 80.3           | 82.3           | 2.46                  | <0.050       | -             | -            |
| Chromium (Cr)-Dissolved            | mg/L        | -                              | 0.00069        | 0.00064        | 7.52                  | 0.00057        | 0.00060        | 5.13                  | <0.00010     | -             | -            |
| Trivalent Chromium (III)-Dissolved | mg/L        | 0.0089                         | -              | -              | nc                    | -              | -              | -                     | -            | -             | -            |
| Hexavalent Chromium (VI)-Dissolved | mg/L        | 0.001                          | -              | -              | nc                    | -              | -              | -                     | -            | -             | -            |
| Cobalt (Co)-Dissolved              | mg/L        | -                              | 0.00070        | 0.00071        | 1.42                  | 0.00080        | 0.00083        | 3.68                  | <0.00010     | -             | -            |
| Copper (Cu)-Dissolved              | mg/L        | Varies <sup>10</sup>           | 0.00210        | 0.00208        | 0.96                  | 0.00178        | 0.00182        | 2.22                  | <0.00020     | -             | -            |
| <i>Copper CCME-FAL</i>             | <i>mg/L</i> | -                              | <i>0.004</i>   | <i>0.004</i>   | 0.00                  | <i>0.004</i>   | <i>0.004</i>   | -                     | -            | -             | -            |
| Iron (Fe)-Dissolved                | mg/L        | 0.3                            | 0.233          | 0.232          | 0.43                  | 0.256          | 0.258          | 0.78                  | <0.010       | -             | -            |
| Lead (Pb)-Dissolved                | mg/L        | Varies <sup>11</sup>           | <0.000050      | <0.000050      | nc                    | <0.000050      | 0.000051       | nc                    | <0.000050    | -             | -            |
| <i>Lead CCME-FAL</i>               | <i>mg/L</i> | -                              | <i>0.007</i>   | <i>0.007</i>   | 0.00                  | <i>0.007</i>   | <i>0.007</i>   | -                     | -            | -             | -            |
| Lithium (Li)-Dissolved             | mg/L        | -                              | 0.0080         | 0.0081         | 1.24                  | 0.0101         | 0.0107         | nc                    | <0.0010      | -             | -            |
| Magnesium (Mg)-Dissolved           | mg/L        | -                              | 49.6           | 49.6           | 0.00                  | 50.5           | 53.3           | 5.39                  | <0.10        | -             | -            |
| Manganese (Mn)-Dissolved           | mg/L        | -                              | 0.203          | 0.204          | 0.49                  | 0.256          | 0.262          | 2.32                  | <0.00010     | -             | -            |
| Mercury (Hg)-Dissolved             | mg/L        | 0.000026                       | <0.0000050     | <0.0000050     | nc                    | 0.0000052      | <0.0000050     | nc                    | <0.0000050   | -             | -            |
| Molybdenum (Mo)-Dissolved          | mg/L        | 0.073                          | 0.00137        | 0.00130        | 5.24                  | 0.00146        | 0.00143        | 2.08                  | <0.000050    | -             | -            |
| Nickel (Ni)-Dissolved              | mg/L        | Varies <sup>12</sup>           | 0.0115         | 0.0114         | 0.87                  | 0.0123         | 0.0125         | 1.61                  | <0.00050     | -             | -            |
| <i>Nickel CCME-FAL</i>             | <i>mg/L</i> | -                              | <i>0.15</i>    | <i>0.15</i>    | 0.00                  | <i>0.15</i>    | <i>0.15</i>    | -                     | -            | -             | -            |
| Phosphorus (P)-Dissolved           | mg/L        | -                              | <0.050         | <0.050         | nc                    | <0.050         | <0.050         | nc                    | <0.050       | -             | -            |
| Potassium (K)-Dissolved            | mg/L        | -                              | 0.78           | 0.78           | 0.00                  | 0.77           | 0.80           | 3.82                  | <0.10        | -             | -            |
| Selenium (Se)-Dissolved            | mg/L        | 0.001                          | 0.00192        | 0.00205        | 6.55                  | 0.00152        | 0.00160        | 5.13                  | <0.000050    | -             | -            |
| Silicon (Si)-Dissolved             | mg/L        | -                              | 5.03           | 5.03           | 0.00                  | 5.00           | 5.02           | 0.40                  | <0.050       | -             | -            |
| Silver (Ag)-Dissolved              | mg/L        | 0.00025                        | <0.000010      | <0.000010      | nc                    | <0.000010      | <0.000010      | nc                    | <0.000010    | -             | -            |
| Sodium (Na)-Dissolved              | mg/L        | -                              | 3.86           | 3.86           | 0.00                  | 4.48           | 4.67           | 4.15                  | <0.050       | -             | -            |
| Strontium (Sr)-Dissolved           | mg/L        | -                              | 0.413          | 0.410          | 0.73                  | 0.481          | 0.477          | 0.84                  | <0.00020     | -             | -            |
| Sulfur (S)-Dissolved               | mg/L        | -                              | 89.0           | 88.5           | 0.56                  | 86.2           | 86.0           | 0.23                  | <0.50        | -             | -            |
| Thallium (Tl)-Dissolved            | mg/L        | 0.0008                         | 0.000014       | 0.000013       | 7.41                  | 0.000011       | 0.000012       | 8.70                  | <0.000010    | -             | -            |
| Tin (Sn)-Dissolved                 | mg/L        | -                              | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010       | nc                    | <0.00010     | -             | -            |
| Titanium (Ti)-Dissolved            | mg/L        | -                              | 0.00048        | 0.00046        | 4.26                  | 0.00039        | 0.00043        | 9.76                  | <0.00030     | -             | -            |
| Uranium (U)-Dissolved              | mg/L        | 0.015                          | 0.00228        | 0.00224        | 1.77                  | 0.00275        | 0.00276        | 0.36                  | <0.000010    | -             | -            |
| Vanadium (V)-Dissolved             | mg/L        | -                              | <0.00050       | <0.00050       | nc                    | <0.00050       | <0.00050       | nc                    | <0.00050     | -             | -            |
| Zinc (Zn)-Dissolved                | mg/L        | 0.03                           | 0.0022         | 0.0044         | -                     | 0.0026         | 0.0027         | 3.77                  | <0.0010      | -             | -            |
| Zirconium (Zr)-Dissolved           | mg/L        | -                              | 0.00075        | 0.00071        | 5.48                  | 0.00105        | 0.00105        | nc                    | <0.00030     | -             | -            |

Table 9.5: Analytical Quality Assurance and Control

|                                 |             | Sample Station                 | E2             |                |                       | E4             |                |                       | Field Blanks | Travel Blanks |              |
|---------------------------------|-------------|--------------------------------|----------------|----------------|-----------------------|----------------|----------------|-----------------------|--------------|---------------|--------------|
|                                 |             | Sample ID                      | DUP-1          | E2             | RPD (%) <sup>13</sup> | DUP-2*         | E4*            | RPD (%) <sup>13</sup> | FB-1 (R7)    | TRAVEL_BLANK  | TRAVEL_BLANK |
|                                 |             | Date Sampled                   | 20/09/2016     | 20/09/2016     |                       | 22/09/2016     | 22/09/2016     |                       | 21/09/2016   | 21/09/2016    | 23/09/2016   |
|                                 |             | ALS Work Order                 | L1833355       | L1833355       |                       | L1834129       | L1834129       |                       | L1833355     | L1833355      | L1834129     |
| Parameter                       | Units       | CCME-FAL <sup>1, 2, 3, 4</sup> | Good           | Good           |                       | Good           | Good           |                       | Good         | -             | -            |
| Total Metals                    |             |                                |                |                |                       |                |                |                       |              |               |              |
| Aluminum (Al)-Total             | mg/L        | Varies <sup>8</sup>            | 0.118          | 0.123          | 4.15                  | 0.102          | 0.0990         | 2.99                  | <0.0030      | <0.0030       | <0.0030      |
| <i>Aluminum CCME-FAL</i>        | <i>mg/L</i> | -                              | <i>0.1000</i>  | <i>0.1000</i>  | -                     | <i>0.100</i>   | <i>0.100</i>   | -                     | -            | -             | -            |
| Antimony (Sb)-Total             | mg/L        | -                              | 0.00052        | 0.00056        | 7.41                  | 0.00043        | 0.00050        | 15.05                 | <0.00010     | <0.00010      | <0.00010     |
| Arsenic (As)-Total              | mg/L        | 0.005                          | 0.00161        | 0.00159        | 1.25                  | 0.00124        | 0.00124        | 0.00                  | <0.00010     | <0.00010      | <0.00010     |
| Barium (Ba)-Total               | mg/L        | -                              | 0.0643         | 0.0643         | 0.00                  | 0.0658         | 0.0640         | 2.77                  | <0.000050    | <0.000050     | <0.000050    |
| Beryllium (Be)-Total            | mg/L        | -                              | <0.000020      | <0.000020      | nc                    | <0.000020      | <0.000020      | nc                    | <0.000020    | <0.000020     | <0.000020    |
| Bismuth (Bi)-Total              | mg/L        | -                              | <0.000050      | <0.000050      | nc                    | <0.000050      | <0.000050      | nc                    | <0.000050    | <0.000050     | <0.000050    |
| Boron (B)-Total                 | mg/L        | 1.5                            | 0.027          | 0.027          | 0.00                  | 0.042          | 0.042          | 0.00                  | <0.010       | <0.010        | <0.010       |
| Cadmium (Cd)-Total              | mg/L        | Varies <sup>9</sup>            | 0.0000763      | 0.0000722      | 5.52                  | 0.0000721      | 0.0000734      | 1.79                  | <0.0000050   | <0.0000050    | <0.0000050   |
| <i>Cadmium CCME-FAL</i>         | <i>mg/L</i> | -                              | <i>0.00037</i> | <i>0.00037</i> | -                     | <i>0.00037</i> | <i>0.00037</i> | -                     | -            | -             | -            |
| Calcium (Ca)-Total              | mg/L        | -                              | 71.6           | 72.8           | 1.66                  | 83.5           | 81.7           | 2.18                  | <0.050       | <0.050        | <0.050       |
| Chromium (Cr)-Total             | mg/L        | -                              | 0.00560        | 0.00568        | 1.42                  | 0.00118        | 0.00117        | 0.85                  | <0.00010     | <0.00010      | <0.00010     |
| Trivalent Chromium (III)-Total  | mg/L        | 0.0089                         | 0.00560        | 0.00568        | 1.42                  | 0.00118        | 0.00117        | 0.85                  | -            | -             | -            |
| Hexavalent Chromium (VI) -Total | mg/L        | 0.001                          | <0.0010        | <0.0010        | nc                    | <0.0010        | <0.0010        | nc                    | -            | -             | -            |
| Cobalt (Co)-Total               | mg/L        | -                              | 0.00129        | 0.00128        | 0.78                  | 0.00101        | 0.00095        | 6.12                  | <0.00010     | <0.00010      | <0.00010     |
| Copper (Cu)-Total               | mg/L        | Varies <sup>10</sup>           | 0.00306        | 0.00302        | 1.32                  | 0.00237        | 0.00238        | 0.42                  | <0.00050     | <0.00050      | <0.00050     |
| <i>Copper CCME-FAL</i>          | <i>mg/L</i> | -                              | <i>0.004</i>   | <i>0.004</i>   | -                     | <i>0.004</i>   | <i>0.004</i>   | -                     | -            | -             | -            |
| Iron (Fe)-Total                 | mg/L        | 0.3                            | 0.761          | 0.755          | 0.79                  | 0.606          | 0.554          | 8.97                  | <0.010       | <0.010        | <0.010       |
| Lead (Pb)-Total                 | mg/L        | Varies <sup>11</sup>           | 0.000278       | 0.000277       | 0.36                  | 0.000199       | 0.000209       | 4.90                  | <0.000050    | <0.000050     | <0.000050    |
| <i>Lead CCME-FAL</i>            | <i>mg/L</i> | -                              | <i>0.007</i>   | <i>0.007</i>   | -                     | <i>0.007</i>   | <i>0.007</i>   | -                     | -            | -             | -            |
| Lithium (Li)-Total              | mg/L        | -                              | 0.0083         | 0.0082         | 1.21                  | 0.0106         | 0.0105         | 0.95                  | <0.0010      | <0.0010       | <0.0010      |
| Magnesium (Mg)-Total            | mg/L        | -                              | 50.3           | 49.1           | 2.41                  | 54.2           | 53.0           | 2.24                  | <0.10        | <0.10         | <0.10        |
| Manganese (Mn)-Total            | mg/L        | -                              | 0.221          | 0.214          | 3.22                  | 0.282          | 0.268          | 5.09                  | <0.00010     | <0.00010      | <0.00010     |
| Mercury (Hg)-Total              | mg/L        | 0.000026                       | 0.0000062      | 0.0000063      | 1.60                  | 0.0000060      | <0.0000050     | nc                    | <0.0000050   | <0.0000050    | <0.0000050   |
| Molybdenum (Mo)-Total           | mg/L        | 0.073                          | 0.00160        | 0.00159        | 0.63                  | 0.00154        | 0.00146        | 5.33                  | <0.000050    | <0.000050     | <0.000050    |
| Nickel (Ni)-Total               | mg/L        | Varies <sup>12</sup>           | 0.0212         | 0.0211         | 0.47                  | 0.0148         | 0.0143         | 3.44                  | <0.00050     | <0.00050      | <0.00050     |
| <i>Nickel CCME-FAL</i>          | <i>mg/L</i> | -                              | <i>0.15</i>    | <i>0.15</i>    | -                     | <i>0.15</i>    | <i>0.15</i>    | -                     | -            | -             | -            |
| Phosphorus (P)-Total            | mg/L        | -                              | <0.050         | <0.050         | nc                    | <0.050         | <0.050         | nc                    | <0.050       | <0.050        | <0.050       |
| Potassium (K)-Total             | mg/L        | -                              | 0.78           | 0.77           | 1.29                  | 0.82           | 0.82           | 0.00                  | <0.10        | <0.10         | <0.10        |
| Selenium (Se)-Total             | mg/L        | 0.001                          | 0.00202        | 0.00195        | 3.53                  | 0.00167        | 0.00151        | 10.06                 | <0.000050    | <0.000050     | <0.000050    |
| Silicon (Si)-Total              | mg/L        | -                              | 5.69           | 5.63           | 1.06                  | 5.44           | 5.22           | 4.13                  | <0.050       | <0.050        | <0.050       |
| Silver (Ag)-Total               | mg/L        | 0.00025                        | 0.000010       | 0.000012       | 18.18                 | <0.000010      | <0.000010      | nc                    | <0.000010    | <0.000010     | <0.000010    |
| Sodium (Na)-Total               | mg/L        | -                              | 3.85           | 3.82           | 0.78                  | 4.80           | 4.59           | 4.47                  | <0.050       | <0.050        | <0.050       |
| Strontium (Sr)-Total            | mg/L        | -                              | 0.416          | 0.417          | 0.24                  | 0.504          | 0.492          | 2.41                  | <0.00020     | <0.00020      | <0.00020     |
| Sulfur (S)-Total                | mg/L        | -                              | 92.9           | 90.9           | 2.18                  | 91.4           | 88.2           | 3.56                  | <0.50        | <0.50         | <0.50        |
| Thallium (Tl)-Total             | mg/L        | 0.0008                         | 0.000020       | 0.000019       | 5.13                  | 0.000015       | 0.000013       | 14.29                 | <0.000010    | <0.000010     | <0.000010    |
| Tin (Sn)-Total                  | mg/L        | -                              | <0.00010       | <0.00010       | nc                    | <0.00010       | <0.00010       | nc                    | <0.00010     | <0.00010      | <0.00010     |
| Titanium (Ti)-Total             | mg/L        | -                              | 0.00165        | 0.00215        | 26.32                 | 0.00275        | 0.00281        | 2.16                  | <0.00030     | <0.00030      | <0.00030     |
| Uranium (U)-Total               | mg/L        | 0.015                          | 0.00241        | 0.00245        | 1.65                  | 0.00294        | 0.00283        | 3.81                  | <0.000010    | <0.000010     | <0.000010    |
| Vanadium (V)-Total              | mg/L        | -                              | 0.00082        | 0.00084        | 2.41                  | 0.00081        | 0.00084        | 3.64                  | <0.00050     | <0.00050      | <0.00050     |
| Zinc (Zn)-Total                 | mg/L        | 0.03                           | 0.0058         | 0.0055         | 5.31                  | 0.0033         | 0.0041         | -                     | <0.0030      | <0.0030       | <0.0030      |
| Zirconium (Zr)-Total            | mg/L        | -                              | 0.00095        | 0.00098        | 3.11                  | 0.00115        | 0.00111        | 3.54                  | <0.00030     | <0.00030      | <0.00030     |



## Notes

(1) CCME guideline exceedences shaded with dark grey. Light grey shading denotes reportable detection limit in exceedence of CCME Guideline. Where guideline value is dependent on hardness or pH, reported values have been compared against a guideline value calculated for each site based on the relevant value, and the guideline value has been noted as "varies".

(2) - = No standard or not analyzed

(3) CCME = Canadian Council of Ministers of the Environment, Canadian Environmental Quality Guidelines, 1999, updated to July 2016

(4) CCME FAL = Chapter 4, Canadian Water Quality Guidelines for the Protection of Aquatic Life, Freshwater, updated to July 2016

(5) CCME FAL stipulates pH not < 6.5 and not > 9

(6) Guideline note: Lowest acceptable dissolved oxygen concentration for cold-water biota, early life stages

(7) Ammonia varies with pH and temperature for CCME FAL; see the CCME ammonia fact sheet for details regarding the applicable criteria, ammonia-NH<sub>3</sub> versus total ammonia-N, and other usage guidelines. CCME values listed in the table are expressed as ammonia (N). When field pH is not available, lab pH is used. When field and lab pH are both not available, the most stringent guideline has been used.

(8) Aluminum varies with pH as follows for CCME FAL:

0.005 if pH < 6.5

0.1 if pH ≥ 6.5

when field pH is not available, lab pH is used. When field and lab pH are both not available, the most stringent guideline has been used.

(9) Cadmium varies with Hardness in mg/L as follows for CCME FAL:

0.00 if H < 17

0.00004 - 0.00037 if H ≥ 17 and H ≤ 280 as follows;

$CWQG (\mu\text{g/L}) = 10\{0.83[\ln(\text{hardness})] - 2.46\}$

0.00 if H > 280

(10) Copper varies with Hardness in mg/L as follows for CCME FAL:

0.002 if H < 82

0.002 - 0.004 if H ≥ 82 and H ≤ 180 as follows;

$CWQG (\mu\text{g/L}) = 0.2 * e\{0.8545[\ln(\text{hardness})] - 1.465\}$

0.004 if H > 180

(11) Lead varies with Hardness in mg/L as follows for CCME FAL:

0.001 if H < 60

0.001 - 0.004 if H ≥ 60 and H ≤ 180 as follows;

$CWQG (\mu\text{g/L}) = e\{1.273[\ln(\text{hardness})] - 4.705\}$

0.007 if H > 180

(12) Nickel varies with Hardness in mg/L as follows for CCME FAL:

0.025 if H < 60

0.025 - 0.15 if H ≥ 60 and H ≤ 180 as follows;

$CWQG (\mu\text{g/L}) = e\{0.76[\ln(\text{hardness})] + 1.06\}$

0.15 if H > 180

(13) RPD = Relative Percent Difference. The difference between a sample and its field duplicate over the average of two values.

nc = not calculated. RPD is not calculated if either the sample or the field

duplicate concentration is less than five times the detection limit.

*Italics* text indicates the parameter-specific standard (calculated) for a particular sample.

**Bold** and underlined indicates values above RDL in Field Blank of Travel Blank

**Bold** and *Italic* Indicates QAQC values exceed expected results (i.e. RDP values exceed 20%).

\* Due to laboratory holding time constraints, samples for general chemistry analysis (i.e. lab pH, lab conductivity, nitrate, nitrite, and sulphate)

were collected at a different time and date than the remainder of the sample set. Sample date/time for general chemistry data with this type of discrepancy are listed below

E1 - July 24, 2016 at 11:50

R4 - August 20, 2016 at 14:30

E1(H) - July 24, 2016 at 11:10

R6 - August 20, 2016 at 15:05

E2 - July 24, 2016 at 12:10

E4 - August 20, 2016 at 14:25

E4 - July 24, 2016 at 12:40

E7 - August 20, 2016 at 14:45

E7 - July 24, 2016 at 13:10

E8 - August 20, 2016 at 14:50

E8 - July 24, 2016 at 13:00

GWCC5 - August 20, 2016 at 14:10

R4 - July 24, 2016 at 12:45

E4 - September 24, 2016 at 11:40

R6 - July 24, 2016 at 13:30

E7 - September 24, 2016 at 12:10

GWCC-5 - July 24 2016 at 12:00

E8 - September 24, 2016 at 12:05

R4 - September 24, 2016 at 11:45

R6 - September 24, 2016 at 12:15

# **APPENDIX 1**

## **Station Photos**





**Photo Set 1:** View of Station E1, looking upstream towards the gabion structure. Photos taken (from left to right) on June 14, July 22, August 16, and September 20, 2016.



**Photo Set 2:** View of Station E1(H) at the outflow of Hudgeon lake, looking downstream towards the gabion structure. Photos taken (from left to right) on June 14, July 22, August 20, and September 20, 2016. Note the increased turbidity during the July event.





**Photo Set 3:** View of Station E2 on Clinton Creek, upstream of the confluence with Wolverine Creek. Photos taken (from left to right) on June 15, July 21, August 17, and September 20, 2016. Note increased turbidity of the Wolverine Creek during August event.



**Photo Set 4:** View of Station E3 on Wolverine Creek, upstream of the confluence with Clinton Creek. Photos taken (from left to right) on June 14, July 20, August 16, and September 20, 2016. Note the increased water level and elevated turbidity during August event.





**Photo Set 5:** View of Station E3(H) on Wolverine Creek. Photos taken (from left to right) on June 14, July 19, August 16, and September 20, 2016. Note increased water level and turbidity during the August event.



**Photo Set 6:** View of Station E4 on Clinton Creek upstream of the confluence with Eagle Creek. Photos taken (from left to right) on June 15, July 21, August 16, and September 23, 2016. Note increased water level and turbidity during the August event.





**Photo Set 7:** View of Station E7 on Clinton Creek upstream of the confluence with Forty Mile River. Photos taken (from left to right) on June 15, July 22, August 18, and September 22, 2016. Note the increased water level and turbidity during the July and August events.



**Photo Set 8:** View of Station E8, downstream of the confluence of Forty Mile River with Clinton Creek. Photos taken (from left to right) on June 15, July 22, August 18, and September 22, 2016. Note the increased water level and turbidity during the July and August events.





**Photo Set 9:** View of Station R1, at the inflow of Clinton Creek into Hudgeon Lake. Photos taken (from left to right) on June 16, July 23, August 19, and September 23, 2016. Note the increased turbidity during July and August events.



**Photo Set 10:** View of Station R2, upstream of the north inlet on Hudgeon Lake. Photos taken (from left to right) on June 16, July 23, August 19, and September 23, 2016. Note the increased turbidity during the July event.





**Photo Set 11:** View of Station R3, upstream of the tailings, looking downstream. Photos taken (from left to right) on June 17, July 19, August 16, and September 20, 2016. Note the increased flow that is apparent during the August event.



**Photo Set 12:** View of Station R4 on Eagle Creek, upstream of Clinton Creek. Photos taken (from left to right) on June 15, July 21, August 18, and September 22, 2016. Note increased turbidity and flow during the August event.





**Photo Set 13:** View of Station R6, upstream of the confluence of Forty Mile River with Clinton Creek- looking upstream. Photos taken (from left to right) on July 22, August 18, and September 22, 2016; no photo available for June 2016 event. Note increased water level and turbidity during the July and August events.



**Photo Set 14:** View of Station R7, at the inflow of the Porcupine Creek into the unnamed lake. Photos taken (from left to right) on June 17, July 20, August 17, and September 21, 2016.





**Photo Set 15:** View of Station R8, at the northwest end and upstream of the north inlet on Hudgeon Lake. Photos taken (from left to right) on June 16, July 23, August 19, and September 23, 2016.



**Photo Set 16:** View of Station R9, upstream of the south inlet on Hudgeon Lake. Photos taken (from left to right) on June 17, July 23, August 20, and September 23, 2016. Note increased turbidity during the July and August events.





**Photo Set 17:** View of Station R11, on the unnamed creek upstream the confluence with Wolverine Creek. Photos taken (from left to right) on June 17, July 19, August 16, and September 20, 2016. Note increased flow and turbidity during the August and September events.



**Photo Set 18:** View of Station R11(H), on the unnamed creek upstream the confluence with Wolverine Creek. Photos taken (from left to right) on June 17, July 19, August 16, and September 20, 2016. Note increased turbidity and water level during the August event.





**Photo Set 19:** View of the Station GWCC-1, at the base of the waste rock area. Photos taken (from left to right) on June 15, July 20, August 17, and September 21, 2016.



**Photo Set 20:** View of the Station GWCC-2, at the base of the waste rock area. Photos taken (from left to right) on June 15, July 20, August 17, and September 21, 2016.





**Photo Set 21:** View of the Station GWCC-3, at the base of the waste rock area. Photos taken (from left to right) on June 15, July 20, August 17, and September 21, 2016.



**Photo Set 22:** View of the Station GWCC-4, at the base of the waste rock area. Photos taken (from left to right) on June 15, July 20, August 17, and September 21, 2016.





**Photo Set 23:** View of the Station GWCC-5, on the old Clinton Creek arm. Note the ferrous deposition on the stream bed. Photos taken (from left to right) on June 14, July 22, August 18, and September 21, 2016.



**Photo Set 24:** View of the Station SL, at the Snowshoe Lake. Photos taken (from left to right) on June 17, July 24, August 20, and September 21, 2016. Note increased water level and turbidity during the August and September events.



## **APPENDIX 2**

### **Water Quality Analytical Laboratory Reports**



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 17-JUN-16  
Report Date: 15-JUL-16 11:09 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1785001  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.17  
C of C Numbers: 1, 2  
Legal Site Desc:

Comments: 15-JUL-2016 This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1785001-1<br>Water<br>14-JUN-16<br>14:45<br>FB1 | L1785001-2<br>Water<br>14-JUN-16<br>14:45<br>E1 | L1785001-3<br>Water<br>14-JUN-16<br>14:45<br>DUP01 | L1785001-4<br>Water<br>14-JUN-16<br>14:00<br>E1(H) | L1785001-5<br>Water<br>17-JUN-16<br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|-------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                  |                                                 |                                                    |                                                    |                                                  |
| <b>WATER</b>                                                          |                                 |                                                  |                                                 |                                                    |                                                    |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | <2.0                                             | 475                                             | 476                                                | 471                                                | <2.0                                             |
|                                                                       | Hardness (as CaCO3) (mg/L)      | <0.50                                            | 264                                             | 265                                                | 262                                                | <0.50                                            |
|                                                                       | pH (pH)                         | 5.19                                             | 8.04                                            | 8.08                                               | 8.04                                               | 5.44                                             |
|                                                                       | Total Suspended Solids (mg/L)   | <3.0                                             | <3.0                                            | <3.0                                               | <3.0                                               | <3.0                                             |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | <0.0050                                          | 0.0208                                          | 0.0194                                             | 0.0108                                             | <0.0050                                          |
|                                                                       | Nitrate (as N) (mg/L)           | <0.0050                                          | 0.0253                                          | 0.0241                                             | 0.0171                                             | <0.0050                                          |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                          | 0.0022                                          | 0.0015                                             | <0.0010                                            | <0.0010                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.0020                                          | 0.0064                                          | 0.0072                                             | 0.0077                                             | <0.0020                                          |
|                                                                       | Sulfate (SO4) (mg/L)            | <0.30                                            | 136                                             | 136                                                | 135                                                | <0.30                                            |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | <0.50                                            | 15.5                                            | 15.4                                               | 16.2                                               |                                                  |
|                                                                       | Total Organic Carbon (mg/L)     |                                                  |                                                 |                                                    |                                                    | 1.18                                             |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | <0.0030                                          | 0.0420                                          | 0.0373                                             | 0.0493                                             | <0.0030                                          |
|                                                                       | Antimony (Sb)-Total (mg/L)      | <0.00010                                         | 0.00029                                         | 0.00031                                            | 0.00025                                            | <0.00010                                         |
|                                                                       | Arsenic (As)-Total (mg/L)       | <0.00010                                         | 0.00066                                         | 0.00061                                            | 0.00062                                            | <0.00010                                         |
|                                                                       | Barium (Ba)-Total (mg/L)        | <0.000050                                        | 0.0473                                          | 0.0466                                             | 0.0457                                             | <0.000050                                        |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                        | <0.000020                                       | <0.000020                                          | <0.000020                                          | <0.000020                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                        | <0.000050                                       | <0.000050                                          | <0.000050                                          | <0.000050                                        |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                           | <0.010                                          | <0.010                                             | <0.010                                             | <0.010                                           |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | <0.0000050                                       | 0.0000355                                       | 0.0000408                                          | 0.0000304                                          | <0.0000050                                       |
|                                                                       | Calcium (Ca)-Total (mg/L)       | <0.050                                           | 56.2                                            | 56.9                                               | 55.8                                               | <0.050                                           |
|                                                                       | Chromium (Cr)-Total (mg/L)      | <0.00010                                         | 0.00047                                         | 0.00048                                            | 0.00046                                            | <0.00010                                         |
|                                                                       | Cobalt (Co)-Total (mg/L)        | <0.00010                                         | 0.00030                                         | 0.00031                                            | 0.00037                                            | <0.00010                                         |
|                                                                       | Copper (Cu)-Total (mg/L)        | <0.00050                                         | 0.00256                                         | 0.00262                                            | 0.00255                                            | <0.00050                                         |
|                                                                       | Iron (Fe)-Total (mg/L)          | <0.010                                           | 0.141                                           | 0.140                                              | 0.170                                              | <0.010                                           |
|                                                                       | Lead (Pb)-Total (mg/L)          | <0.000050                                        | <0.000050                                       | <0.000050                                          | 0.000054                                           | <0.000050                                        |
|                                                                       | Lithium (Li)-Total (mg/L)       | <0.0010                                          | 0.0023                                          | 0.0022                                             | 0.0023                                             | <0.0010                                          |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | <0.10                                            | 26.7                                            | 28.2                                               | 26.5                                               | <0.10                                            |
|                                                                       | Manganese (Mn)-Total (mg/L)     | <0.00010                                         | 0.0717                                          | 0.0727                                             | 0.0967                                             | <0.00010                                         |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                       | 0.0000050                                       | <0.0000050                                         | 0.0000052                                          | <0.0000050                                       |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | <0.000050                                        | 0.00110                                         | 0.00109                                            | 0.00103                                            | <0.000050                                        |
|                                                                       | Nickel (Ni)-Total (mg/L)        | <0.00050                                         | 0.00459                                         | 0.00463                                            | 0.00380                                            | <0.00050                                         |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                           | <0.050                                          | <0.050                                             | <0.050                                             | <0.050                                           |
|                                                                       | Potassium (K)-Total (mg/L)      | <0.10                                            | 0.62                                            | 0.65                                               | 0.62                                               | <0.10                                            |
|                                                                       | Selenium (Se)-Total (mg/L)      | <0.000050                                        | 0.00219                                         | 0.00208                                            | 0.00206                                            | <0.000050                                        |
|                                                                       | Silicon (Si)-Total (mg/L)       | <0.050                                           | 3.59                                            | 3.64                                               | 3.62                                               | <0.050                                           |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                        | <0.000010                                       | <0.000010                                          | <0.000010                                          | <0.000010                                        |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1785001-6<br>Water<br>15-JUN-16<br>15:30<br>E8 | L1785001-7<br>Water<br>15-JUN-16<br>14:13<br>E7 | L1785001-8<br>Water<br>15-JUN-16<br>14:13<br>DUP02 | L1785001-9<br>Water<br>15-JUN-16<br>14:13<br>E4 | L1785001-10<br>Water<br>15-JUN-16<br>12:00<br>R4 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 166                                             | 737                                             | 734                                                | 715                                             | 636                                              |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 75.8                                            | 427                                             | 428                                                | 415                                             | 368                                              |
|                                                                       | pH (pH)                         | 7.69                                            | 8.12                                            | 8.13                                               | 8.12                                            | 8.22                                             |
|                                                                       | Total Suspended Solids (mg/L)   | 5.3                                             | 4.0                                             | 6.0                                                | 3.3                                             | 19.3                                             |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0066                                          | 0.0067                                          | 0.0078                                             | 0.0119                                          | 0.0116                                           |
|                                                                       | Nitrate (as N) (mg/L)           | 0.0365                                          | 0.0595                                          | 0.0601                                             | 0.0446                                          | 0.117                                            |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                         | <0.0010                                         | <0.0010                                            | <0.0010                                         | <0.0010                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0077                                          | 0.0025                                          | 0.0044                                             | 0.0055                                          | 0.0122                                           |
|                                                                       | Sulfate (SO4) (mg/L)            | 27.9                                            | 233                                             | 233                                                | 230                                             | 175                                              |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 17.9                                            | 13.3                                            | 13.1                                               | 13.1                                            | 13.0                                             |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.351                                           | 0.0473                                          | 0.0434                                             | 0.0430                                          | 0.365                                            |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00012                                         | 0.00043                                         | 0.00045                                            | 0.00048                                         | 0.00040                                          |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00074                                         | 0.00085                                         | 0.00084                                            | 0.00095                                         | 0.00185                                          |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0328                                          | 0.0498                                          | 0.0524                                             | 0.0465                                          | 0.0660                                           |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000033                                        | <0.000020                                       | <0.000020                                          | <0.000020                                       | <0.000020                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       | <0.000050                                       | <0.000050                                          | <0.000050                                       | <0.000050                                        |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                          | 0.040                                           | 0.042                                              | 0.045                                           | <0.010                                           |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000259                                       | 0.0000484                                       | 0.0000471                                          | 0.0000404                                       | 0.0000830                                        |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 19.5                                            | 76.4                                            | 78.5                                               | 73.9                                            | 74.5                                             |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00086                                         | 0.00072                                         | 0.00068                                            | 0.00068                                         | 0.00141                                          |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00040                                         | 0.00056                                         | 0.00054                                            | 0.00052                                         | 0.00075                                          |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00370                                         | 0.00217                                         | 0.00216                                            | 0.00214                                         | 0.00298                                          |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.609                                           | 0.287                                           | 0.292                                              | 0.255                                           | 0.765                                            |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000164                                        | 0.000084                                        | 0.000065                                           | <0.000050                                       | 0.000393                                         |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0034                                          | 0.0105                                          | 0.0109                                             | 0.0100                                          | 0.0037                                           |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 7.10                                            | 54.2                                            | 55.4                                               | 51.7                                            | 37.5                                             |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.0249                                          | 0.169                                           | 0.175                                              | 0.0965                                          | 0.115                                            |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                      | <0.0000050                                      | <0.0000050                                         | <0.0000050                                      | <0.0000050                                       |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.000392                                        | 0.00129                                         | 0.00131                                            | 0.00146                                         | 0.00130                                          |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00299                                         | 0.0126                                          | 0.0130                                             | 0.0139                                          | 0.0171                                           |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          | <0.050                                          | <0.050                                             | <0.050                                          | <0.050                                           |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.01                                            | 0.98                                            | 1.01                                               | 0.89                                            | 0.54                                             |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.000150                                        | 0.00126                                         | 0.00118                                            | 0.00165                                         | 0.00159                                          |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.12                                            | 4.20                                            | 4.27                                               | 4.13                                            | 5.34                                             |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                       | <0.000010                                       | <0.000010                                          | <0.000010                                       | 0.000015                                         |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1785001-11<br>Water<br>15-JUN-16<br>09:40<br>GWCC-4 | L1785001-12<br>Water<br>15-JUN-16<br>08:30<br>GWCC-1 | L1785001-13<br>Water<br>15-JUN-16<br>09:15<br>GWCC-3 | L1785001-14<br>Water<br>15-JUN-16<br>09:00<br>GWCC-2 | L1785001-15<br>Water<br>14-JUN-16<br>16:10<br>GWCC-5 |
|-----------------------------------------------------------------------|---------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                      |                                                      |                                                      |                                                      |                                                      |
| <b>WATER</b>                                                          |                                 |                                                      |                                                      |                                                      |                                                      |                                                      |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 814                                                  | 2500                                                 | 1030                                                 | 1810                                                 | 911                                                  |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 474                                                  | 1680                                                 | 622                                                  | 1160                                                 | 530                                                  |
|                                                                       | pH (pH)                         | 8.05                                                 | 8.05                                                 | 8.07                                                 | 8.12                                                 | 8.09                                                 |
|                                                                       | Total Suspended Solids (mg/L)   | <3.0                                                 | <3.0                                                 | <3.0                                                 | <3.0                                                 | <3.0                                                 |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | <0.0050                                              | <0.0050                                              | <0.0050                                              | <0.0050                                              | <0.0050                                              |
|                                                                       | Nitrate (as N) (mg/L)           | 0.0850                                               | 0.550 <sup>DLDS</sup>                                | 0.154 <sup>DLDS</sup>                                | 0.385 <sup>DLDS</sup>                                | 0.0156                                               |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                              | <0.0050                                              | <0.0020                                              | <0.0050                                              | <0.0010                                              |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.0020                                              | <0.0020                                              | <0.0020                                              | <0.0020                                              | 0.0048                                               |
|                                                                       | Sulfate (SO4) (mg/L)            | 258                                                  | 1290                                                 | 380                                                  | 860                                                  | 279                                                  |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 10.1                                                 | 5.72                                                 | 9.24                                                 | 7.22                                                 | 7.45                                                 |
|                                                                       | Total Organic Carbon (mg/L)     |                                                      |                                                      |                                                      |                                                      |                                                      |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.0036                                               | <0.0030                                              | <0.0030                                              | <0.0030                                              | 0.0031                                               |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00110                                              | 0.00130                                              | 0.00103                                              | 0.00115                                              | 0.00098                                              |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00103                                              | 0.00226                                              | 0.00079                                              | 0.00148                                              | 0.00065                                              |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0257                                               | 0.0182                                               | 0.0270                                               | 0.0170                                               | 0.0492                                               |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                            | <0.000020                                            | <0.000020                                            | <0.000020                                            | <0.000020                                            |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            |
|                                                                       | Boron (B)-Total (mg/L)          | 0.059                                                | 0.273                                                | 0.071                                                | 0.129                                                | 0.038                                                |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000451                                            | 0.000170                                             | 0.0000643                                            | 0.000141                                             | 0.000107                                             |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 81.8                                                 | 195                                                  | 99.9                                                 | 158                                                  | 119                                                  |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00050                                              | 0.00287                                              | 0.00045                                              | 0.00135                                              | 0.00067                                              |
|                                                                       | Cobalt (Co)-Total (mg/L)        | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00145                                              | 0.00109                                              | 0.00138                                              | 0.00134                                              | 0.00089                                              |
|                                                                       | Iron (Fe)-Total (mg/L)          | <0.010                                               | <0.010                                               | <0.010                                               | <0.010                                               | 0.019                                                |
|                                                                       | Lead (Pb)-Total (mg/L)          | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0070                                               | 0.0764                                               | 0.0069                                               | 0.0131                                               | 0.0092                                               |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 61.4                                                 | 284                                                  | 82.7                                                 | 184                                                  | 55.1                                                 |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.00030                                              | 0.00028                                              | <0.00010                                             | <0.00010                                             | 0.00118                                              |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.0000059                                            | <0.0000050                                           | 0.0000060                                            | 0.0000058                                            | <0.0000050                                           |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00219                                              | 0.00261                                              | 0.00229                                              | 0.00269                                              | 0.00208                                              |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0304                                               | 0.0693                                               | 0.0282                                               | 0.0396                                               | 0.0180                                               |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                               | <0.050                                               | <0.050                                               | <0.050                                               | <0.050                                               |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.03                                                 | 3.21                                                 | 1.21                                                 | 1.91                                                 | 0.81                                                 |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00104                                              | 0.00501                                              | 0.00153                                              | 0.00341                                              | 0.00935                                              |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.19                                                 | 6.17                                                 | 4.74                                                 | 4.99                                                 | 4.49                                                 |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                            | <0.000010                                            | <0.000010                                            | <0.000010                                            | <0.000010                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                                   |                                 | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1785001-16<br>Water<br>14-JUN-16<br>17:00<br>E3 | L1785001-17<br>Water<br>15-JUN-16<br>10:20<br>E2 |  |  |
|-----------------------------------|---------------------------------|-----------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--|--|
| Grouping                          | Analyte                         |                                                                       |                                                  |                                                  |  |  |
| <b>WATER</b>                      |                                 |                                                                       |                                                  |                                                  |  |  |
| <b>Physical Tests</b>             | Conductivity (uS/cm)            |                                                                       | 703                                              | 657                                              |  |  |
|                                   | Hardness (as CaCO3) (mg/L)      |                                                                       | 393                                              | 373                                              |  |  |
|                                   | pH (pH)                         |                                                                       | 8.20                                             | 8.11                                             |  |  |
|                                   | Total Suspended Solids (mg/L)   |                                                                       |                                                  |                                                  |  |  |
| <b>Anions and Nutrients</b>       | Ammonia, Total (as N) (mg/L)    |                                                                       | 0.0083                                           | 0.0175                                           |  |  |
|                                   | Nitrate (as N) (mg/L)           |                                                                       | 0.0824                                           | 0.0478                                           |  |  |
|                                   | Nitrite (as N) (mg/L)           |                                                                       | <0.0010                                          | <0.0010                                          |  |  |
|                                   | Phosphorus (P)-Total (mg/L)     |                                                                       | 0.0106                                           | 0.0056                                           |  |  |
|                                   | Sulfate (SO4) (mg/L)            |                                                                       | 220                                              | 210                                              |  |  |
| <b>Organic / Inorganic Carbon</b> | Dissolved Organic Carbon (mg/L) |                                                                       | 13.8                                             | 13.9                                             |  |  |
|                                   | Total Organic Carbon (mg/L)     |                                                                       |                                                  |                                                  |  |  |
| <b>Total Metals</b>               | Aluminum (Al)-Total (mg/L)      |                                                                       | 0.361                                            | 0.0321                                           |  |  |
|                                   | Antimony (Sb)-Total (mg/L)      |                                                                       | 0.00076                                          | 0.00045                                          |  |  |
|                                   | Arsenic (As)-Total (mg/L)       |                                                                       | 0.00137                                          | 0.00094                                          |  |  |
|                                   | Barium (Ba)-Total (mg/L)        |                                                                       | 0.0657                                           | 0.0478                                           |  |  |
|                                   | Beryllium (Be)-Total (mg/L)     |                                                                       | <0.000020                                        | <0.000020                                        |  |  |
|                                   | Bismuth (Bi)-Total (mg/L)       |                                                                       | <0.000050                                        | <0.000050                                        |  |  |
|                                   | Boron (B)-Total (mg/L)          |                                                                       | 0.058                                            | 0.031                                            |  |  |
|                                   | Cadmium (Cd)-Total (mg/L)       |                                                                       | 0.0000211                                        | 0.0000477                                        |  |  |
|                                   | Calcium (Ca)-Total (mg/L)       |                                                                       | 68.0                                             | 70.0                                             |  |  |
|                                   | Chromium (Cr)-Total (mg/L)      |                                                                       | 0.00171                                          | 0.00060                                          |  |  |
|                                   | Cobalt (Co)-Total (mg/L)        |                                                                       | 0.00039                                          | 0.00051                                          |  |  |
|                                   | Copper (Cu)-Total (mg/L)        |                                                                       | 0.00253                                          | 0.00231                                          |  |  |
|                                   | Iron (Fe)-Total (mg/L)          |                                                                       | 0.766                                            | 0.197                                            |  |  |
|                                   | Lead (Pb)-Total (mg/L)          |                                                                       | 0.000280                                         | <0.000050                                        |  |  |
|                                   | Lithium (Li)-Total (mg/L)       |                                                                       | 0.0049                                           | 0.0065                                           |  |  |
|                                   | Magnesium (Mg)-Total (mg/L)     |                                                                       | 52.2                                             | 45.5                                             |  |  |
|                                   | Manganese (Mn)-Total (mg/L)     |                                                                       | 0.0706                                           | 0.0812                                           |  |  |
|                                   | Mercury (Hg)-Total (mg/L)       |                                                                       | 0.0000050                                        | 0.0000053                                        |  |  |
|                                   | Molybdenum (Mo)-Total (mg/L)    |                                                                       | 0.00131                                          | 0.00140                                          |  |  |
|                                   | Nickel (Ni)-Total (mg/L)        |                                                                       | 0.00970                                          | 0.0120                                           |  |  |
|                                   | Phosphorus (P)-Total (mg/L)     |                                                                       | <0.050                                           | <0.050                                           |  |  |
|                                   | Potassium (K)-Total (mg/L)      |                                                                       | 0.90                                             | 0.84                                             |  |  |
|                                   | Selenium (Se)-Total (mg/L)      |                                                                       | 0.000881                                         | 0.00198                                          |  |  |
|                                   | Silicon (Si)-Total (mg/L)       |                                                                       | 6.22                                             | 3.90                                             |  |  |
|                                   | Silver (Ag)-Total (mg/L)        |                                                                       | 0.000011                                         | <0.000010                                        |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1785001-1<br>Water<br>14-JUN-16<br>14:45<br>FB1 | L1785001-2<br>Water<br>14-JUN-16<br>14:45<br>E1 | L1785001-3<br>Water<br>14-JUN-16<br>14:45<br>DUP01 | L1785001-4<br>Water<br>14-JUN-16<br>14:00<br>E1(H) | L1785001-5<br>Water<br>17-JUN-16<br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------------|--------------------------------------------------|-------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                  |                                                 |                                                    |                                                    |                                                  |
| <b>WATER</b>                                                          |                                       |                                                  |                                                 |                                                    |                                                    |                                                  |
| <b>Total Metals</b>                                                   | Sodium (Na)-Total (mg/L)              | <0.050                                           | 2.37                                            | 2.41                                               | 2.38                                               | <0.050                                           |
|                                                                       | Strontium (Sr)-Total (mg/L)           | <0.00020                                         | 0.267                                           | 0.264                                              | 0.256                                              | <0.00020                                         |
|                                                                       | Sulfur (S)-Total (mg/L)               | <0.50                                            | 48.5                                            | 48.3                                               | 46.8                                               | <0.50                                            |
|                                                                       | Thallium (Tl)-Total (mg/L)            | <0.000010                                        | <0.000010                                       | 0.000011                                           | <0.000010                                          | <0.000010                                        |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                         | <0.00010                                        | <0.00010                                           | <0.00010                                           | <0.00010                                         |
|                                                                       | Titanium (Ti)-Total (mg/L)            | <0.00030                                         | 0.00059                                         | 0.00058                                            | 0.00070                                            | <0.00030                                         |
|                                                                       | Uranium (U)-Total (mg/L)              | <0.000010                                        | 0.00185                                         | 0.00184                                            | 0.00185                                            | <0.000010                                        |
|                                                                       | Vanadium (V)-Total (mg/L)             | <0.00050                                         | <0.00050                                        | <0.00050                                           | <0.00050                                           | <0.00050                                         |
|                                                                       | Zinc (Zn)-Total (mg/L)                | <0.0030                                          | <0.0030                                         | <0.0030                                            | <0.0030                                            | <0.0030                                          |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | <0.00030                                         | 0.00056                                         | 0.00058                                            | 0.00060                                            | <0.00030                                         |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                            | FIELD                                           | FIELD                                              | FIELD                                              |                                                  |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                            | FIELD                                           | FIELD                                              | FIELD                                              |                                                  |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | <0.0010                                          | 0.0280                                          | 0.0301                                             | 0.0305                                             |                                                  |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | <0.00010                                         | 0.00027                                         | 0.00027                                            | 0.00025                                            |                                                  |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | <0.00010                                         | 0.00060                                         | 0.00061                                            | 0.00056                                            |                                                  |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | <0.000050                                        | 0.0462                                          | 0.0457                                             | 0.0458                                             |                                                  |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                        | <0.000020                                       | <0.000020                                          | <0.000020                                          |                                                  |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                        | <0.000050                                       | <0.000050                                          | <0.000050                                          |                                                  |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                           | <0.010                                          | <0.010                                             | <0.010                                             |                                                  |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | <0.0000050                                       | 0.0000355                                       | 0.0000364                                          | 0.0000304                                          |                                                  |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | <0.050                                           | 58.2                                            | 58.9                                               | 57.9                                               |                                                  |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | <0.00010                                         | 0.00036                                         | 0.00037                                            | 0.00029                                            |                                                  |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | <0.00010                                         | 0.00026                                         | 0.00026                                            | 0.00033                                            |                                                  |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | <0.00020                                         | 0.00242                                         | 0.00245                                            | 0.00250                                            |                                                  |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | <0.010                                           | 0.100                                           | 0.100                                              | 0.116                                              |                                                  |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                        | <0.000050                                       | <0.000050                                          | <0.000050                                          |                                                  |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | <0.0010                                          | 0.0024                                          | 0.0024                                             | 0.0024                                             |                                                  |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | <0.10                                            | 28.9                                            | 28.7                                               | 28.4                                               |                                                  |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | <0.00010                                         | 0.0575                                          | 0.0583                                             | 0.0762                                             |                                                  |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                       | 0.0000050                                       | <0.0000050                                         | <0.0000050                                         |                                                  |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | <0.000050                                        | 0.00101                                         | 0.000965                                           | 0.000941                                           |                                                  |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | <0.00050                                         | 0.00430                                         | 0.00435                                            | 0.00370                                            |                                                  |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                           | <0.050                                          | <0.050                                             | <0.050                                             |                                                  |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | <0.10                                            | 0.64                                            | 0.66                                               | 0.65                                               |                                                  |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | <0.000050                                        | 0.00220                                         | 0.00217                                            | 0.00213                                            |                                                  |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | <0.050                                           | 3.59                                            | 3.63                                               | 3.62                                               |                                                  |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                        | <0.000010                                       | <0.000010                                          | <0.000010                                          |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1785001-6<br>Water<br>15-JUN-16<br>15:30<br>E8 | L1785001-7<br>Water<br>15-JUN-16<br>14:13<br>E7 | L1785001-8<br>Water<br>15-JUN-16<br>14:13<br>DUP02 | L1785001-9<br>Water<br>15-JUN-16<br>14:13<br>E4 | L1785001-10<br>Water<br>15-JUN-16<br>12:00<br>R4 |
|-----------------------------------------------------------------------|---------------------------------------|-------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                 |                                                 |                                                    |                                                 |                                                  |
| WATER                                                                 |                                       |                                                 |                                                 |                                                    |                                                 |                                                  |
| Total Metals                                                          | Sodium (Na)-Total (mg/L)              | 3.19                                            | 4.05                                            | 4.16                                               | 3.82                                            | 4.59                                             |
|                                                                       | Strontium (Sr)-Total (mg/L)           | 0.115                                           | 0.432                                           | 0.440                                              | 0.427                                           | 0.402                                            |
|                                                                       | Sulfur (S)-Total (mg/L)               | 9.68                                            | 81.9                                            | 83.3                                               | 79.9                                            | 58.3                                             |
|                                                                       | Thallium (Tl)-Total (mg/L)            | <0.000010                                       | <0.000010                                       | <0.000010                                          | 0.000016                                        | <0.000010                                        |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                        | <0.00010                                        | <0.00010                                           | <0.00010                                        | <0.00010                                         |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.0109                                          | 0.00135                                         | 0.00107                                            | 0.00108                                         | 0.00815                                          |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.000650                                        | 0.00216                                         | 0.00219                                            | 0.00211                                         | 0.00443                                          |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00144                                         | <0.00050                                        | <0.00050                                           | <0.00050                                        | 0.00133                                          |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0034                                          | <0.0030                                         | 0.0031                                             | <0.0030                                         | 0.0040                                           |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00081                                         | 0.00084                                         | 0.00082                                            | 0.00073                                         | 0.00109                                          |
| Dissolved Metals                                                      | Dissolved Mercury Filtration Location | FIELD                                           | FIELD                                           | FIELD                                              | FIELD                                           | FIELD                                            |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                           | FIELD                                           | FIELD                                              | FIELD                                           | FIELD                                            |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0977                                          | 0.0148                                          | 0.0138                                             | 0.0158                                          | 0.0229                                           |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | <0.00010                                        | 0.00039                                         | 0.00041                                            | 0.00048                                         | 0.00036                                          |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00054                                         | 0.00079                                         | 0.00071                                            | 0.00090                                         | 0.00152                                          |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0296                                          | 0.0486                                          | 0.0494                                             | 0.0472                                          | 0.0576                                           |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | 0.000031                                        | <0.000020                                       | <0.000020                                          | <0.000020                                       | <0.000020                                        |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                       | <0.000050                                       | <0.000050                                          | <0.000050                                       | <0.000050                                        |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                          | 0.039                                           | 0.039                                              | 0.043                                           | <0.010                                           |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000137                                       | 0.0000422                                       | 0.0000365                                          | 0.0000377                                       | 0.0000534                                        |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 19.3                                            | 79.5                                            | 79.8                                               | 77.7                                            | 81.6                                             |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00041                                         | 0.00052                                         | 0.00053                                            | 0.00053                                         | 0.00037                                          |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00021                                         | 0.00051                                         | 0.00050                                            | 0.00048                                         | 0.00051                                          |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00312                                         | 0.00211                                         | 0.00207                                            | 0.00194                                         | 0.00205                                          |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.230                                           | 0.202                                           | 0.203                                              | 0.186                                           | 0.137                                            |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                       | <0.000050                                       | <0.000050                                          | <0.000050                                       | <0.000050                                        |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0033                                          | 0.0110                                          | 0.0111                                             | 0.0103                                          | 0.0037                                           |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 6.68                                            | 55.6                                            | 55.5                                               | 53.6                                            | 39.9                                             |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.0126                                          | 0.176                                           | 0.167                                              | 0.0868                                          | 0.0980                                           |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                      | <0.0000050                                      | <0.0000050                                         | <0.0000050                                      | <0.0000050                                       |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.000364                                        | 0.00130                                         | 0.00123                                            | 0.00134                                         | 0.00116                                          |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00250                                         | 0.0128                                          | 0.0125                                             | 0.0133                                          | 0.0153                                           |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                          | <0.050                                          | <0.050                                             | <0.050                                          | <0.050                                           |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.89                                            | 1.02                                            | 1.04                                               | 0.94                                            | 0.56                                             |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.000189                                        | 0.00126                                         | 0.00123                                            | 0.00153                                         | 0.00163                                          |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 4.52                                            | 4.22                                            | 4.23                                               | 4.15                                            | 5.11                                             |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                       | <0.000010                                       | <0.000010                                          | <0.000010                                       | <0.000010                                        |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1785001-11<br>Water<br>15-JUN-16<br>09:40<br>GWCC-4 | L1785001-12<br>Water<br>15-JUN-16<br>08:30<br>GWCC-1 | L1785001-13<br>Water<br>15-JUN-16<br>09:15<br>GWCC-3 | L1785001-14<br>Water<br>15-JUN-16<br>09:00<br>GWCC-2 | L1785001-15<br>Water<br>14-JUN-16<br>16:10<br>GWCC-5 |
|-----------------------------------------------------------------------|---------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                      |                                                      |                                                      |                                                      |                                                      |
| WATER                                                                 |                                       |                                                      |                                                      |                                                      |                                                      |                                                      |
| Total Metals                                                          | Sodium (Na)-Total (mg/L)              | 2.83                                                 | 16.1                                                 | 3.40                                                 | 5.85                                                 | 3.59                                                 |
|                                                                       | Strontium (Sr)-Total (mg/L)           | 0.393                                                | 1.80                                                 | 0.489                                                | 0.813                                                | 0.679                                                |
|                                                                       | Sulfur (S)-Total (mg/L)               | 89.2                                                 | 432                                                  | 126                                                  | 284                                                  | 98.7                                                 |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000051                                             | 0.000080                                             | 0.000054                                             | 0.000055                                             | 0.000014                                             |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             |
|                                                                       | Titanium (Ti)-Total (mg/L)            | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00110                                              | 0.00616                                              | 0.00143                                              | 0.00268                                              | 0.00217                                              |
|                                                                       | Vanadium (V)-Total (mg/L)             | <0.00050                                             | <0.00050                                             | <0.00050                                             | <0.00050                                             | <0.00050                                             |
|                                                                       | Zinc (Zn)-Total (mg/L)                | <0.0030                                              | 0.0066                                               | <0.0030                                              | 0.0049                                               | <0.0030                                              |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             |
| Dissolved Metals                                                      | Dissolved Mercury Filtration Location | FIELD                                                | FIELD                                                | FIELD                                                | FIELD                                                | FIELD                                                |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                                | FIELD                                                | FIELD                                                | FIELD                                                | FIELD                                                |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0024                                               | 0.0012                                               | 0.0018                                               | 0.0013                                               | 0.0021                                               |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00116                                              | 0.00128                                              | 0.00103                                              | 0.00113                                              | 0.00094                                              |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00107                                              | 0.00232                                              | 0.00080                                              | 0.00152                                              | 0.00062                                              |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0273                                               | 0.0189                                               | 0.0270                                               | 0.0173                                               | 0.0504                                               |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                            | <0.000020                                            | <0.000020                                            | <0.000020                                            | <0.000020                                            |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            |
|                                                                       | Boron (B)-Dissolved (mg/L)            | 0.056                                                | 0.253                                                | 0.067                                                | 0.127                                                | 0.035                                                |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000421                                            | 0.000164                                             | 0.0000690                                            | 0.000147                                             | 0.000110                                             |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 85.0                                                 | 199                                                  | 106                                                  | 162                                                  | 122                                                  |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00043                                              | 0.00296                                              | 0.00042                                              | 0.00125                                              | 0.00065                                              |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00149                                              | 0.00093                                              | 0.00133                                              | 0.00119                                              | 0.00086                                              |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | <0.010                                               | <0.010                                               | <0.010                                               | <0.010                                               | 0.020                                                |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                            |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0068                                               | 0.0731                                               | 0.0072                                               | 0.0131                                               | 0.0091                                               |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 63.7                                                 | 288                                                  | 86.5                                                 | 184                                                  | 55.0                                                 |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.00014                                              | 0.00017                                              | <0.00010                                             | <0.00010                                             | 0.00135                                              |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | 0.0000060                                            | <0.0000050                                           | 0.0000065                                            | <0.0000050                                           | <0.0000050                                           |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00204                                              | 0.00258                                              | 0.00216                                              | 0.00252                                              | 0.00195                                              |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.0298                                               | 0.0741                                               | 0.0282                                               | 0.0386                                               | 0.0176                                               |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                               | <0.050                                               | <0.050                                               | <0.050                                               | <0.050                                               |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 1.06                                                 | 3.25                                                 | 1.28                                                 | 1.95                                                 | 0.79                                                 |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00101                                              | 0.00509                                              | 0.00149                                              | 0.00359                                              | 0.00987                                              |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.24                                                 | 6.13                                                 | 4.93                                                 | 5.01                                                 | 4.52                                                 |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                            | <0.000010                                            | <0.000010                                            | <0.000010                                            | <0.000010                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1785001-16<br>Water<br>14-JUN-16<br>17:00<br>E3 | L1785001-17<br>Water<br>15-JUN-16<br>10:20<br>E2 |  |  |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--|--|
| Grouping                | Analyte                               |                                                                       |                                                  |                                                  |  |  |
| <b>WATER</b>            |                                       |                                                                       |                                                  |                                                  |  |  |
| <b>Total Metals</b>     | Sodium (Na)-Total (mg/L)              | 4.49                                                                  | 3.24                                             |                                                  |  |  |
|                         | Strontium (Sr)-Total (mg/L)           | 0.345                                                                 | 0.370                                            |                                                  |  |  |
|                         | Sulfur (S)-Total (mg/L)               | 79.2                                                                  | 74.6                                             |                                                  |  |  |
|                         | Thallium (Tl)-Total (mg/L)            | <0.000010                                                             | 0.000021                                         |                                                  |  |  |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              | <0.00010                                         |                                                  |  |  |
|                         | Titanium (Ti)-Total (mg/L)            | 0.0102                                                                | 0.00053                                          |                                                  |  |  |
|                         | Uranium (U)-Total (mg/L)              | 0.00364                                                               | 0.00192                                          |                                                  |  |  |
|                         | Vanadium (V)-Total (mg/L)             | 0.00164                                                               | <0.00050                                         |                                                  |  |  |
|                         | Zinc (Zn)-Total (mg/L)                | <0.0030                                                               | <0.0030                                          |                                                  |  |  |
|                         | Zirconium (Zr)-Total (mg/L)           | 0.00065                                                               | 0.00051                                          |                                                  |  |  |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 | FIELD                                            |                                                  |  |  |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 | FIELD                                            |                                                  |  |  |
|                         | Aluminum (Al)-Dissolved (mg/L)        | 0.0256                                                                | 0.0215                                           |                                                  |  |  |
|                         | Antimony (Sb)-Dissolved (mg/L)        | 0.00071                                                               | 0.00042                                          |                                                  |  |  |
|                         | Arsenic (As)-Dissolved (mg/L)         | 0.00101                                                               | 0.00087                                          |                                                  |  |  |
|                         | Barium (Ba)-Dissolved (mg/L)          | 0.0519                                                                | 0.0479                                           |                                                  |  |  |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             | <0.000020                                        |                                                  |  |  |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             | <0.000050                                        |                                                  |  |  |
|                         | Boron (B)-Dissolved (mg/L)            | 0.052                                                                 | 0.031                                            |                                                  |  |  |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000121                                                             | 0.0000474                                        |                                                  |  |  |
|                         | Calcium (Ca)-Dissolved (mg/L)         | 67.8                                                                  | 72.8                                             |                                                  |  |  |
|                         | Chromium (Cr)-Dissolved (mg/L)        | 0.00085                                                               | 0.00045                                          |                                                  |  |  |
|                         | Cobalt (Co)-Dissolved (mg/L)          | 0.00022                                                               | 0.00046                                          |                                                  |  |  |
|                         | Copper (Cu)-Dissolved (mg/L)          | 0.00193                                                               | 0.00216                                          |                                                  |  |  |
|                         | Iron (Fe)-Dissolved (mg/L)            | 0.126                                                                 | 0.156                                            |                                                  |  |  |
|                         | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                                             | <0.000050                                        |                                                  |  |  |
|                         | Lithium (Li)-Dissolved (mg/L)         | 0.0040                                                                | 0.0066                                           |                                                  |  |  |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | 54.3                                                                  | 46.6                                             |                                                  |  |  |
|                         | Manganese (Mn)-Dissolved (mg/L)       | 0.0589                                                                | 0.0716                                           |                                                  |  |  |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            | <0.0000050                                       |                                                  |  |  |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00127                                                               | 0.00127                                          |                                                  |  |  |
|                         | Nickel (Ni)-Dissolved (mg/L)          | 0.00817                                                               | 0.0115                                           |                                                  |  |  |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                | <0.050                                           |                                                  |  |  |
|                         | Potassium (K)-Dissolved (mg/L)        | 0.77                                                                  | 0.87                                             |                                                  |  |  |
|                         | Selenium (Se)-Dissolved (mg/L)        | 0.000919                                                              | 0.00191                                          |                                                  |  |  |
|                         | Silicon (Si)-Dissolved (mg/L)         | 5.24                                                                  | 3.91                                             |                                                  |  |  |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             | <0.000010                                        |                                                  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1785001-1<br>Water<br>14-JUN-16<br>14:45<br>FB1 | L1785001-2<br>Water<br>14-JUN-16<br>14:45<br>E1 | L1785001-3<br>Water<br>14-JUN-16<br>14:45<br>DUP01 | L1785001-4<br>Water<br>14-JUN-16<br>14:00<br>E1(H) | L1785001-5<br>Water<br>17-JUN-16<br>TRAVEL BLANK |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|-------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                  |                                                 |                                                    |                                                    |                                                  |
| <b>WATER</b>                                                          |                                      |                                                  |                                                 |                                                    |                                                    |                                                  |
| <b>Dissolved Metals</b>                                               | Sodium (Na)-Dissolved (mg/L)         | <0.050                                           | 2.38                                            | 2.39                                               | 2.41                                               |                                                  |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)      | <0.00020                                         | 0.263                                           | 0.256                                              | 0.255                                              |                                                  |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | <0.50                                            | 48.2                                            | 47.1                                               | 47.2                                               |                                                  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                        | 0.000015                                        | <0.000010                                          | <0.000010                                          |                                                  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                         | <0.00010                                        | <0.00010                                           | <0.00010                                           |                                                  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | <0.00030                                         | 0.00030                                         | 0.00042                                            | 0.00039                                            |                                                  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | <0.000010                                        | 0.00178                                         | 0.00173                                            | 0.00178                                            |                                                  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                         | <0.00050                                        | <0.00050                                           | <0.00050                                           |                                                  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | <0.0010                                          | 0.0019                                          | 0.0019                                             | 0.0043                                             |                                                  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | <0.00030                                         | 0.00060                                         | 0.00058                                            | 0.00062                                            |                                                  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                  |                                                 |                                                    |                                                    |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                  |                                                 |                                                    |                                                    |                                                  |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                  |                                                 |                                                    |                                                    |                                                  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                  |                                                 |                                                    |                                                    |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1785001-6<br>Water<br>15-JUN-16<br>15:30<br>E8 | L1785001-7<br>Water<br>15-JUN-16<br>14:13<br>E7 | L1785001-8<br>Water<br>15-JUN-16<br>14:13<br>DUP02 | L1785001-9<br>Water<br>15-JUN-16<br>14:13<br>E4 | L1785001-10<br>Water<br>15-JUN-16<br>12:00<br>R4 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>Dissolved Metals</b>                                               | Sodium (Na)-Dissolved (mg/L)         | 3.02                                            | 3.97                                            | 4.11                                               | 4.02                                            | 4.81                                             |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)      | 0.111                                           | 0.435                                           | 0.431                                              | 0.420                                           | 0.408                                            |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 9.70                                            | 82.3                                            | 81.2                                               | 80.2                                            | 60.1                                             |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       | <0.000010                                       | <0.000010                                          | 0.000014                                        | <0.000010                                        |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        | <0.00010                                        | <0.00010                                           | <0.00010                                        | <0.00010                                         |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00122                                         | 0.00037                                         | 0.00034                                            | 0.00036                                         | 0.00062                                          |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.000602                                        | 0.00206                                         | 0.00205                                            | 0.00204                                         | 0.00418                                          |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00069                                         | <0.00050                                        | <0.00050                                           | <0.00050                                        | <0.00050                                         |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0024                                          | 0.0025                                          | 0.0024                                             | 0.0015                                          | 0.0068                                           |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00085                                         | 0.00088                                         | 0.00086                                            | 0.00068                                         | 0.00119                                          |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 |                                                    |                                                 |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                 |                                                 |                                                    |                                                 | <0.00073                                         |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                 |                                                 |                                                    |                                                 | 0.0011                                           |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 |                                                    |                                                 |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1785001-11<br>Water<br>15-JUN-16<br>09:40<br>GWCC-4 | L1785001-12<br>Water<br>15-JUN-16<br>08:30<br>GWCC-1 | L1785001-13<br>Water<br>15-JUN-16<br>09:15<br>GWCC-3 | L1785001-14<br>Water<br>15-JUN-16<br>09:00<br>GWCC-2 | L1785001-15<br>Water<br>14-JUN-16<br>16:10<br>GWCC-5 |
|-----------------------------------------------------------------------|--------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                      |                                                      |                                                      |                                                      |                                                      |
| <b>WATER</b>                                                          |                                      |                                                      |                                                      |                                                      |                                                      |                                                      |
| <b>Dissolved Metals</b>                                               | Sodium (Na)-Dissolved (mg/L)         | 3.04                                                 | 16.2                                                 | 3.44                                                 | 5.89                                                 | 3.54                                                 |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)      | 0.386                                                | 1.90                                                 | 0.486                                                | 0.809                                                | 0.668                                                |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 88.9                                                 | 431                                                  | 130                                                  | 285                                                  | 94.3                                                 |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | 0.000050                                             | 0.000085                                             | 0.000058                                             | 0.000054                                             | 0.000014                                             |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                             |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00108                                              | 0.00656                                              | 0.00138                                              | 0.00256                                              | 0.00210                                              |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                             | <0.00050                                             | <0.00050                                             | <0.00050                                             | <0.00050                                             |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0037                                               | 0.0069                                               | 0.0021                                               | 0.0045                                               | <0.0010                                              |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                             |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                      | <0.00064                                             |                                                      | <0.00042                                             |                                                      |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                      | <0.00088                                             |                                                      | <0.00073                                             |                                                      |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                      | 0.0036                                               |                                                      | 0.0021                                               |                                                      |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                      | 0.0037                                               |                                                      | 0.0019                                               |                                                      |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1785001-16<br>Water<br>14-JUN-16<br>17:00<br>E3 | L1785001-17<br>Water<br>15-JUN-16<br>10:20<br>E2 |  |  |  |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|--------------------------------------------------|--|--|--|
| Grouping                                                              | Analyte                              |                                                  |                                                  |  |  |  |
| <b>WATER</b>                                                          |                                      |                                                  |                                                  |  |  |  |
| <b>Dissolved Metals</b>                                               | Sodium (Na)-Dissolved (mg/L)         | 4.59                                             | 3.28                                             |  |  |  |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)      | 0.338                                            | 0.364                                            |  |  |  |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 78.9                                             | 74.4                                             |  |  |  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                        | 0.000017                                         |  |  |  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                         | <0.00010                                         |  |  |  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00057                                          | <0.00030                                         |  |  |  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00345                                          | 0.00184                                          |  |  |  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                         | <0.00050                                         |  |  |  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0013                                           | 0.0033                                           |  |  |  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00057                                          | 0.00052                                          |  |  |  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                  |                                                  |  |  |  |
|                                                                       | Chromium (III)-Total (mg/L)          | <0.00074                                         |                                                  |  |  |  |
|                                                                       | Hexavalent Chromium (mg/L)           | 0.0012                                           |                                                  |  |  |  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                  |                                                  |  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



## Reference Information

## QC Samples with Qualifiers &amp; Comments:

| QC Type Description | Parameter                | Qualifier | Applies to Sample Number(s)                                                    |
|---------------------|--------------------------|-----------|--------------------------------------------------------------------------------|
| Duplicate           | Beryllium (Be)-Dissolved | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Aluminum (Al)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Antimony (Sb)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Bismuth (Bi)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Cadmium (Cd)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Copper (Cu)-Dissolved    | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Lead (Pb)-Dissolved      | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Silver (Ag)-Dissolved    | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Tin (Sn)-Dissolved       | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Titanium (Ti)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Vanadium (V)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Zirconium (Zr)-Dissolved | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Beryllium (Be)-Dissolved | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Antimony (Sb)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Bismuth (Bi)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Cadmium (Cd)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Chromium (Cr)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Lead (Pb)-Dissolved      | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Selenium (Se)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Silver (Ag)-Dissolved    | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Thallium (Tl)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Titanium (Ti)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Vanadium (V)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Zirconium (Zr)-Dissolved | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Beryllium (Be)-Dissolved | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Antimony (Sb)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Bismuth (Bi)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Chromium (Cr)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Silver (Ag)-Dissolved    | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Tin (Sn)-Dissolved       | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Titanium (Ti)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Duplicate           | Vanadium (V)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |

## Reference Information

|              | Parameter                | Qualifier | Applies to Sample Number(s)                                                        |
|--------------|--------------------------|-----------|------------------------------------------------------------------------------------|
| Duplicate    | Zirconium (Zr)-Dissolved | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Selenium (Se)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Bismuth (Bi)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Chromium (Cr)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Copper (Cu)-Dissolved    | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Lead (Pb)-Dissolved      | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Selenium (Se)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Silver (Ag)-Dissolved    | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Tin (Sn)-Dissolved       | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Titanium (Ti)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Vanadium (V)-Dissolved   | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Zinc (Zn)-Dissolved      | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Zirconium (Zr)-Dissolved | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Aluminum (Al)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Duplicate    | Selenium (Se)-Dissolved  | DLA       | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Barium (Ba)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Boron (B)-Dissolved      | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Sodium (Na)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Silicon (Si)-Total       | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9                    |
| Matrix Spike | Sulfur (S)-Total         | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9                    |
| Matrix Spike | Sulfate (SO4)            | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Sulfate (SO4)            | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Total Organic Carbon     | MS-B      | L1785001-5                                                                         |
| Matrix Spike | Dissolved Organic Carbon | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -3, -7, -8, -9                 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Sodium (Na)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Sodium (Na)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Barium (Ba)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9     |

## Reference Information

|              | Parameter                | Qualifier | Applies to Sample Number(s)                                                    |
|--------------|--------------------------|-----------|--------------------------------------------------------------------------------|
| Matrix Spike | Aluminum (Al)-Total      | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9                |
| Matrix Spike | Manganese (Mn)-Total     | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9                |
| Matrix Spike | Nickel (Ni)-Total        | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9                |
| Matrix Spike | Strontium (Sr)-Total     | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9                |
| Matrix Spike | Barium (Ba)-Total        | MS-B      | L1785001-15, -16, -17                                                          |
| Matrix Spike | Strontium (Sr)-Total     | MS-B      | L1785001-15, -16, -17                                                          |
| Matrix Spike | Dissolved Organic Carbon | MS-B      | L1785001-2, -4, -6                                                             |
| Matrix Spike | Dissolved Organic Carbon | MS-B      | L1785001-2, -4, -6                                                             |
| Matrix Spike | Barium (Ba)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Total        | MS-B      | L1785001-6                                                                     |
| Matrix Spike | Strontium (Sr)-Total     | MS-B      | L1785001-6                                                                     |
| Matrix Spike | Arsenic (As)-Dissolved   | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Cadmium (Cd)-Dissolved   | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Cobalt (Co)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Nickel (Ni)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Zinc (Zn)-Dissolved      | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved    | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1785001-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -6, -7, -8, -9 |

## Qualifiers for Individual Parameters Listed:

| Qualifier | Description                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------|
| DLA       | Detection Limit adjusted for required dilution                                                     |
| DLDS      | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.  |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

## Test Method References:

| ALS Test Code                                                                                            | Matrix | Test Description                     | Method Reference**     |
|----------------------------------------------------------------------------------------------------------|--------|--------------------------------------|------------------------|
| BE-D-L-CCMS-VA                                                                                           | Water  | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.             |        |                                      |                        |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. |        |                                      |                        |
| BE-T-L-CCMS-VA                                                                                           | Water  | Total Be (Low) in Water by CRC ICPMS | EPA 200.2/6020A (mod)  |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                |        |                                      |                        |

## Reference Information

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------|---------------------------------------|
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Water | Dissolved organic carbon by combustion   | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.                                                                                                                                                                                                                                                                                                                                            |       |                                          |                                       |
| <b>CARBONS-TOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Water | Total organic carbon by combustion       | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                          |                                       |
| <b>CR-CR3-DIS-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Dissolved Trivalent Chromium in Water    | CALCULATION                           |
| Chromium (III)-Dissolved is calculated as the difference between the dissolved chromium and the dissolved hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                       |
| <b>CR-CR3-TOT-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Total Trivalent Chromium in Water        | CALCULATION                           |
| Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                          |                                       |
| <b>CR-CR6-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Water | Chromium, Hexavalent (Cr +6)             | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.                                                                                                                                   |       |                                          |                                       |
| Results are based on an un-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                       |
| <b>CR6-D-IC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water | Chromium, Dissolved Hexavalent (Cr +6)   | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.                                                                                                                                   |       |                                          |                                       |
| Results are based on a field-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |
| <b>EC-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Water | Conductivity (Automated)                 | APHA 2510 Auto. Conduc.               |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                          |                                       |
| <b>HARDNESS-CALC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Water | Hardness                                 | APHA 2340B                            |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                                                                                                                                          |       |                                          |                                       |
| <b>HG-D-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Water | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod)            |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                                           |       |                                          |                                       |
| <b>HG-T-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Water | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod)                       |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                       |
| <b>MET-D-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Water | Dissolved Metals in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                          |                                       |
| <b>MET-DIS-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Dissolved Metals in Water by ICPOES      | EPA 3005A/6010B                       |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).                                                                                       |       |                                          |                                       |
| <b>MET-T-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Water | Total Metals in Water by CRC ICPMS       | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                          |                                       |
| <b>MET-TOT-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Total Metals in Water by ICPOES          | EPA 3005A/6010B                       |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method |       |                                          |                                       |



## Reference Information

6010B).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                       |                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------|-----------------------------------------|
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | Ammonia in Water by Fluorescence      | APHA 4500 NH3-NITROGEN (AMMONIA)        |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                                                                                                                                                                          |       |                                       |                                         |
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | Ammonia in Water by Fluorescence      | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                                                                                                                                                                          |       |                                       |                                         |
| <b>NO2-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Water | Nitrite in Water by IC (Low Level)    | EPA 300.1 (mod)                         |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                       |                                         |
| <b>NO3-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Water | Nitrate in Water by IC (Low Level)    | EPA 300.1 (mod)                         |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                       |                                         |
| <b>P-T-PRES-COL-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Total P in Water by Colour            | APHA 4500-P Phosphorus                  |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                       |                                         |
| <b>PH-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | pH by Meter (Automated)               | APHA 4500-H "pH Value"                  |
| This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                       |                                         |
| It is recommended that this analysis be conducted in the field.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                       |                                         |
| <b>PH-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | pH by Meter (Automated)               | APHA 4500-H pH Value                    |
| This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                       |                                         |
| It is recommended that this analysis be conducted in the field.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                       |                                         |
| <b>S-DIS-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Dissolved Sulfur in Water by ICPOES   | EPA SW-846 3005A/6010B                  |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). |       |                                       |                                         |
| Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.                                                                                                                                                                                                                                  |       |                                       |                                         |
| <b>S-TOT-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Total Sulfur in Water by ICPOES       | EPA SW-846 3005A/6010B                  |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). |       |                                       |                                         |
| Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.                                                                                                                                                                                                                                  |       |                                       |                                         |
| <b>SO4-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Sulfate in Water by IC                | EPA 300.1 (mod)                         |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                       |                                         |
| <b>TSS-MAN-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Water | Total Suspended Solids by Gravimetric | APHA 2540 D                             |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids are determined by filtering a sample through a glass fibre filter and drying the filter at 104 degrees celsius.                                                                                                                                                                                                                                                                                                                                          |       |                                       |                                         |

\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location                           |
|----------------------------|-----------------------------------------------|
| ED                         | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |

## Reference Information

|    |                                                         |
|----|---------------------------------------------------------|
| WR | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA           |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

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### Chain of Custody Numbers:

---

|   |   |
|---|---|
| 1 | 2 |
|---|---|

#### GLOSSARY OF REPORT TERMS

*Surrogate* - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

*mg/kg* - milligrams per kilogram based on dry weight of sample.

*mg/kg ww* - milligrams per kilogram based on wet weight of sample.

*mg/kg lwt* - milligrams per kilogram based on lipid-adjusted weight of sample.

*mg/L* - milligrams per litre.

*<* - Less than.

*D.L.* - The reported Detection Limit, also known as the Limit of Reporting (LOR).

*N/A* - Result not available. Refer to qualifier code and definition for explanation.

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*



Contact: Brent Mack  
Company: ALS Laboratory Group  
Address: 8081 Lougheed Hwy., Suite 100,  
Burnaby, BC V5A 1W9

## REFERENCE DATA

---

Project / Location: L1785001

PO Number: L1785001

ALS Work Order: 1606743

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

NELAC accredited through New York ELAP, LAB #11371

## TEM ANALYSIS DATA

---

EDXA Resolution (eV): <175

Accelerating Voltage (keV): 100

Prep Start Date: 6/22/2016

Calibration Constant (µm/cm): 0.74

Camera Constant (mm-Å): 129.25

Analysis Start Date: 6/24/2016

*Pamela Johnson*

Pamela Johnson  
ALS TEM Analyst

*Shawn Smythe*

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*

---

**IDENTIFICATION**

|                     | L1785001-16 | L1785001-17 |
|---------------------|-------------|-------------|
| Client Sample ID:   | E3          | E2          |
| ALS Sample ID:      | 1606743-01  | 1606743-02  |
| Method:             | EPA 100.2   | EPA 100.2   |
| Date of Collection: | 6/14/2016   | 6/15/2016   |
| Time of Collection: | 10:50       | 10:50       |

---

**FILTRATION & ANALYSIS**

|                                       | 6/21/2016 | 6/21/2016 |
|---------------------------------------|-----------|-----------|
| Date of Filtration:                   | 6/21/2016 | 6/21/2016 |
| Time of Filtration:                   | 15:20     | 15:20     |
| Volume Filtered (L):                  | 0.01      | 0.01      |
| Openings Analyzed:                    | 4         | 4         |
| Avg. Opening Area (mm <sup>2</sup> ): | 0.011     | 0.011     |
| AS (MFL):                             | 2.44      | 2.44      |

---

**ASBESTOS COUNT**

|                              | 7 | 3 |
|------------------------------|---|---|
| Chrysotile:                  | 7 | 3 |
| Amosite:                     | 0 | 0 |
| Crocidolite:                 | 0 | 0 |
| Act-Tremolite <sup>†</sup> : | 0 | 0 |
| Anthophyllite:               | 0 | 0 |
| Total Asbestos:              | 7 | 3 |

---

**ASBESTOS CONCENTRATION (MFL)**

|                              | 17.10        | 7.33        |
|------------------------------|--------------|-------------|
| Chrysotile:                  | 17.10        | 7.33        |
| Amosite:                     | <AS          | <AS         |
| Crocidolite:                 | <AS          | <AS         |
| Act-Tremolite <sup>†</sup> : | <AS          | <AS         |
| Anthophyllite:               | <AS          | <AS         |
| <b>Total Asbestos:</b>       | <b>17.10</b> | <b>7.33</b> |

---

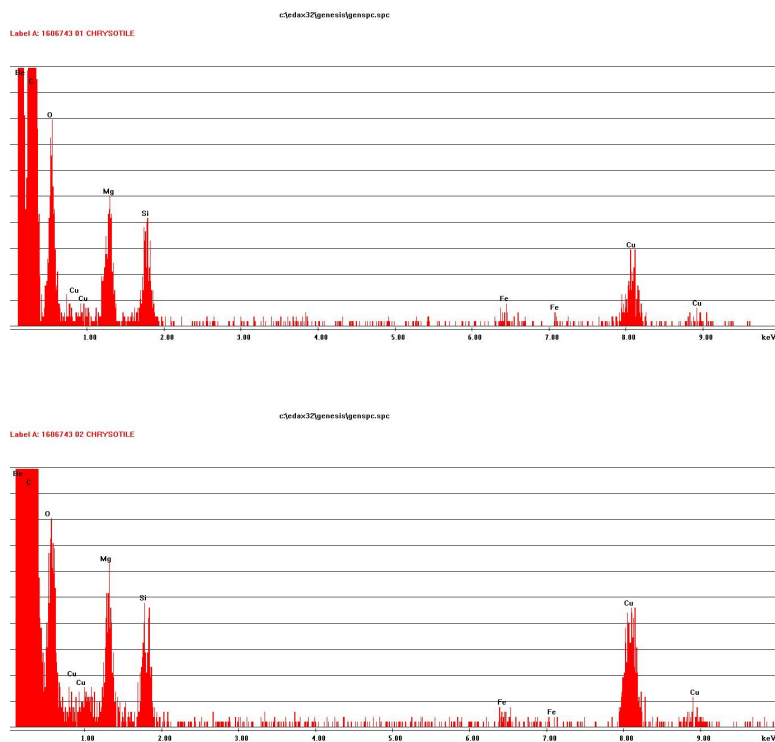
**NOTES**

Samples L1785001-16 E3 and L1785001-17 E2 were received past the method hold time of 48 hours. Both samples contained many additional asbestos structures which were too small to be counted by this method. Analysis was terminated after the completion of the minimum 4 grid openings analyzed per sample.



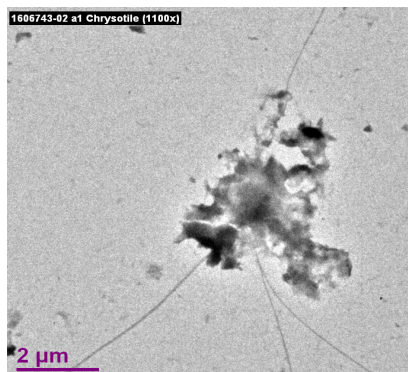
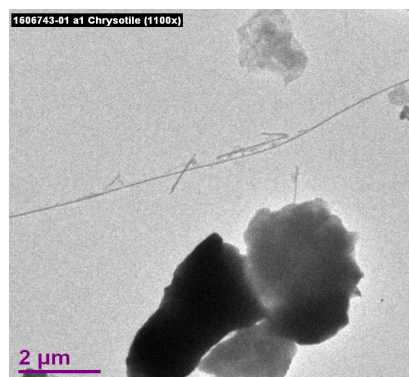
## EDXA SPECTRA

NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.



## PHOTOMICROGRAPHS

Collected using Gatan Digital Micrograph.





12-Jul-2016

Brent Mack  
ALS Laboratory Group  
8081 Lougheed Hwy., Suite 100  
Burnaby, BC V5A 1W9

Tel: (604) 253-4188  
Fax: (604) 253-6700

Re: L1785001

Work Order: **1607133**

Dear Brent,

ALS Environmental received 2 samples on 06-Jul-2016 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 8.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Shawn Smythe

Shawn Smythe  
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, Ohio 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

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Environmental

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**Client:** ALS Laboratory Group  
**Project:** L1785001  
**Work Order:** 1607133

**Work Order Sample Summary**

---

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1607133-01         | L1785001-16             | Water         |                   | 6/14/2016              | 7/6/2016             | <input type="checkbox"/> |
| 1607133-02         | L1785001-17             | Water         |                   | 6/15/2016              | 7/6/2016             | <input type="checkbox"/> |

---

**Client:** ALS Laboratory Group**Project:** L1785001**Work Order:** 1607133**Case Narrative**

---

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.



## ALS Environmental

Date: 12-Jul-16

Client: ALS Laboratory Group

Project: L1785001

Work Order: 1607133

Sample ID: L1785001-16

Lab ID: 1607133-01

Collection Date: 6/14/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 12     | H    | 3.0             | mg/L  | 1                  | 7/8/2016      |

Note:

## ALS Environmental

Date: 12-Jul-16

Client: ALS Laboratory Group

Project: L1785001

Work Order: 1607133

Sample ID: L1785001-17

Lab ID: 1607133-02

Collection Date: 6/15/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 3.0    | H    | 3.0             | mg/L  | 1                  | 7/8/2016      |

Note:

# ALS Environmental

Date: 12-Jul-16

**Client:** ALS Laboratory Group  
**Work Order:** 1607133  
**Project:** L1785001

## QC BATCH REPORT

Batch ID: **R130830** Instrument ID: **WETCHEM** Method: **SM2540 D**

|             |                                      |     |         |               |      |                       |                                |      |              |      |
|-------------|--------------------------------------|-----|---------|---------------|------|-----------------------|--------------------------------|------|--------------|------|
| <b>MBLK</b> | Sample ID: <b>MB-R130830-R130830</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>7/8/2016</b> |      |              |      |
| Client ID:  | Run ID: <b>WETCHEM_160708A</b>       |     |         |               |      | SeqNo: <b>1317828</b> | Prep Date:                     |      | DF: <b>1</b> |      |
| Analyte     | Result                               | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                  | %RPD | RPD Limit    | Qual |

Total suspended solids ND 3.0

|            |                                       |     |         |               |      |                       |                                |      |              |      |
|------------|---------------------------------------|-----|---------|---------------|------|-----------------------|--------------------------------|------|--------------|------|
| <b>LCS</b> | Sample ID: <b>LCS-R130830-R130830</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>7/8/2016</b> |      |              |      |
| Client ID: | Run ID: <b>WETCHEM_160708A</b>        |     |         |               |      | SeqNo: <b>1317829</b> | Prep Date:                     |      | DF: <b>1</b> |      |
| Analyte    | Result                                | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                  | %RPD | RPD Limit    | Qual |

Total suspended solids 968.8 3.0 1000 0 96.9 70-130 0

|            |                                   |     |         |               |      |                       |                                |      |              |      |
|------------|-----------------------------------|-----|---------|---------------|------|-----------------------|--------------------------------|------|--------------|------|
| <b>DUP</b> | Sample ID: <b>1607125-01A Dup</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>7/8/2016</b> |      |              |      |
| Client ID: | Run ID: <b>WETCHEM_160708A</b>    |     |         |               |      | SeqNo: <b>1317831</b> | Prep Date:                     |      | DF: <b>1</b> |      |
| Analyte    | Result                            | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                  | %RPD | RPD Limit    | Qual |

Total suspended solids 28.37 3.0 0 0 0 29.47 3.8

|            |                                   |     |         |               |      |                       |                                |      |              |      |
|------------|-----------------------------------|-----|---------|---------------|------|-----------------------|--------------------------------|------|--------------|------|
| <b>DUP</b> | Sample ID: <b>1607210-02A Dup</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>7/8/2016</b> |      |              |      |
| Client ID: | Run ID: <b>WETCHEM_160708A</b>    |     |         |               |      | SeqNo: <b>1317839</b> | Prep Date:                     |      | DF: <b>1</b> |      |
| Analyte    | Result                            | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                  | %RPD | RPD Limit    | Qual |

Total suspended solids 4.25 3.0 0 0 0 3.25 26.7

The following samples were analyzed in this batch:

1607133-01A 1607133-02A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

## ALS Environmental

Date: 12-Jul-16

**Client:** ALS Laboratory Group  
**Project:** L1785001  
**WorkOrder:** 1607133

## QUALIFIERS, ACRONYMS, UNITS

| <u>Qualifier</u> | <u>Description</u>                                                        |
|------------------|---------------------------------------------------------------------------|
| *                | Value exceeds Regulatory Limit                                            |
| a                | Not accredited                                                            |
| B                | Analyte detected in the associated Method Blank above the Reporting Limit |
| E                | Value above quantitation range                                            |
| H                | Analyzed outside of Holding Time                                          |
| J                | Analyte detected below quantitation limit                                 |
| n                | Not offered for accreditation                                             |
| ND               | Not Detected at the Reporting Limit                                       |
| O                | Sample amount is > 4 times amount spiked                                  |
| P                | Dual Column results percent difference > 40%                              |
| R                | RPD above laboratory control limit                                        |
| S                | Spike Recovery outside laboratory control limits                          |
| U                | Analyzed but not detected above the MDL                                   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| E              | EPA Method                          |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MQL            | Method Quantitation Limit           |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PDS            | Post Digestion Spike                |
| PQL            | Practical Quantitation Limit        |
| SDL            | Sample Detection Limit              |
| SW             | SW-846 Method                       |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| mg/L                  |                    |



## Sample Receipt Checklist

Client Name: **ALS-BURNABY**

Date/Time Received: **06-Jul-16 00:00**

Work Order: **1607133**

Received by: **RDN**

Checklist completed by: **Jan Wilcox**

06-Jul-16

Reviewed by: **Shawn Smythe**

07-Jul-16

eSignature

Date

eSignature

Date

Matrices:

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

9.4

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☐

pH adjusted by:

-

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



**Canada Toll Free: 1 800 668 9878**

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**COC Number: 1**

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| <b>Report To</b><br>Company: Hemmera Environchem Inc.<br>Contact: Natasha Sandys<br>Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT<br>Phone: 867-456-4885                                                                                                                                             |                                                                                          | <b>Report Format / Distribution</b><br>Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)<br>Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> Criteria on Report - provide details below if box checked<br>Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX<br>Email 1 or Fax nsandys@hemmera.com<br>Email 2 chris@elr.ca |                                                                                                                                                                                                                                       | Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)<br>R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)<br>P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT<br>E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT<br>E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge<br>Specify Date Required for E2,E or P:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |  |  |   |   |   |   |     |   |   |     |   |     |  |  |  |  |  |  |  |  |  |  |  |                                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| <b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Company: Hemmera Environchem Inc.<br>Contact: Natasha Sandys                              |                                                                                          | <b>Invoice Distribution</b><br>Select invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX<br>Email 1 or Fax nsandys@hemmera.com<br>Email 2 chris@elr.ca                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                       | <b>Analysis Request</b><br>Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below<br><table border="1"> <tr> <th>F/P</th> <th>P</th> <th>P</th> <th>F/P</th> <th>P</th> <th>F/P</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td>Low Level Diss. 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Met (incl. Hg) and Hardness |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Low Level Tot. Met (incl. Hg) and Hardness |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Chromium Speciation (III/VI) - Total |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Chromium Speciation (III/VI) - Dissolved |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Ammonia - N |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Dissolved Organic Carbon (DOC) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Nitrate-N |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Nitrite - N |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Total Phosphorus |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Sulfate |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | pH, Conductivity, Total Susp Solids |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Low Level Diss. Met (incl. 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| Low Level Tot. Met (incl. 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| Chromium Speciation (III/VI) - Total                                                                                                                                                                                                                                                                    |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| Chromium Speciation (III/VI) - Dissolved                                                                                                                                                                                                                                                                |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| Ammonia - N                                                                                                                                                                                                                                                                                             |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| Dissolved Organic Carbon (DOC)                                                                                                                                                                                                                                                                          |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| Nitrate-N                                                                                                                                                                                                                                                                                               |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| Nitrite - N                                                                                                                                                                                                                                                                                             |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| Total Phosphorus                                                                                                                                                                                                                                                                                        |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| Sulfate                                                                                                                                                                                                                                                                                                 |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| pH, Conductivity, Total Susp Solids                                                                                                                                                                                                                                                                     |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                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| <b>Project Information</b><br>ALS Quote #: Q56044<br>Job #: 1343-005.17<br>PO / AFE:<br>LSD:                                                                                                                                                                                                            |                                                                                          | <b>Oil and Gas Required Fields (client use)</b><br>Approver ID:<br>GL Account:<br>Activity Code:<br>Location:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                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| ALS Lab Work Order # (lab use only)                                                                                                                                                                                                                                                                     |                                                                                          | ALS Contact:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                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|                                                                                                                                                                                                                                                                                                         | E4                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-Jun-16                                                                                                                                                                                                                             | 14:13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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                                                                                                                                                                                                                                                                                                                                                                                                                                      | R |  |  | R | R | R | R | R   | R | R | 9   |   |     |  |  |  |  |  |  |  |  |  |  |  |                                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |  |  |  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|                                                                                                                                                                                                                                                                                                         | R4                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-Jun-16                                                                                                                                                                                                                             | 12:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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                                                                                                                                                                                                                                                                                                                                                                                                                                      | R |  |  | R | R | R | R | R   | R | R | 9   |   |     |  |  |  |  |  |  |  |  |  |  |  |                                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |  |  |  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|                                                                                                                                                                                                                                                                                                         | GWCC-4                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-Jun-16                                                                                                                                                                                                                             | 9:40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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|                                                                                                                                                                                                                                                                                                         | GWCC-1                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-Jun-16                                                                                                                                                                                                                             | 8:30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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                                                                                                                                                                                                                                                                                                                                                                                                                                      | R |  |  | R | R | R | R | R   | R | R | 9   |   |     |  |  |  |  |  |  |  |  |  |  |  |                                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |  |  |  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| <b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b><br>Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Special Instructions / Specify Criteria to add on report (client Use)</b><br>Please hold samples for total and dissolved Chromium (III/VI) pending regular metals analysis results. Please supply ELR EQWIN EDD file with results. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b><br>Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/><br>Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/><br>Cooling initiated <input checked="" type="checkbox"/><br>INITIAL COOLER TEMPERATURES °C: 52.5, 46.1, 5.7, 5.4 |   |  |  |   |   |   |   |     |   |   |     |   |     |  |  |  |  |  |  |  |  |  |  |  |                                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

REFER TO BACK PAGE FOR AIS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white-report copy.

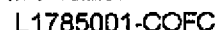
1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

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NA-74-0326a 108 From 04 January 2011



**Canada Toll Free: 1 800 668 9878**



Page 2 of 2

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U.S. DEPARTMENT OF THE ARMY  
FORM NO. 7-60

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 20-JUN-16  
Report Date: 15-JUL-16 11:12 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1785857  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.17  
C of C Numbers: 1, 2  
Legal Site Desc:

### Comments:

15-JUL-2016 This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.  
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1785857-1<br>Water<br>16-JUN-16<br>14:45<br>R1 | L1785857-2<br>Water<br>17-JUN-16<br>10:30<br>R1 | L1785857-3<br>Water<br>16-JUN-16<br>13:30<br>R2 | L1785857-4<br>Water<br>17-JUN-16<br>10:30<br>R2 | L1785857-5<br>Water<br>20-JUN-16<br><br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                 |                                                      |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                 |                                                      |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            |                                                 | 712                                             |                                                 | 659                                             | <2.0                                                 |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 392                                             |                                                 | 356                                             |                                                 | <0.50                                                |
|                                                                       | pH (pH)                         |                                                 | 8.17                                            |                                                 | 8.22                                            | 5.18                                                 |
|                                                                       | Total Suspended Solids (mg/L)   |                                                 | 7.3                                             |                                                 | 7.3                                             | <3.0                                                 |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0194                                          |                                                 | 0.0120                                          |                                                 | 0.0401 <sup>RRV</sup>                                |
|                                                                       | Nitrate (as N) (mg/L)           |                                                 | 0.119                                           |                                                 | 0.0448                                          | <0.0050                                              |
|                                                                       | Nitrite (as N) (mg/L)           |                                                 | <0.0010                                         |                                                 | <0.0010                                         | <0.0010                                              |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0106                                          |                                                 | 0.0087                                          |                                                 | <0.0020                                              |
|                                                                       | Sulfate (SO4) (mg/L)            |                                                 | 222                                             |                                                 | 178                                             | <0.30                                                |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 11.6                                            |                                                 | 8.99                                            |                                                 |                                                      |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                 |                                                 | <0.50                                                |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.175                                           |                                                 | 0.109                                           |                                                 | <0.0030                                              |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00023                                         |                                                 | 0.00047                                         |                                                 | <0.00010                                             |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00066                                         |                                                 | 0.00091                                         |                                                 | <0.00010                                             |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0505                                          |                                                 | 0.0476                                          |                                                 | <0.000050                                            |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                       |                                                 | <0.000020                                       |                                                 | <0.000020                                            |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       |                                                 | <0.000050                                       |                                                 | <0.000050                                            |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                          |                                                 | 0.011                                           |                                                 | <0.010                                               |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000625                                       |                                                 | 0.0000203                                       |                                                 | <0.0000050                                           |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 82.9                                            |                                                 | 59.6                                            |                                                 | <0.050                                               |
|                                                                       | Chromium (Cr)-Total (mg/L)      | <0.00070 <sup>DLB</sup>                         |                                                 | <0.00070 <sup>DLB</sup>                         |                                                 | <0.00010                                             |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00057                                         |                                                 | 0.00022                                         |                                                 | <0.00010                                             |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00250                                         |                                                 | 0.00151                                         |                                                 | <0.00050                                             |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.503                                           |                                                 | 0.436                                           |                                                 | <0.010                                               |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000258                                        |                                                 | 0.000077                                        |                                                 | <0.000050                                            |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0037                                          |                                                 | 0.0059                                          |                                                 | <0.0010                                              |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 37.3                                            |                                                 | 46.7                                            |                                                 | <0.10                                                |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.230                                           |                                                 | 0.0750                                          |                                                 | <0.00010                                             |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.0000051                                       |                                                 | <0.0000050                                      |                                                 | <0.0000050                                           |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00134                                         |                                                 | 0.000648                                        |                                                 | <0.000050                                            |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00431                                         |                                                 | 0.00299                                         |                                                 | <0.00050                                             |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          |                                                 | <0.050                                          |                                                 | <0.050                                               |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.61                                            |                                                 | 0.81                                            |                                                 | <0.10                                                |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00246                                         |                                                 | 0.000448                                        |                                                 | <0.000050                                            |
|                                                                       | Silicon (Si)-Total (mg/L)       | 4.28                                            |                                                 | 5.29                                            |                                                 | <0.050                                               |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                       |                                                 | <0.000010                                       |                                                 | <0.000010                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1785857-6<br>Water<br>17-JUN-16<br>16:45<br>R3 | L1785857-7<br>Water<br>18-JUN-16<br>11:00<br>R6 | L1785857-8<br>Water<br>18-JUN-16<br>11:00<br>DUP-3 | L1785857-9<br>Water<br>17-JUN-16<br>12:45<br>R7 | L1785857-10<br>Water<br>16-JUN-16<br>12:45<br>R8 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 806                                             | 189                                             | 189                                                | 182                                             |                                                  |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 461                                             | 86.4                                            | 87.3                                               | 98.6                                            | 132                                              |
|                                                                       | pH (pH)                         | 8.26                                            | 7.86                                            | 7.84                                               | 7.51                                            |                                                  |
|                                                                       | Total Suspended Solids (mg/L)   | 68.7                                            | 10.7                                            | 8.7                                                | 19.3                                            |                                                  |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0177                                          | 0.0082                                          | 0.0102                                             | 0.0412                                          | <0.0050                                          |
|                                                                       | Nitrate (as N) (mg/L)           | 0.0558                                          | 0.0265                                          | 0.0269                                             | 0.0885                                          |                                                  |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                         | <0.0010                                         | <0.0010                                            | <0.0010                                         |                                                  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0055                                          | 0.0078                                          | 0.0075                                             | 0.0292                                          | 0.0052                                           |
|                                                                       | Sulfate (SO4) (mg/L)            | 261                                             | 31.7                                            | 31.6                                               | 31.6                                            |                                                  |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 12.8                                            | 15.2                                            | 15.2                                               | 28.3                                            | 14.7                                             |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 1.93                                            | 0.149                                           | 0.156                                              | 0.470                                           | 0.0581                                           |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00029                                         | 0.00012                                         | 0.00012                                            | 0.00022                                         | 0.00184                                          |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00194                                         | 0.00061                                         | 0.00060                                            | 0.00141                                         | 0.00040                                          |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.117                                           | 0.0352                                          | 0.0345                                             | 0.0778                                          | 0.0483                                           |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000077                                        | <0.000020                                       | <0.000020                                          | 0.000034                                        | <0.000020                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       | <0.000050                                       | <0.000050                                          | <0.000050                                       | <0.000050                                        |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                          | <0.010                                          | <0.010                                             | <0.010                                          | <0.010                                           |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000492                                       | 0.0000160                                       | 0.0000169                                          | 0.0000257                                       | 0.0000270                                        |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 82.7                                            | 21.0                                            | 21.9                                               | 20.9                                            | 31.4                                             |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00425                                         | <0.00050 <sup>DLB</sup>                         | <0.00050 <sup>DLB</sup>                            | 0.00227                                         | 0.00093                                          |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00130                                         | 0.00024                                         | 0.00027                                            | 0.00086                                         | <0.00010                                         |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00551                                         | 0.00291                                         | 0.00305                                            | 0.00493                                         | 0.00221                                          |
|                                                                       | Iron (Fe)-Total (mg/L)          | 3.31                                            | 0.304                                           | 0.314                                              | 1.93                                            | 0.118                                            |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.00132                                         | 0.000063                                        | 0.000088                                           | 0.000280                                        | <0.000050                                        |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0057                                          | 0.0033                                          | 0.0034                                             | <0.0010                                         | <0.0010                                          |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 54.5                                            | 7.21                                            | 7.56                                               | 9.63                                            | 11.8                                             |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.133                                           | 0.0253                                          | 0.0268                                             | 0.206                                           | 0.00425                                          |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                      | <0.0000050                                      | <0.0000050                                         | <0.0000050                                      | <0.0000050                                       |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00137                                         | 0.000429                                        | 0.000431                                           | 0.000529                                        | 0.000787                                         |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00880                                         | 0.00239                                         | 0.00252                                            | 0.00445                                         | 0.00347                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.060                                           | <0.050                                          | <0.050                                             | <0.050                                          | <0.050                                           |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.20                                            | 0.87                                            | 0.91                                               | 0.21                                            | <0.10                                            |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.000570                                        | 0.000150                                        | 0.000170                                           | 0.000290                                        | 0.000561                                         |
|                                                                       | Silicon (Si)-Total (mg/L)       | 8.94                                            | 4.38                                            | 4.59                                               | 5.11                                            | 5.53                                             |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000029                                        | <0.000010                                       | <0.000010                                          | <0.000010                                       | <0.000010                                        |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1785857-11<br>Water<br>17-JUN-16<br>10:35<br>R8 | L1785857-12<br>Water<br>17-JUN-16<br>09:50<br>R9 | L1785857-13<br>Water<br>17-JUN-16<br>17:50<br>R11 | L1785857-14<br>Water<br>17-JUN-16<br>14:40<br>SL | L1785857-15<br>Water<br>17-JUN-16<br>10:15<br>R9 |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                  |                                                  |                                                   |                                                  |                                                  |
| <b>WATER</b>                                                          |                                 |                                                  |                                                  |                                                   |                                                  |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 260                                              |                                                  | 406                                               | 1470                                             | 528                                              |
|                                                                       | Hardness (as CaCO3) (mg/L)      |                                                  | 310                                              | 214                                               | 967                                              |                                                  |
|                                                                       | pH (pH)                         | 7.57                                             |                                                  | 7.86                                              | 8.25                                             | 7.85                                             |
|                                                                       | Total Suspended Solids (mg/L)   | 4.7                                              |                                                  | 38.0                                              | 20.7                                             | <3.0                                             |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    |                                                  | 0.0396                                           |                                                   |                                                  |                                                  |
|                                                                       | Nitrate (as N) (mg/L)           | <0.0050                                          |                                                  | 0.117                                             | 0.019 <sup>DLS</sup>                             | 0.170                                            |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                          |                                                  | <0.0010                                           | <0.0020                                          | 0.0011                                           |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                  | 0.0105                                           |                                                   |                                                  |                                                  |
|                                                                       | Sulfate (SO4) (mg/L)            | 79.1                                             |                                                  | 109                                               | 669                                              | 170                                              |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) |                                                  | 23.6                                             |                                                   |                                                  |                                                  |
|                                                                       | Total Organic Carbon (mg/L)     |                                                  |                                                  |                                                   |                                                  |                                                  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      |                                                  | 0.0507                                           | 0.151                                             | 0.215                                            |                                                  |
|                                                                       | Antimony (Sb)-Total (mg/L)      |                                                  | 0.00023                                          | 0.00024                                           | 0.00281                                          |                                                  |
|                                                                       | Arsenic (As)-Total (mg/L)       |                                                  | 0.00076                                          | 0.00061                                           | 0.0163                                           |                                                  |
|                                                                       | Barium (Ba)-Total (mg/L)        |                                                  | 0.0713                                           | 0.0551                                            | 0.0298                                           |                                                  |
|                                                                       | Beryllium (Be)-Total (mg/L)     |                                                  | <0.000020                                        | <0.000020                                         | <0.000020                                        |                                                  |
|                                                                       | Bismuth (Bi)-Total (mg/L)       |                                                  | <0.000050                                        | <0.000050                                         | <0.000050                                        |                                                  |
|                                                                       | Boron (B)-Total (mg/L)          |                                                  | <0.010                                           | <0.010                                            | 0.042                                            |                                                  |
|                                                                       | Cadmium (Cd)-Total (mg/L)       |                                                  | 0.0000459                                        | 0.0000376                                         | 0.0000282                                        |                                                  |
|                                                                       | Calcium (Ca)-Total (mg/L)       |                                                  | 67.2                                             | 48.2                                              | 210                                              |                                                  |
|                                                                       | Chromium (Cr)-Total (mg/L)      |                                                  | 0.00089                                          | 0.00108                                           | 0.00725                                          |                                                  |
|                                                                       | Cobalt (Co)-Total (mg/L)        |                                                  | 0.00047                                          | 0.00021                                           | 0.00075                                          |                                                  |
|                                                                       | Copper (Cu)-Total (mg/L)        |                                                  | 0.00408                                          | 0.00280                                           | 0.00205                                          |                                                  |
|                                                                       | Iron (Fe)-Total (mg/L)          |                                                  | 0.930                                            | 0.315                                             | 0.483                                            |                                                  |
|                                                                       | Lead (Pb)-Total (mg/L)          |                                                  | 0.000051                                         | 0.000163                                          | 0.000244                                         |                                                  |
|                                                                       | Lithium (Li)-Total (mg/L)       |                                                  | <0.0010                                          | <0.0010                                           | 0.0114                                           |                                                  |
|                                                                       | Magnesium (Mg)-Total (mg/L)     |                                                  | 30.5                                             | 21.9                                              | 98.2                                             |                                                  |
|                                                                       | Manganese (Mn)-Total (mg/L)     |                                                  | 0.300                                            | 0.0163                                            | 0.0138                                           |                                                  |
|                                                                       | Mercury (Hg)-Total (mg/L)       |                                                  | 0.0000061                                        | <0.0000050                                        | <0.0000050                                       |                                                  |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    |                                                  | 0.00143                                          | 0.00109                                           | 0.00200                                          |                                                  |
|                                                                       | Nickel (Ni)-Total (mg/L)        |                                                  | 0.00387                                          | 0.00307                                           | 0.0241                                           |                                                  |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                  | <0.050                                           | <0.050                                            | <0.050                                           |                                                  |
|                                                                       | Potassium (K)-Total (mg/L)      |                                                  | 0.54                                             | 0.54                                              | 1.40                                             |                                                  |
|                                                                       | Selenium (Se)-Total (mg/L)      |                                                  | 0.00109                                          | 0.000696                                          | 0.0157                                           |                                                  |
|                                                                       | Silicon (Si)-Total (mg/L)       |                                                  | 4.31                                             | 5.77                                              | 4.74                                             |                                                  |
|                                                                       | Silver (Ag)-Total (mg/L)        |                                                  | <0.000010                                        | 0.000012                                          | <0.000010                                        |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1785857-1<br>Water<br>16-JUN-16<br>14:45<br>R1 | L1785857-2<br>Water<br>17-JUN-16<br>10:30<br>R1 | L1785857-3<br>Water<br>16-JUN-16<br>13:30<br>R2 | L1785857-4<br>Water<br>17-JUN-16<br>10:30<br>R2 | L1785857-5<br>Water<br>20-JUN-16<br>TRAVEL BLANK |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>            |                                       |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Total Metals</b>     | Sodium (Na)-Total (mg/L)              | 3.34                                                                  |                                                 |                                                 | 2.89                                            |                                                 | <0.050                                           |
|                         | Strontium (Sr)-Total (mg/L)           | 0.381                                                                 |                                                 |                                                 | 0.312                                           |                                                 | <0.00020                                         |
|                         | Sulfur (S)-Total (mg/L)               | 71.4                                                                  |                                                 |                                                 | 59.3                                            |                                                 | <0.50                                            |
|                         | Thallium (Tl)-Total (mg/L)            | 0.000010                                                              |                                                 |                                                 | <0.000010                                       |                                                 | <0.000010                                        |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |                                                 |                                                 | <0.00010                                        |                                                 | <0.00010                                         |
|                         | Titanium (Ti)-Total (mg/L)            | 0.00438                                                               |                                                 |                                                 | 0.00318                                         |                                                 | <0.00030                                         |
|                         | Uranium (U)-Total (mg/L)              | 0.00259                                                               |                                                 |                                                 | 0.00390                                         |                                                 | <0.000010                                        |
|                         | Vanadium (V)-Total (mg/L)             | 0.00060                                                               |                                                 |                                                 | 0.00063                                         |                                                 | <0.00050                                         |
|                         | Zinc (Zn)-Total (mg/L)                | 0.0036                                                                |                                                 |                                                 | <0.0030                                         |                                                 | <0.0030                                          |
|                         | Zirconium (Zr)-Total (mg/L)           | 0.00056                                                               |                                                 |                                                 | 0.00038                                         |                                                 | <0.00030                                         |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 |                                                  |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 |                                                  |
|                         | Aluminum (Al)-Dissolved (mg/L)        | 0.0214                                                                |                                                 |                                                 | 0.0244                                          |                                                 |                                                  |
|                         | Antimony (Sb)-Dissolved (mg/L)        | 0.00023                                                               |                                                 |                                                 | 0.00045                                         |                                                 |                                                  |
|                         | Arsenic (As)-Dissolved (mg/L)         | 0.00054                                                               |                                                 |                                                 | 0.00086                                         |                                                 |                                                  |
|                         | Barium (Ba)-Dissolved (mg/L)          | 0.0518                                                                |                                                 |                                                 | 0.0506                                          |                                                 |                                                  |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             |                                                 |                                                 | <0.000020                                       |                                                 |                                                  |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |                                                 |                                                 | <0.000050                                       |                                                 |                                                  |
|                         | Boron (B)-Dissolved (mg/L)            | <0.010                                                                |                                                 |                                                 | 0.010                                           |                                                 |                                                  |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000607                                                             |                                                 |                                                 | 0.0000180                                       |                                                 |                                                  |
|                         | Calcium (Ca)-Dissolved (mg/L)         | 89.7                                                                  |                                                 |                                                 | 63.0                                            |                                                 |                                                  |
|                         | Chromium (Cr)-Dissolved (mg/L)        | 0.00023                                                               |                                                 |                                                 | 0.00050                                         |                                                 |                                                  |
|                         | Cobalt (Co)-Dissolved (mg/L)          | 0.00044                                                               |                                                 |                                                 | 0.00017                                         |                                                 |                                                  |
|                         | Copper (Cu)-Dissolved (mg/L)          | 0.00213                                                               |                                                 |                                                 | 0.00133                                         |                                                 |                                                  |
|                         | Iron (Fe)-Dissolved (mg/L)            | 0.212                                                                 |                                                 |                                                 | 0.277                                           |                                                 |                                                  |
|                         | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                                             |                                                 |                                                 | <0.000050                                       |                                                 |                                                  |
|                         | Lithium (Li)-Dissolved (mg/L)         | 0.0037                                                                |                                                 |                                                 | 0.0059                                          |                                                 |                                                  |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | 40.8                                                                  |                                                 |                                                 | 48.3                                            |                                                 |                                                  |
|                         | Manganese (Mn)-Dissolved (mg/L)       | 0.231                                                                 |                                                 |                                                 | 0.0731                                          |                                                 |                                                  |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            |                                                 |                                                 | <0.0000050                                      |                                                 |                                                  |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00130                                                               |                                                 |                                                 | 0.000606                                        |                                                 |                                                  |
|                         | Nickel (Ni)-Dissolved (mg/L)          | 0.00407                                                               |                                                 |                                                 | 0.00302                                         |                                                 |                                                  |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |                                                 |                                                 | <0.050                                          |                                                 |                                                  |
|                         | Potassium (K)-Dissolved (mg/L)        | 0.63                                                                  |                                                 |                                                 | 0.83                                            |                                                 |                                                  |
|                         | Selenium (Se)-Dissolved (mg/L)        | 0.00256                                                               |                                                 |                                                 | 0.000428                                        |                                                 |                                                  |
|                         | Silicon (Si)-Dissolved (mg/L)         | 4.38                                                                  |                                                 |                                                 | 5.33                                            |                                                 |                                                  |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |                                                 |                                                 | <0.000010                                       |                                                 |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1785857-6<br>Water<br>17-JUN-16<br>16:45<br>R3 | L1785857-7<br>Water<br>18-JUN-16<br>11:00<br>R6 | L1785857-8<br>Water<br>18-JUN-16<br>11:00<br>DUP-3 | L1785857-9<br>Water<br>17-JUN-16<br>12:45<br>R7 | L1785857-10<br>Water<br>16-JUN-16<br>12:45<br>R8 |
|-----------------------------------------------------------------------|---------------------------------------|-------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>WATER</b>                                                          |                                       |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>Total Metals</b>                                                   | Sodium (Na)-Total (mg/L)              | 3.97                                            | 3.51                                            | 3.69                                               | 1.58                                            | 3.83                                             |
|                                                                       | Strontium (Sr)-Total (mg/L)           | 0.386                                           | 0.123                                           | 0.124                                              | 0.0648                                          | 0.120                                            |
|                                                                       | Sulfur (S)-Total (mg/L)               | 87.4                                            | 11.1                                            | 11.2                                               | 10.9                                            | 27.6                                             |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000032                                        | <0.000010                                       | <0.000010                                          | <0.000010                                       | <0.000010                                        |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                        | <0.00010                                        | <0.00010                                           | <0.00010                                        | <0.00010                                         |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.0515                                          | 0.00296                                         | 0.00280                                            | 0.0133                                          | 0.00107                                          |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00582                                         | 0.000786                                        | 0.000761                                           | 0.000103                                        | 0.000052                                         |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00599                                         | 0.00088                                         | 0.00093                                            | 0.00226                                         | <0.00050                                         |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0115                                          | <0.0030                                         | <0.0030                                            | 0.0031                                          | <0.0030                                          |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00085                                         | 0.00069                                         | 0.00070                                            | 0.00090                                         | 0.00047                                          |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                           | FIELD                                           | FIELD                                              | FIELD                                           | FIELD                                            |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                           | FIELD                                           | FIELD                                              | FIELD                                           | FIELD                                            |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0251                                          | 0.0997                                          | 0.101                                              | 0.107                                           | 0.0296                                           |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00019                                         | 0.00012                                         | 0.00012                                            | 0.00021                                         | 0.00188                                          |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00060                                         | 0.00055                                         | 0.00056                                            | 0.00126                                         | 0.00033                                          |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0566                                          | 0.0346                                          | 0.0348                                             | 0.0732                                          | 0.0476                                           |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                       | <0.000020                                       | <0.000020                                          | 0.000024                                        | <0.000020                                        |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                       | <0.000050                                       | <0.000050                                          | <0.000050                                       | <0.000050                                        |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                          | <0.010                                          | <0.010                                             | <0.010                                          | <0.010                                           |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000068                                       | 0.0000143                                       | 0.0000130                                          | 0.0000093                                       | 0.0000254                                        |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 89.3                                            | 22.1                                            | 22.3                                               | 22.5                                            | 32.7                                             |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00044                                         | 0.00037                                         | 0.00040                                            | 0.00147                                         | 0.00070                                          |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00025                                         | 0.00021                                         | 0.00021                                            | 0.00068                                         | <0.00010                                         |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00167                                         | 0.00287                                         | 0.00291                                            | 0.00454                                         | 0.00211                                          |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.143                                           | 0.217                                           | 0.207                                              | 1.36                                            | 0.057                                            |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                       | 0.000051                                        | <0.000050                                          | 0.000057                                        | <0.000050                                        |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0042                                          | 0.0035                                          | 0.0035                                             | <0.0010                                         | <0.0010                                          |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 57.7                                            | 7.60                                            | 7.71                                               | 10.3                                            | 12.2                                             |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.0840                                          | 0.0235                                          | 0.0239                                             | 0.218                                           | 0.00336                                          |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                      | <0.0000050                                      | <0.0000050                                         | <0.0000050                                      | <0.0000050                                       |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00121                                         | 0.000397                                        | 0.000384                                           | 0.000522                                        | 0.000726                                         |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00309                                         | 0.00242                                         | 0.00239                                            | 0.00422                                         | 0.00336                                          |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                          | <0.050                                          | <0.050                                             | <0.050                                          | <0.050                                           |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.89                                            | 0.95                                            | 0.97                                               | 0.20                                            | <0.10                                            |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.000471                                        | 0.000161                                        | 0.000179                                           | 0.000317                                        | 0.000518                                         |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.71                                            | 4.45                                            | 4.50                                               | 4.77                                            | 5.57                                             |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                       | <0.000010                                       | <0.000010                                          | <0.000010                                       | <0.000010                                        |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1785857-11<br>Water<br>17-JUN-16<br>10:35<br>R8 | L1785857-12<br>Water<br>17-JUN-16<br>09:50<br>R9 | L1785857-13<br>Water<br>17-JUN-16<br>17:50<br>R11 | L1785857-14<br>Water<br>17-JUN-16<br>14:40<br>SL | L1785857-15<br>Water<br>17-JUN-16<br>10:15<br>R9 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                  |                                                  |                                                   |                                                  |                                                  |
| <b>WATER</b>            |                                       |                                                                       |                                                  |                                                  |                                                   |                                                  |                                                  |
| <b>Total Metals</b>     | Sodium (Na)-Total (mg/L)              |                                                                       |                                                  | 2.66                                             | 5.80                                              | 2.42                                             |                                                  |
|                         | Strontium (Sr)-Total (mg/L)           |                                                                       |                                                  | 0.246                                            | 0.213                                             | 0.949                                            |                                                  |
|                         | Sulfur (S)-Total (mg/L)               |                                                                       |                                                  | 61.1                                             | 38.8                                              | 227                                              |                                                  |
|                         | Thallium (Tl)-Total (mg/L)            |                                                                       |                                                  | <0.000010                                        | <0.000010                                         | 0.000025                                         |                                                  |
|                         | Tin (Sn)-Total (mg/L)                 |                                                                       |                                                  | <0.00010                                         | <0.00010                                          | <0.00010                                         |                                                  |
|                         | Titanium (Ti)-Total (mg/L)            |                                                                       |                                                  | 0.00165                                          | 0.00431                                           | 0.00486                                          |                                                  |
|                         | Uranium (U)-Total (mg/L)              |                                                                       |                                                  | 0.000955                                         | 0.00112                                           | 0.00305                                          |                                                  |
|                         | Vanadium (V)-Total (mg/L)             |                                                                       |                                                  | 0.00054                                          | 0.00079                                           | 0.00075                                          |                                                  |
|                         | Zinc (Zn)-Total (mg/L)                |                                                                       |                                                  | <0.0030                                          | 0.0047                                            | 0.0034                                           |                                                  |
|                         | Zirconium (Zr)-Total (mg/L)           |                                                                       |                                                  | 0.00098                                          | 0.00078                                           | <0.00030                                         |                                                  |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location |                                                                       |                                                  | FIELD                                            | FIELD                                             | FIELD                                            |                                                  |
|                         | Dissolved Metals Filtration Location  |                                                                       |                                                  | FIELD                                            | FIELD                                             | FIELD                                            |                                                  |
|                         | Aluminum (Al)-Dissolved (mg/L)        |                                                                       |                                                  | 0.0431                                           | 0.0374                                            | 0.0020                                           |                                                  |
|                         | Antimony (Sb)-Dissolved (mg/L)        |                                                                       |                                                  | 0.00021                                          | 0.00022                                           | 0.00270                                          |                                                  |
|                         | Arsenic (As)-Dissolved (mg/L)         |                                                                       |                                                  | 0.00081                                          | 0.00049                                           | 0.0168                                           |                                                  |
|                         | Barium (Ba)-Dissolved (mg/L)          |                                                                       |                                                  | 0.0731                                           | 0.0541                                            | 0.0288                                           |                                                  |
|                         | Beryllium (Be)-Dissolved (mg/L)       |                                                                       |                                                  | <0.000020                                        | <0.000020                                         | <0.000020                                        |                                                  |
|                         | Bismuth (Bi)-Dissolved (mg/L)         |                                                                       |                                                  | <0.000050                                        | <0.000050                                         | <0.000050                                        |                                                  |
|                         | Boron (B)-Dissolved (mg/L)            |                                                                       |                                                  | <0.010                                           | <0.010                                            | 0.041                                            |                                                  |
|                         | Cadmium (Cd)-Dissolved (mg/L)         |                                                                       |                                                  | 0.0000367                                        | 0.0000193                                         | 0.0000187                                        |                                                  |
|                         | Calcium (Ca)-Dissolved (mg/L)         |                                                                       |                                                  | 71.6                                             | 49.2                                              | 220                                              |                                                  |
|                         | Chromium (Cr)-Dissolved (mg/L)        |                                                                       |                                                  | 0.00078                                          | 0.00081                                           | 0.00124                                          |                                                  |
|                         | Cobalt (Co)-Dissolved (mg/L)          |                                                                       |                                                  | 0.00047                                          | 0.00012                                           | 0.00014                                          |                                                  |
|                         | Copper (Cu)-Dissolved (mg/L)          |                                                                       |                                                  | 0.00406                                          | 0.00239                                           | 0.00104                                          |                                                  |
|                         | Iron (Fe)-Dissolved (mg/L)            |                                                                       |                                                  | 0.884                                            | 0.111                                             | <0.010                                           |                                                  |
|                         | Lead (Pb)-Dissolved (mg/L)            |                                                                       |                                                  | <0.000050                                        | <0.000050                                         | <0.000050                                        |                                                  |
|                         | Lithium (Li)-Dissolved (mg/L)         |                                                                       |                                                  | <0.0010                                          | <0.0010                                           | 0.0110                                           |                                                  |
|                         | Magnesium (Mg)-Dissolved (mg/L)       |                                                                       |                                                  | 31.9                                             | 22.2                                              | 101                                              |                                                  |
|                         | Manganese (Mn)-Dissolved (mg/L)       |                                                                       |                                                  | 0.310                                            | 0.0102                                            | 0.00527                                          |                                                  |
|                         | Mercury (Hg)-Dissolved (mg/L)         |                                                                       |                                                  | <0.0000050                                       | <0.0000050                                        | <0.0000050                                       |                                                  |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      |                                                                       |                                                  | 0.00133                                          | 0.00100                                           | 0.00184                                          |                                                  |
|                         | Nickel (Ni)-Dissolved (mg/L)          |                                                                       |                                                  | 0.00381                                          | 0.00279                                           | 0.0156                                           |                                                  |
|                         | Phosphorus (P)-Dissolved (mg/L)       |                                                                       |                                                  | <0.050                                           | <0.050                                            | <0.050                                           |                                                  |
|                         | Potassium (K)-Dissolved (mg/L)        |                                                                       |                                                  | 0.59                                             | 0.52                                              | 1.43                                             |                                                  |
|                         | Selenium (Se)-Dissolved (mg/L)        |                                                                       |                                                  | 0.00112                                          | 0.000692                                          | 0.0163                                           |                                                  |
|                         | Silicon (Si)-Dissolved (mg/L)         |                                                                       |                                                  | 4.51                                             | 5.59                                              | 4.13                                             |                                                  |
|                         | Silver (Ag)-Dissolved (mg/L)          |                                                                       |                                                  | <0.000010                                        | <0.000010                                         | <0.000010                                        |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1785857-1<br>Water<br>16-JUN-16<br>14:45<br>R1 | L1785857-2<br>Water<br>17-JUN-16<br>10:30<br>R1 | L1785857-3<br>Water<br>16-JUN-16<br>13:30<br>R2 | L1785857-4<br>Water<br>17-JUN-16<br>10:30<br>R2 | L1785857-5<br>Water<br>20-JUN-16<br>TRAVEL BLANK |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Dissolved Metals</b>                                               | Sodium (Na)-Dissolved (mg/L)         | 3.56                                            |                                                 | 3.01                                            |                                                 |                                                  |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)      | 0.401                                           |                                                 | 0.318                                           |                                                 |                                                  |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 75.0                                            |                                                 | 59.0                                            |                                                 |                                                  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       |                                                 | <0.000010                                       |                                                 |                                                  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        |                                                 | <0.00010                                        |                                                 |                                                  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00033                                         |                                                 | 0.00038                                         |                                                 |                                                  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00263                                         |                                                 | 0.00387                                         |                                                 |                                                  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                        |                                                 | <0.00050                                        |                                                 |                                                  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0023                                          |                                                 | <0.0010                                         |                                                 |                                                  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00063                                         |                                                 | 0.00042                                         |                                                 |                                                  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 |                                                 |                                                 |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                 |                                                 |                                                 |                                                 |                                                  |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                 |                                                 |                                                 |                                                 |                                                  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 |                                                 |                                                 |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1785857-6<br>Water<br>17-JUN-16<br>16:45<br>R3 | L1785857-7<br>Water<br>18-JUN-16<br>11:00<br>R6 | L1785857-8<br>Water<br>18-JUN-16<br>11:00<br>DUP-3 | L1785857-9<br>Water<br>17-JUN-16<br>12:45<br>R7 | L1785857-10<br>Water<br>16-JUN-16<br>12:45<br>R8 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                    |                                                 |                                                  |
| <b>Dissolved Metals</b>                                               | Sodium (Na)-Dissolved (mg/L)         | 4.01                                            | 3.70                                            | 3.69                                               | 1.70                                            | 3.90                                             |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)      | 0.397                                           | 0.124                                           | 0.123                                              | 0.0674                                          | 0.121                                            |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 91.8                                            | 11.2                                            | 11.2                                               | 11.4                                            | 27.8                                             |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       | <0.000010                                       | <0.000010                                          | <0.000010                                       | <0.000010                                        |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        | <0.00010                                        | <0.00010                                           | <0.00010                                        | 0.00021                                          |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00041                                         | 0.00102                                         | 0.00098                                            | 0.00246                                         | 0.00043                                          |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00571                                         | 0.000730                                        | 0.000731                                           | 0.000084                                        | 0.000043                                         |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00063                                         | 0.00072                                         | 0.00072                                            | 0.00115                                         | <0.00050                                         |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0013                                          | 0.0077                                          | 0.0068                                             | 0.0017                                          | 0.0024                                           |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00053                                         | 0.00072                                         | 0.00073                                            | 0.00115                                         | 0.00049                                          |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 |                                                    | 0.00147                                         |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00325                                         |                                                 |                                                    | 0.00127                                         |                                                  |
|                                                                       | Hexavalent Chromium (mg/L)           | 0.0010                                          |                                                 |                                                    | 0.0010                                          |                                                  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 |                                                    | <0.0010                                         |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1785857-11<br>Water<br>17-JUN-16<br>10:35<br>R8 | L1785857-12<br>Water<br>17-JUN-16<br>09:50<br>R9 | L1785857-13<br>Water<br>17-JUN-16<br>17:50<br>R11 | L1785857-14<br>Water<br>17-JUN-16<br>14:40<br>SL | L1785857-15<br>Water<br>17-JUN-16<br>10:15<br>R9 |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                  |                                                  |                                                   |                                                  |                                                  |
| <b>WATER</b>                                                          |                                      |                                                  |                                                  |                                                   |                                                  |                                                  |
| <b>Dissolved Metals</b>                                               | Sodium (Na)-Dissolved (mg/L)         |                                                  | 2.70                                             | 5.83                                              | 2.39                                             |                                                  |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)      |                                                  | 0.243                                            | 0.212                                             | 0.946                                            |                                                  |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          |                                                  | 61.3                                             | 38.3                                              | 230                                              |                                                  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       |                                                  | <0.000010                                        | <0.000010                                         | 0.000016                                         |                                                  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            |                                                  | <0.00010                                         | <0.00010                                          | <0.00010                                         |                                                  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       |                                                  | 0.00124                                          | 0.00060                                           | <0.00030                                         |                                                  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         |                                                  | 0.000926                                         | 0.00107                                           | 0.00299                                          |                                                  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        |                                                  | 0.00051                                          | <0.00050                                          | <0.00050                                         |                                                  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           |                                                  | 0.0015                                           | 0.0033                                            | 0.0021                                           |                                                  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      |                                                  | 0.00104                                          | 0.00080                                           | <0.00030                                         |                                                  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                  |                                                  |                                                   | <0.00042                                         |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                  |                                                  | <0.00072                                          | 0.00535                                          |                                                  |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                  |                                                  | 0.0010                                            | 0.0019                                           |                                                  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                  |                                                  |                                                   | 0.0016                                           |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## Reference Information

### QC Samples with Qualifiers & Comments:

| QC Type Description | Parameter                  | Qualifier | Applies to Sample Number(s)                            |
|---------------------|----------------------------|-----------|--------------------------------------------------------|
| Duplicate           | Chromium (Cr)-Total        | DLB       | L1785857-1, -10, -12, -13, -14, -3, -5, -6, -7, -8, -9 |
| Method Blank        | Chromium (Cr)-Total        | MB-LOR    | L1785857-1, -10, -12, -13, -14, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sulfate (SO <sub>4</sub> ) | MS-B      | L1785857-11, -13, -14, -15, -2, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Phosphorus (P)-Total       | MS-B      | L1785857-1, -10, -12, -3, -5, -6, -7, -8, -9           |
| Matrix Spike        | Manganese (Mn)-Total       | MS-B      | L1785857-1, -10, -12, -13, -14, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sodium (Na)-Total          | MS-B      | L1785857-1, -10, -12, -13, -14, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Strontium (Sr)-Total       | MS-B      | L1785857-1, -10, -12, -13, -14, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Dissolved Organic Carbon   | MS-B      | L1785857-12, -9                                        |

### Qualifiers for Individual Parameters Listed:

| Qualifier | Description                                                                                                               |
|-----------|---------------------------------------------------------------------------------------------------------------------------|
| DLB       | Detection Limit Raised. Analyte detected at comparable level in Method Blank.                                             |
| DLDS      | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.                         |
| MB-LOR    | Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level. |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.                        |
| RRV       | Reported Result Verified By Repeat Analysis                                                                               |

### Test Method References:

| ALS Test Code                                                                                                                                                                                                                                                                                                                                                                                                                                       | Matrix | Test Description                       | Method Reference**                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------|---------------------------------------|
| <b>BE-D-L-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Diss. Be (low) in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                        |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                            |        |                                        |                                       |
| <b>BE-T-L-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Total Be (Low) in Water by CRC ICPMS   | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                           |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                            |        |                                        |                                       |
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Dissolved organic carbon by combustion | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.                                                                                                                                                                                                          |        |                                        |                                       |
| <b>CARBONS-TOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Total organic carbon by combustion     | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".                                                                                                                                                                                                                                                                                                                                           |        |                                        |                                       |
| <b>CR-CR3-DIS-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | Water  | Dissolved Trivalent Chromium in Water  | CALCULATION                           |
| Chromium (III)-Dissolved is calculated as the difference between the dissolved chromium and the dissolved hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                     |        |                                        |                                       |
| <b>CR-CR3-TOT-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | Water  | Total Trivalent Chromium in Water      | CALCULATION                           |
| Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                       |        |                                        |                                       |
| <b>CR-CR6-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water  | Chromium, Hexavalent (Cr +6)           | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. |        |                                        |                                       |
| Results are based on an un-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                        |        |                                        |                                       |
| <b>CR6-D-IC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  | Water  | Chromium, Dissolved Hexavalent (Cr +6) | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. |        |                                        |                                       |
| Results are based on a field-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                      |        |                                        |                                       |
| <b>EC-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water  | Conductivity (Automated)               | APHA 2510 Auto. Conduc.               |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                              |        |                                        |                                       |

## Reference Information

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                          |                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------|-----------------------------------------------|
| <b>HARDNESS-CALC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Hardness                                 | APHA 2340B                                    |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                               |
| <b>HG-D-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod)                    |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                                                   |       |                                          |                                               |
| <b>HG-T-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod)                               |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                               |
| <b>MET-D-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Dissolved Metals in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                        |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                               |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                          |                                               |
| <b>MET-DIS-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water | Dissolved Metals in Water by ICPOES      | EPA 3005A/6010B                               |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).                                                                                               |       |                                          |                                               |
| <b>MET-T-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Total Metals in Water by CRC ICPMS       | EPA 200.2/6020A (mod)                         |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                          |                                               |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                          |                                               |
| <b>MET-TOT-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water | Total Metals in Water by ICPOES          | EPA 3005A/6010B                               |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). |       |                                          |                                               |
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Water | Ammonia in Water by Fluorescence         | APHA 4500 NH <sub>3</sub> -NITROGEN (AMMONIA) |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                                                                                                                                                           |       |                                          |                                               |
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Water | Ammonia in Water by Fluorescence         | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC       |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                                                                                                                                                           |       |                                          |                                               |
| <b>NO2-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Nitrite in Water by IC (Low Level)       | EPA 300.1 (mod)                               |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                               |
| <b>NO3-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Nitrate in Water by IC (Low Level)       | EPA 300.1 (mod)                               |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                               |
| <b>P-T-PRES-COL-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Water | Total P in Water by Colour               | APHA 4500-P Phosphorus                        |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                               |
| <b>PH-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | pH by Meter (Automated)                  | APHA 4500-H "pH Value"                        |
| This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                          |                                               |
| It is recommended that this analysis be conducted in the field.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                          |                                               |
| <b>PH-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | pH by Meter (Automated)                  | APHA 4500-H pH Value                          |
| This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                          |                                               |
| It is recommended that this analysis be conducted in the field.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                          |                                               |
| <b>S-DIS-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Dissolved Sulfur in Water by ICPOES      | EPA SW-846 3005A/6010B                        |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United                                                                                                                                                                                                                                                                                                      |       |                                          |                                               |

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final OC review.



Contact: Brent Mack  
Company: ALS Environmental  
Address: 8081 Lougheed HWY, Suite 100  
Burnaby, BC V5A1W9

## REFERENCE DATA

---

Project / Location: L1785857

PO Number: L1785857

ALS Work Order: 1606852

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

NELAC accredited through New York ELAP, LAB #11371

## TEM ANALYSIS DATA

---

EDXA Resolution (eV): <175

Accelerating Voltage (keV): 100

Prep Start Date: 6/27/2016

Calibration Constant (µm/cm): 0.74

Camera Constant (mm-Å): 129.25

Analysis Start Date: 6/28/2016

*Pamela Johnson*

Pamela Johnson  
ALS TEM Analyst

*Shawn Smythe*

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*



## IDENTIFICATION

|                     |               |               |
|---------------------|---------------|---------------|
| Client Sample ID:   | L1785857-2 R1 | L1785857-6 R3 |
| ALS Sample ID:      | 1606852-01    | 1606852-02    |
| Method:             | EPA 100.2     | EPA 100.2     |
| Date of Collection: | 6/17/2016     | 6/17/2016     |
| Time of Collection: | 9:56          | 9:56          |

## FILTRATION & ANALYSIS

|                                       |           |           |
|---------------------------------------|-----------|-----------|
| Date of Filtration:                   | 6/23/2016 | 6/23/2016 |
| Time of Filtration:                   | 15:35     | 15:35     |
| Volume Filtered (L):                  | 0.01      | 0.005     |
| Openings Analyzed:                    | 10        | 10        |
| Avg. Opening Area (mm <sup>2</sup> ): | 0.011     | 0.011     |
| AS (MFL):                             | 0.98      | 1.95      |

## ASBESTOS COUNT

|                              |   |   |
|------------------------------|---|---|
| Chrysotile:                  | 0 | 0 |
| Amosite:                     | 0 | 0 |
| Crocidolite:                 | 0 | 0 |
| Act-Tremolite <sup>†</sup> : | 0 | 0 |
| Anthophyllite:               | 0 | 0 |
| Total Asbestos:              | 0 | 0 |

## ASBESTOS CONCENTRATION (MFL)

|                              |               |               |
|------------------------------|---------------|---------------|
| Chrysotile:                  | <AS           | <AS           |
| Amosite:                     | <AS           | <AS           |
| Crocidolite:                 | <AS           | <AS           |
| Act-Tremolite <sup>†</sup> : | <AS           | <AS           |
| Anthophyllite:               | <AS           | <AS           |
| <b>Total Asbestos:</b>       | <b>&lt;AS</b> | <b>&lt;AS</b> |

## NOTES

*Samples L1785857-2 R1 and L1785857-6 R3 were received past the method hold time of 48 hours from time and date of sample collection written on sample bottle labels.*

## EDXA SPECTRA

*NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.*

NONE: No asbestos detected.

## PHOTOMICROGRAPHS

*Collected using Gatan Digital Micrograph.*

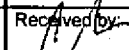
NONE: No asbestos detected.



L1785857-COFC

COC Number: 1

Page 1 of 2

|                                                                                                                      |                                                                                       |  |                                                                                                                                                           |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------|-------------|--------------------------------|-----------------|-------------|------------------|--------------------------|-------------------------------------|-----------------|----------------------|
| <b>Report To</b>                                                                                                     |                                                                                       |  | <b>Report Format / Distribution</b>                                                                                                                       |              |             | <b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>                                                                                                                                                                                                                                                          |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       |  | Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) |              |             | R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)                                                                                                                                                                                                                                                       |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Contact: Natasha Sandys                                                                                              |                                                                                       |  | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                               |              |             | P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT                                                                                                                                                                                                                                      |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                       |  | <input type="checkbox"/> Criteria on Report - provide details below if box checked                                                                        |              |             | E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT                                                                                                                                                                                                                                    |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Phone: 867-456-4665                                                                                                  |                                                                                       |  | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX                                 |              |             | E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge                                                                                                                                                                                                                                                   |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
|                                                                                                                      |                                                                                       |  | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |              |             | Specify Date Required for E2, E or P:                                                                                                                                                                                                                                                                                                                  |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
|                                                                                                                      |                                                                                       |  | Email 2 chris@elr.ca                                                                                                                                      |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| <b>Invoice To</b>                                                                                                    |                                                                                       |  | <b>Invoice Distribution</b>                                                                                                                               |              |             | <b>Analysis Request</b>                                                                                                                                                                                                                                                                                                                                |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |                                                                                       |  | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX              |              |             | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                                                                                                                                                                                                                             |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                       |  | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       |  | Email 2 chris@elr.ca                                                                                                                                      |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| <b>Project Information</b>                                                                                           |                                                                                       |  | <b>Oil and Gas Required Fields (client use)</b>                                                                                                           |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| ALS Quote #: Q56044                                                                                                  |                                                                                       |  | Approver ID:                                                                                                                                              |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Job #: 1343-005.17                                                                                                   |                                                                                       |  | GL Account:                                                                                                                                               |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| PO / AFE:                                                                                                            |                                                                                       |  | Routing Code:                                                                                                                                             |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| LSD:                                                                                                                 |                                                                                       |  | Activity Code:                                                                                                                                            |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
|                                                                                                                      |                                                                                       |  | Location:                                                                                                                                                 |              |             |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                       |  | ALS Contact:                                                                                                                                              |              |             | Sampler:                                                                                                                                                                                                                                                                                                                                               |                                            |                                      | AN/CH                                    |             |                                |                 |             |                  |                          |                                     |                 |                      |
| ALS Sample # (lab use only)                                                                                          | Sample Identification and/or Coordinates (This description will appear on the report) |  | Date (dd-mmm-yy)                                                                                                                                          | Time (hh:mm) | Sample Type | Low Level Diss. Met (incl. Hg) and Hardness                                                                                                                                                                                                                                                                                                            | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total | Chromium Speciation (III/VI) - Dissolved | Ammonia - N | Dissolved Organic Carbon (DOC) | Nitrate-N       | Nitrite - N | Total Phosphorus | Sulphate                 | pH, Conductivity, Total Susp Solids | Asbestos-TEM-AD | Number of Containers |
| 1                                                                                                                    | R1                                                                                    |  | 16-Jun-16                                                                                                                                                 | 14:45        | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              |                 |             |                  |                          |                                     |                 | 8                    |
| 2                                                                                                                    | R1                                                                                    |  | 17-Jun-16                                                                                                                                                 | 10:50        | Water       |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                | R               | R           | R                | R                        | R                                   | R               | 2                    |
| 3                                                                                                                    | R2                                                                                    |  | 16-Jun-16                                                                                                                                                 | 13:30        | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              |                 |             |                  |                          |                                     |                 | 8                    |
| 4                                                                                                                    | R2                                                                                    |  | 17-Jun-16                                                                                                                                                 | 10:30        | Water       |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                | R               | R           | R                | R                        | R                                   |                 | 1                    |
| 5                                                                                                                    | Travel Blank                                                                          |  |                                                                                                                                                           |              | Water       |                                                                                                                                                                                                                                                                                                                                                        | R                                          |                                      |                                          | R           | R                              | R               | R           | R                | R                        | R                                   |                 | 6                    |
| 6                                                                                                                    | R3                                                                                    |  | 17-Jun-16                                                                                                                                                 | 16:45        | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              | R               | R           | R                | R                        | R                                   | R               | 10                   |
| 7                                                                                                                    | R6                                                                                    |  | 18-Jun-16                                                                                                                                                 | 11:00        | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              | R               | R           | R                | R                        | R                                   | R               | 9                    |
| 8                                                                                                                    | DUP-3                                                                                 |  | 18-Jun-16                                                                                                                                                 | 11:00        | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              | R               | R           | R                | R                        | R                                   | R               | 9                    |
| 9                                                                                                                    | R7                                                                                    |  | 17-Jun-16                                                                                                                                                 | 12:45        | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              | R               | R           | R                | R                        | R                                   | R               | 9                    |
| 10                                                                                                                   | R8                                                                                    |  | 16-Jun-16                                                                                                                                                 | 12:45        | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              |                 |             |                  |                          |                                     |                 | 8                    |
| 11                                                                                                                   | R8                                                                                    |  | 17-Jun-16                                                                                                                                                 | 10:35        | Water       |                                                                                                                                                                                                                                                                                                                                                        |                                            |                                      |                                          |             |                                | R               | R           | R                | R                        | R                                   |                 | 1                    |
| 12                                                                                                                   | R9                                                                                    |  | 17-Jun-16                                                                                                                                                 | 9:50         | Water       | R                                                                                                                                                                                                                                                                                                                                                      | R                                          |                                      |                                          | R           | R                              |                 |             |                  |                          |                                     |                 | 8                    |
| <b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>                                                          |                                                                                       |  | <b>Special Instructions / Specify Criteria to add on report (client Use)</b>                                                                              |              |             | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                                                                                                                                                                                                                     |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                       |  | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results.       |              |             | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Cooling Initiated <input checked="" type="checkbox"/> |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                       |  |                                                                                                                                                           |              |             | INITIAL COOLER TEMPERATURES °C: 1.1, 1.6, 10.4, 5.8, 4.5<br>FINAL COOLER TEMPERATURES °C: 1.1, 1.6, 10.4, 5.8, 4.5                                                                                                                                                                                                                                     |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                       |  | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                          |              |             | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                                                                                                                                                                                                                         |                                            |                                      |                                          |             |                                |                 |             |                  |                          |                                     |                 |                      |
| Released by:                      |                                                                                       |  | Date: Jun 20 Time: 9:15                                                                                                                                   |              |             | Received by:                                                                                                                                                                                                                                                        |                                            |                                      | Date: 20-JUN-16 Time: 9:30               |             |                                | Received by: JC |             |                  | Date: 21 JUN Time: 13:25 |                                     |                 |                      |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

NA-FM-0328a v00 Form 104 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



### Chain of Custody (COC) / Analytical Request Form



COC Number: 1

Page 2 of 2

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

NA-FM-C328e v06 From 04 January 2011



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 22-JUL-16  
Report Date: 16-AUG-16 17:05 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1802392  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.18  
C of C Numbers: 1  
Legal Site Desc:

Comments: ADDITIONAL 12-AUG-16 12:32

16-AUG-2016 Revision 2: This revision includes additional chromium speciation analysis.

Brent Mack, B.Sc.  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1802392-1<br>Water<br>20-JUL-16<br>08:05<br>E3 | L1802392-2<br>Water<br>19-JUL-16<br>16:50<br>R3 | L1802392-3<br>Water<br>20-JUL-16<br>13:20<br>R7 | L1802392-4<br>Water<br>19-JUL-16<br>14:30<br>R11 | L1802392-5<br>Water<br>20-JUL-16<br>17:15<br>GWCC-1 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                  |                                                     |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                  |                                                     |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 823                                             | 816                                             | 293                                             | 484                                              | 2420                                                |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 484                                             | 470                                             | 150                                             | 227                                              | 1680                                                |
|                                                                       | pH (pH)                         | 8.20                                            | 8.12                                            | 7.55                                            | 8.01                                             | 7.63                                                |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0095                                          | 0.0397                                          | 0.0794                                          | <0.0050                                          | <0.0050                                             |
|                                                                       | Nitrate (as N) (mg/L)           | 0.189                                           | 0.0523                                          | 0.0980                                          | 0.0904                                           | 0.521                                               |
|                                                                       | Nitrite (as N) (mg/L)           | 0.0047                                          | 0.0023                                          | <0.0010                                         | <0.0010                                          | <0.0050                                             |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0074                                          | 0.0596                                          | 0.0486                                          | 0.0055                                           | <0.0020                                             |
|                                                                       | Sulfate (SO4) (mg/L)            | 265                                             | 274                                             | 70.9                                            | 131                                              | 1270                                                |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 12.5                                            | 13.4                                            | 27.3                                            | 14.1                                             | 5.33                                                |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                 |                                                  |                                                     |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.402                                           | 3.08                                            | 1.93                                            | 0.112                                            | 0.157                                               |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00104                                         | 0.00041                                         | 0.00031                                         | 0.00020                                          | 0.00137                                             |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00159                                         | 0.00347                                         | 0.00268                                         | 0.00061                                          | 0.00213                                             |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0771                                          | 0.172                                           | 0.163                                           | 0.0661                                           | 0.0185                                              |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000023                                        | 0.000117                                        | 0.000091                                        | <0.000020                                        | <0.000020                                           |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       | <0.000050                                       | <0.000050                                       | <0.000050                                        | <0.000050                                           |
|                                                                       | Boron (B)-Total (mg/L)          | 0.088                                           | <0.010                                          | <0.010                                          | <0.010                                           | 0.301                                               |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000222                                       | 0.000132                                        | 0.0000708                                       | 0.0000348                                        | 0.000191                                            |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 80.5                                            | 83.8                                            | 34.4                                            | 55.1                                             | 191                                                 |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00183                                         | 0.00666                                         | 0.00490                                         | 0.00078                                          | 0.00283                                             |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00045                                         | 0.00261                                         | 0.00214                                         | 0.00017                                          | <0.00010                                            |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00242                                         | 0.00942                                         | 0.00782                                         | 0.00228                                          | 0.00120                                             |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.905                                           | 5.98                                            | 4.38                                            | 0.280                                            | <0.010                                              |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000322                                        | 0.00262                                         | 0.00134                                         | 0.000095                                         | <0.000050                                           |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0053                                          | 0.0066                                          | 0.0015                                          | <0.0010                                          | 0.0774                                              |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 65.9                                            | 60.7                                            | 16.9                                            | 26.1                                             | 283                                                 |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.105                                           | 0.273                                           | 0.422                                           | 0.0244                                           | 0.00030                                             |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                      | 0.0000207                                       | <0.000025 <sup>DLM</sup>                        | <0.0000050                                       | <0.0000050                                          |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00150                                         | 0.00164                                         | 0.000720                                        | 0.00102                                          | 0.00285                                             |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00944                                         | 0.0112                                          | 0.00724                                         | 0.00252                                          | 0.0711                                              |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          | 0.126                                           | 0.101                                           | <0.050                                           | <0.050                                              |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.00                                            | 1.21                                            | 0.36                                            | 0.41                                             | 3.21                                                |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.000838                                        | 0.000693                                        | 0.000447                                        | 0.000631                                         | 0.00409                                             |
|                                                                       | Silicon (Si)-Total (mg/L)       | 6.64                                            | 11.2                                            | 8.32                                            | 6.21                                             | 6.19                                                |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000010                                        | 0.000060                                        | 0.000025                                        | <0.000010                                        | <0.000010                                           |
|                                                                       | Sodium (Na)-Total (mg/L)        | 5.35                                            | 4.57                                            | 2.09                                            | 6.29                                             | 17.5                                                |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1802392-6<br>Water<br>20-JUL-16<br>16:50<br>GWCC-2 | L1802392-7<br>Water<br>20-JUL-16<br>16:15<br>GWCC-3 | L1802392-8<br>Water<br>20-JUL-16<br>17:45<br>GWCC-4 | L1802392-9<br>Water<br><br>TRAVEL BLANK | L1802392-10<br>Water<br>20-JUL-16<br>16:15<br>DUP1 |
|-----------------------------------------------------------------------|---------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------|----------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                     |                                                     |                                                     |                                         |                                                    |
| <b>WATER</b>                                                          |                                 |                                                     |                                                     |                                                     |                                         |                                                    |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 1680                                                | 1030                                                | 822                                                 | <2.0                                    | 1040                                               |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 1110                                                | 612                                                 | 471                                                 |                                         | 613                                                |
|                                                                       | pH (pH)                         | 7.80                                                | 7.73                                                | 7.69                                                | 5.36 <sup>RRV</sup>                     | 7.69                                               |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | <0.0050                                             | <0.0050                                             | <0.0050                                             | 0.0072 <sup>RRV</sup>                   | <0.0050                                            |
|                                                                       | Nitrate (as N) (mg/L)           | 0.356 <sup>DLDS</sup>                               | 0.170 <sup>DLDS</sup>                               | 0.0861                                              | <0.0050                                 | 0.171 <sup>DLDS</sup>                              |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0050                                             | <0.0020                                             | <0.0010                                             | <0.0010                                 | <0.0020                                            |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0021                                              | <0.0020                                             | <0.0020                                             | <0.0020                                 | 0.0028                                             |
|                                                                       | Sulfate (SO4) (mg/L)            | 790                                                 | 388                                                 | 257                                                 | <0.30                                   | 381                                                |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 7.04                                                | 8.95                                                | 9.53                                                |                                         | 8.99                                               |
|                                                                       | Total Organic Carbon (mg/L)     |                                                     |                                                     |                                                     | <0.50                                   |                                                    |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | <0.0030                                             | <0.0030                                             | 0.0032                                              | <0.0030                                 | <0.0030                                            |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00127                                             | 0.00109                                             | 0.00123                                             | <0.00010                                | 0.00108                                            |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00145                                             | 0.00094                                             | 0.00125                                             | <0.00010                                | 0.00094                                            |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0205                                              | 0.0356                                              | 0.0368                                              | <0.000050                               | 0.0355                                             |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                           | <0.000020                                           | <0.000020                                           | <0.000020                               | <0.000020                                          |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                           | <0.000050                                           | <0.000050                                           | <0.000050                               | <0.000050                                          |
|                                                                       | Boron (B)-Total (mg/L)          | 0.132                                               | 0.078                                               | 0.063                                               | <0.010                                  | 0.078                                              |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.000158                                            | 0.0000693                                           | 0.0000532                                           | <0.0000050                              | 0.0000797                                          |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 153                                                 | 106                                                 | 86.6                                                | <0.050                                  | 107                                                |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00108                                             | 0.00051                                             | 0.00055                                             | <0.00010                                | 0.00048                                            |
|                                                                       | Cobalt (Co)-Total (mg/L)        | <0.00010                                            | <0.00010                                            | <0.00010                                            | <0.00010                                | <0.00010                                           |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00138                                             | 0.00131                                             | 0.00132                                             | <0.00050                                | 0.00141                                            |
|                                                                       | Iron (Fe)-Total (mg/L)          | <0.010                                              | <0.010                                              | <0.010                                              | <0.010                                  | <0.010                                             |
|                                                                       | Lead (Pb)-Total (mg/L)          | <0.000050                                           | <0.000050                                           | <0.000050                                           | <0.000050                               | <0.000050                                          |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0126                                              | 0.0080                                              | 0.0074                                              | <0.0010                                 | 0.0081                                             |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 171                                                 | 84.3                                                | 60.7                                                | <0.10                                   | 84.9                                               |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.00015                                             | 0.00018                                             | 0.00080                                             | <0.00010                                | 0.00017                                            |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                          | <0.0000050                                          | <0.0000050                                          | <0.0000050                              | <0.0000050                                         |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00312                                             | 0.00282                                             | 0.00261                                             | <0.000050                               | 0.00281                                            |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0389                                              | 0.0317                                              | 0.0337                                              | <0.00050                                | 0.0315                                             |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                              | <0.050                                              | <0.050                                              | <0.050                                  | <0.050                                             |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.91                                                | 1.35                                                | 1.21                                                | <0.10                                   | 1.39                                               |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00324                                             | 0.00144                                             | 0.000898                                            | <0.000050                               | 0.00147                                            |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.30                                                | 5.50                                                | 6.07                                                | <0.050                                  | 5.55                                               |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                           | <0.000010                                           | <0.000010                                           | <0.000010                               | <0.000010                                          |
|                                                                       | Sodium (Na)-Total (mg/L)        | 5.78                                                | 3.72                                                | 3.30                                                | <0.050                                  | 3.73                                               |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                                   |                                 | Sample ID             |  |  |  |  |
|-----------------------------------|---------------------------------|-----------------------|--|--|--|--|
|                                   |                                 | Description           |  |  |  |  |
|                                   |                                 | Sampled Date          |  |  |  |  |
|                                   |                                 | Sampled Time          |  |  |  |  |
|                                   |                                 | Client ID             |  |  |  |  |
|                                   |                                 | L1802392-11           |  |  |  |  |
|                                   |                                 | Water                 |  |  |  |  |
|                                   |                                 | 20-JUL-16             |  |  |  |  |
|                                   |                                 | 08:05                 |  |  |  |  |
|                                   |                                 | FB-1                  |  |  |  |  |
| Grouping                          | Analyte                         |                       |  |  |  |  |
| <b>WATER</b>                      |                                 |                       |  |  |  |  |
| <b>Physical Tests</b>             | Conductivity (uS/cm)            | <2.0                  |  |  |  |  |
|                                   | Hardness (as CaCO3) (mg/L)      | <0.50                 |  |  |  |  |
|                                   | pH (pH)                         | 5.85                  |  |  |  |  |
| <b>Anions and Nutrients</b>       | Ammonia, Total (as N) (mg/L)    | <0.0050               |  |  |  |  |
|                                   | Nitrate (as N) (mg/L)           | <0.0050               |  |  |  |  |
|                                   | Nitrite (as N) (mg/L)           | <0.0010               |  |  |  |  |
|                                   | Phosphorus (P)-Total (mg/L)     | <0.020 <sup>DLM</sup> |  |  |  |  |
|                                   | Sulfate (SO4) (mg/L)            | <0.30                 |  |  |  |  |
| <b>Organic / Inorganic Carbon</b> | Dissolved Organic Carbon (mg/L) | <0.50                 |  |  |  |  |
|                                   | Total Organic Carbon (mg/L)     |                       |  |  |  |  |
| <b>Total Metals</b>               | Aluminum (Al)-Total (mg/L)      | <0.0030               |  |  |  |  |
|                                   | Antimony (Sb)-Total (mg/L)      | <0.00010              |  |  |  |  |
|                                   | Arsenic (As)-Total (mg/L)       | <0.00010              |  |  |  |  |
|                                   | Barium (Ba)-Total (mg/L)        | <0.000050             |  |  |  |  |
|                                   | Beryllium (Be)-Total (mg/L)     | <0.000020             |  |  |  |  |
|                                   | Bismuth (Bi)-Total (mg/L)       | <0.000050             |  |  |  |  |
|                                   | Boron (B)-Total (mg/L)          | <0.010                |  |  |  |  |
|                                   | Cadmium (Cd)-Total (mg/L)       | <0.0000050            |  |  |  |  |
|                                   | Calcium (Ca)-Total (mg/L)       | <0.050                |  |  |  |  |
|                                   | Chromium (Cr)-Total (mg/L)      | <0.00010              |  |  |  |  |
|                                   | Cobalt (Co)-Total (mg/L)        | <0.00010              |  |  |  |  |
|                                   | Copper (Cu)-Total (mg/L)        | <0.00050              |  |  |  |  |
|                                   | Iron (Fe)-Total (mg/L)          | <0.010                |  |  |  |  |
|                                   | Lead (Pb)-Total (mg/L)          | <0.000050             |  |  |  |  |
|                                   | Lithium (Li)-Total (mg/L)       | <0.0010               |  |  |  |  |
|                                   | Magnesium (Mg)-Total (mg/L)     | <0.10                 |  |  |  |  |
|                                   | Manganese (Mn)-Total (mg/L)     | 0.00011               |  |  |  |  |
|                                   | Mercury (Hg)-Total (mg/L)       | <0.0000050            |  |  |  |  |
|                                   | Molybdenum (Mo)-Total (mg/L)    | <0.000050             |  |  |  |  |
|                                   | Nickel (Ni)-Total (mg/L)        | <0.00050              |  |  |  |  |
|                                   | Phosphorus (P)-Total (mg/L)     | <0.050                |  |  |  |  |
|                                   | Potassium (K)-Total (mg/L)      | <0.10                 |  |  |  |  |
|                                   | Selenium (Se)-Total (mg/L)      | <0.000050             |  |  |  |  |
|                                   | Silicon (Si)-Total (mg/L)       | <0.050                |  |  |  |  |
|                                   | Silver (Ag)-Total (mg/L)        | <0.000010             |  |  |  |  |
|                                   | Sodium (Na)-Total (mg/L)        | <0.050                |  |  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1802392-1<br>Water<br>20-JUL-16<br>08:05<br>E3 | L1802392-2<br>Water<br>19-JUL-16<br>16:50<br>R3 | L1802392-3<br>Water<br>20-JUL-16<br>13:20<br>R7 | L1802392-4<br>Water<br>19-JUL-16<br>14:30<br>R11 | L1802392-5<br>Water<br>20-JUL-16<br>17:15<br>GWCC-1 |
|-----------------------------------------------------------------------|---------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                 |                                                 |                                                 |                                                  |                                                     |
| <b>WATER</b>                                                          |                                       |                                                 |                                                 |                                                 |                                                  |                                                     |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.410                                           | 0.416                                           | 0.107                                           | 0.261                                            | 1.87                                                |
|                                                                       | Sulfur (S)-Total (mg/L)               | 98.2                                            | 101                                             | 25.6                                            | 48.1                                             | 459                                                 |
|                                                                       | Thallium (Tl)-Total (mg/L)            | <0.000010                                       | 0.000044                                        | 0.000017                                        | <0.000010                                        | 0.000086                                            |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                        | <0.00010                                        | <0.00010                                        | <0.00010                                         | <0.00010                                            |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.0125                                          | 0.0776                                          | 0.0585                                          | 0.00284                                          | <0.00030                                            |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00410                                         | 0.00579                                         | 0.000257                                        | 0.00134                                          | 0.00641                                             |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00196                                         | 0.0102                                          | 0.00712                                         | 0.00085                                          | <0.00050                                            |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0034                                          | 0.0219                                          | 0.0122                                          | <0.0030                                          | 0.0070                                              |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00069                                         | 0.00106                                         | 0.00095                                         | 0.00075                                          | <0.00030                                            |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                           | FIELD                                           | FIELD                                           | FIELD                                            | FIELD                                               |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                           | FIELD                                           | FIELD                                           | FIELD                                            | FIELD                                               |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0166                                          | 0.0218                                          | 0.0760                                          | 0.0260                                           | 0.0010                                              |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00097                                         | 0.00018                                         | 0.00021                                         | 0.00018                                          | 0.00133                                             |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00117                                         | 0.00076                                         | 0.00154                                         | 0.00057                                          | 0.00209                                             |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0639                                          | 0.0594                                          | 0.115                                           | 0.0619                                           | 0.0183                                              |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                       | <0.000020                                       | 0.000025                                        | <0.000020                                        | <0.000020                                           |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                       | <0.000050                                       | <0.000050                                       | <0.000050                                        | <0.000050                                           |
|                                                                       | Boron (B)-Dissolved (mg/L)            | 0.083                                           | <0.010                                          | <0.010                                          | <0.010                                           | 0.278                                               |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000112                                       | 0.0000094                                       | 0.0000164                                       | 0.0000159                                        | 0.000187                                            |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 77.4                                            | 83.0                                            | 33.5                                            | 51.1                                             | 194                                                 |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00061                                         | 0.00040                                         | 0.00116                                         | 0.00057                                          | 0.00257                                             |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00025                                         | 0.00041                                         | 0.00082                                         | 0.00011                                          | <0.00010                                            |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00156                                         | 0.00167                                         | 0.00370                                         | 0.00182                                          | 0.00095                                             |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.121                                           | 0.210                                           | 1.47                                            | 0.127                                            | <0.010                                              |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                       | <0.000050                                       | 0.000060                                        | <0.000050                                        | <0.000050                                           |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0050                                          | 0.0037                                          | <0.0010                                         | <0.0010                                          | 0.0764                                              |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 70.7                                            | 63.7                                            | 16.2                                            | 24.2                                             | 291                                                 |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.0849                                          | 0.162                                           | 0.383                                           | 0.0181                                           | 0.00017                                             |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                      | <0.0000050                                      | <0.0000050                                      | <0.0000050                                       | <0.0000050                                          |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00119                                         | 0.00117                                         | 0.000550                                        | 0.00104                                          | 0.00245                                             |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00805                                         | 0.00354                                         | 0.00378                                         | 0.00218                                          | 0.0695                                              |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                          | <0.050                                          | <0.050                                          | <0.050                                           | <0.050                                              |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.86                                            | 0.80                                            | 0.22                                            | 0.35                                             | 3.34                                                |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.000978                                        | 0.000522                                        | 0.000297                                        | 0.000858 <sup>DTC</sup>                          | 0.00451                                             |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.73                                            | 6.13                                            | 5.45                                            | 6.26                                             | 6.25                                                |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                       | <0.000010                                       | <0.000010                                       | <0.000010                                        | <0.000010                                           |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 5.28                                            | 4.39                                            | 2.04                                            | 6.38                                             | 17.3                                                |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1802392-6<br>Water<br>20-JUL-16<br>16:50<br>GWCC-2 | L1802392-7<br>Water<br>20-JUL-16<br>16:15<br>GWCC-3 | L1802392-8<br>Water<br>20-JUL-16<br>17:45<br>GWCC-4 | L1802392-9<br>Water<br>TRAVEL BLANK | L1802392-10<br>Water<br>20-JUL-16<br>16:15<br>DUP1 |
|-----------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------|----------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                     |                                                     |                                                     |                                     |                                                    |
| <b>WATER</b>                                                          |                                       |                                                     |                                                     |                                                     |                                     |                                                    |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.814                                               | 0.541                                               | 0.452                                               | <0.00020                            | 0.535                                              |
|                                                                       | Sulfur (S)-Total (mg/L)               | 291                                                 | 138                                                 | 96.4                                                | <0.50                               | 142                                                |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000065                                            | 0.000073                                            | 0.000073                                            | <0.000010                           | 0.000081                                           |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                            | <0.00010                                            | <0.00010                                            | <0.00010                            | <0.00010                                           |
|                                                                       | Titanium (Ti)-Total (mg/L)            | <0.00030                                            | <0.00030                                            | <0.00030                                            | <0.00030                            | <0.00030                                           |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00257                                             | 0.00146                                             | 0.00110                                             | <0.000010                           | 0.00145                                            |
|                                                                       | Vanadium (V)-Total (mg/L)             | <0.00050                                            | <0.00050                                            | <0.00050                                            | <0.00050                            | <0.00050                                           |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0049                                              | <0.0030                                             | <0.0030                                             | <0.0030                             | 0.0030                                             |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | <0.00030                                            | <0.00030                                            | <0.00030                                            | <0.00030                            | <0.00030                                           |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                               | FIELD                                               | FIELD                                               |                                     | FIELD                                              |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                               | FIELD                                               | FIELD                                               |                                     | FIELD                                              |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0011                                              | 0.0015                                              | 0.0014                                              |                                     | 0.0014                                             |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00125                                             | 0.00106                                             | 0.00119                                             |                                     | 0.00106                                            |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00141                                             | 0.00091                                             | 0.00124                                             |                                     | 0.00088                                            |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0207                                              | 0.0349                                              | 0.0365                                              |                                     | 0.0349                                             |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                           | <0.000020                                           | <0.000020                                           |                                     | <0.000020                                          |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                           | <0.000050                                           | <0.000050                                           |                                     | <0.000050                                          |
|                                                                       | Boron (B)-Dissolved (mg/L)            | 0.123                                               | 0.073                                               | 0.060                                               |                                     | 0.074                                              |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.000142                                            | 0.0000754                                           | 0.0000463                                           |                                     | 0.0000751                                          |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 155                                                 | 105                                                 | 85.9                                                |                                     | 104                                                |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00098                                             | 0.00043                                             | 0.00042                                             |                                     | 0.00045                                            |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | <0.00010                                            | <0.00010                                            | <0.00010                                            |                                     | <0.00010                                           |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00115                                             | 0.00114                                             | 0.00121                                             |                                     | 0.00110                                            |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | <0.010                                              | <0.010                                              | <0.010                                              |                                     | <0.010                                             |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                           | <0.000050                                           | <0.000050                                           |                                     | <0.000050                                          |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0124                                              | 0.0079                                              | 0.0074                                              |                                     | 0.0081                                             |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 175                                                 | 85.2                                                | 62.2                                                |                                     | 85.6                                               |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.00013                                             | 0.00012                                             | 0.00057                                             |                                     | 0.00011                                            |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                          | <0.0000050                                          | <0.0000050                                          |                                     | <0.0000050                                         |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00266                                             | 0.00241                                             | 0.00217                                             |                                     | 0.00244                                            |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.0376                                              | 0.0305                                              | 0.0322                                              |                                     | 0.0306                                             |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                              | <0.050                                              | <0.050                                              |                                     | <0.050                                             |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 1.97                                                | 1.29                                                | 1.18                                                |                                     | 1.32                                               |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00339                                             | 0.00165                                             | 0.000980                                            |                                     | 0.00154                                            |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.34                                                | 5.37                                                | 6.07                                                |                                     | 5.40                                               |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                           | <0.000010                                           | <0.000010                                           |                                     | <0.000010                                          |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 5.60                                                | 3.62                                                | 3.20                                                |                                     | 3.64                                               |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |  |  |  |  |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|--|--|--|--|
|                         |                                       | L1802392-11<br>Water<br>20-JUL-16<br>08:05<br>FB-1                    |  |  |  |  |
| Grouping                | Analyte                               |                                                                       |  |  |  |  |
| <b>WATER</b>            |                                       |                                                                       |  |  |  |  |
| <b>Total Metals</b>     | Strontium (Sr)-Total (mg/L)           | <0.00020                                                              |  |  |  |  |
|                         | Sulfur (S)-Total (mg/L)               | <0.50                                                                 |  |  |  |  |
|                         | Thallium (Tl)-Total (mg/L)            | <0.000010                                                             |  |  |  |  |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |  |  |  |  |
|                         | Titanium (Ti)-Total (mg/L)            | <0.00030                                                              |  |  |  |  |
|                         | Uranium (U)-Total (mg/L)              | <0.000010                                                             |  |  |  |  |
|                         | Vanadium (V)-Total (mg/L)             | <0.00050                                                              |  |  |  |  |
|                         | Zinc (Zn)-Total (mg/L)                | <0.0030                                                               |  |  |  |  |
|                         | Zirconium (Zr)-Total (mg/L)           | <0.00030                                                              |  |  |  |  |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 |  |  |  |  |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 |  |  |  |  |
|                         | Aluminum (Al)-Dissolved (mg/L)        | <0.0010                                                               |  |  |  |  |
|                         | Antimony (Sb)-Dissolved (mg/L)        | <0.00010                                                              |  |  |  |  |
|                         | Arsenic (As)-Dissolved (mg/L)         | <0.00010                                                              |  |  |  |  |
|                         | Barium (Ba)-Dissolved (mg/L)          | <0.000050                                                             |  |  |  |  |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             |  |  |  |  |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |  |  |  |  |
|                         | Boron (B)-Dissolved (mg/L)            | <0.010                                                                |  |  |  |  |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | <0.0000050                                                            |  |  |  |  |
|                         | Calcium (Ca)-Dissolved (mg/L)         | <0.050                                                                |  |  |  |  |
|                         | Chromium (Cr)-Dissolved (mg/L)        | <0.00010                                                              |  |  |  |  |
|                         | Cobalt (Co)-Dissolved (mg/L)          | <0.00010                                                              |  |  |  |  |
|                         | Copper (Cu)-Dissolved (mg/L)          | <0.00020                                                              |  |  |  |  |
|                         | Iron (Fe)-Dissolved (mg/L)            | <0.010                                                                |  |  |  |  |
|                         | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                                             |  |  |  |  |
|                         | Lithium (Li)-Dissolved (mg/L)         | <0.0010                                                               |  |  |  |  |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | <0.10                                                                 |  |  |  |  |
|                         | Manganese (Mn)-Dissolved (mg/L)       | <0.00010                                                              |  |  |  |  |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            |  |  |  |  |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | <0.000050                                                             |  |  |  |  |
|                         | Nickel (Ni)-Dissolved (mg/L)          | <0.00050                                                              |  |  |  |  |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |  |  |  |  |
|                         | Potassium (K)-Dissolved (mg/L)        | <0.10                                                                 |  |  |  |  |
|                         | Selenium (Se)-Dissolved (mg/L)        | <0.000050                                                             |  |  |  |  |
|                         | Silicon (Si)-Dissolved (mg/L)         | <0.050                                                                |  |  |  |  |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |  |  |  |  |
|                         | Sodium (Na)-Dissolved (mg/L)          | <0.050                                                                |  |  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1802392-1<br>Water<br>20-JUL-16<br>08:05<br>E3 | L1802392-2<br>Water<br>19-JUL-16<br>16:50<br>R3 | L1802392-3<br>Water<br>20-JUL-16<br>13:20<br>R7 | L1802392-4<br>Water<br>19-JUL-16<br>14:30<br>R11 | L1802392-5<br>Water<br>20-JUL-16<br>17:15<br>GWCC-1 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                 |                                                  |                                                     |
| WATER                                                                 |                                      |                                                 |                                                 |                                                 |                                                  |                                                     |
| Dissolved Metals                                                      | Strontium (Sr)-Dissolved (mg/L)      | 0.396                                           | 0.410                                           | 0.102                                           | 0.253                                            | 1.81                                                |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 96.2                                            | 99.8                                            | 24.9                                            | 41.4                                             | 438                                                 |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       | <0.000010                                       | <0.000010                                       | <0.000010                                        | 0.000078                                            |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        | <0.00010                                        | <0.00010                                        | <0.00010                                         | <0.00010                                            |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00053                                         | 0.00056                                         | 0.00214                                         | 0.00059                                          | <0.00030                                            |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00369                                         | 0.00495                                         | 0.000117                                        | 0.00107                                          | 0.00613                                             |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00055                                         | 0.00077                                         | 0.00125                                         | <0.00050                                         | <0.00050                                            |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0013                                          | 0.0112                                          | <0.0010                                         | <0.0010                                          | 0.0067                                              |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00046                                         | 0.00053                                         | 0.00102                                         | 0.00080                                          | <0.00030                                            |
| Speciated Metals                                                      | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 | 0.00116                                         |                                                  | <0.00058                                            |
|                                                                       | Chromium (III)-Total (mg/L)          | <0.00074                                        | 0.00666                                         | 0.00490                                         |                                                  | <0.00088                                            |
|                                                                       | Hexavalent Chromium (mg/L)           | 0.0012                                          | <0.0010                                         | <0.0010                                         |                                                  | 0.0034                                              |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 | <0.0010                                         |                                                  | 0.0034                                              |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1802392-6<br>Water<br>20-JUL-16<br>16:50<br>GWCC-2 | L1802392-7<br>Water<br>20-JUL-16<br>16:15<br>GWCC-3 | L1802392-8<br>Water<br>20-JUL-16<br>17:45<br>GWCC-4 | L1802392-9<br>Water<br><br>TRAVEL BLANK | L1802392-10<br>Water<br>20-JUL-16<br>16:15<br>DUP1 |
|-----------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------|----------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                     |                                                     |                                                     |                                         |                                                    |
| <b>WATER</b>                                                          |                                      |                                                     |                                                     |                                                     |                                         |                                                    |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L)      | 0.802                                               | 0.524                                               | 0.432                                               |                                         | 0.527                                              |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 272                                                 | 131                                                 | 91.5                                                |                                         | 131                                                |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | 0.000053                                            | 0.000059                                            | 0.000073                                            |                                         | 0.000060                                           |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                            | <0.00010                                            | <0.00010                                            |                                         | <0.00010                                           |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | <0.00030                                            | <0.00030                                            | <0.00030                                            |                                         | <0.00030                                           |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00239                                             | 0.00134                                             | 0.000998                                            |                                         | 0.00135                                            |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                            | <0.00050                                            | <0.00050                                            |                                         | <0.00050                                           |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0044                                              | 0.0020                                              | 0.0024                                              |                                         | 0.0021                                             |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | <0.00030                                            | <0.00030                                            | <0.00030                                            |                                         | <0.00030                                           |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                     |                                                     |                                                     |                                         |                                                    |
|                                                                       | Chromium (III)-Total (mg/L)          | <0.00072                                            |                                                     |                                                     |                                         |                                                    |
|                                                                       | Hexavalent Chromium (mg/L)           | 0.0017                                              |                                                     |                                                     |                                         |                                                    |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                     |                                                     |                                                     |                                         |                                                    |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1802392-11<br>Water<br>20-JUL-16<br>08:05<br>FB-1 |  |  |  |  |
|-----------------------------------------------------------------------|--------------------------------------|----------------------------------------------------|--|--|--|--|
| Grouping                                                              | Analyte                              |                                                    |  |  |  |  |
| <b>WATER</b>                                                          |                                      |                                                    |  |  |  |  |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L)      | <0.00020                                           |  |  |  |  |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | <0.50                                              |  |  |  |  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                          |  |  |  |  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                           |  |  |  |  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | <0.00030                                           |  |  |  |  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | <0.000010                                          |  |  |  |  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                           |  |  |  |  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | <0.0010                                            |  |  |  |  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | <0.00030                                           |  |  |  |  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                    |  |  |  |  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                    |  |  |  |  |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                    |  |  |  |  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                    |  |  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## Reference Information

## QC Samples with Qualifiers &amp; Comments:

| QC Type Description | Parameter                 | Qualifier | Applies to Sample Number(s)                          |
|---------------------|---------------------------|-----------|------------------------------------------------------|
| Duplicate           | Bismuth (Bi)-Dissolved    | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Duplicate           | Boron (B)-Dissolved       | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Duplicate           | Silver (Ag)-Dissolved     | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Duplicate           | Sodium (Na)-Dissolved     | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Duplicate           | Tin (Sn)-Dissolved        | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Duplicate           | Aluminum (Al)-Total       | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Bismuth (Bi)-Total        | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Boron (B)-Total           | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Cadmium (Cd)-Total        | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Chromium (Cr)-Total       | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Copper (Cu)-Total         | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Lead (Pb)-Total           | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Lithium (Li)-Total        | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Nickel (Ni)-Total         | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Selenium (Se)-Total       | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Silver (Ag)-Total         | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Thallium (Tl)-Total       | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Tin (Sn)-Total            | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Titanium (Ti)-Total       | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Vanadium (V)-Total        | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Zinc (Zn)-Total           | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Zirconium (Zr)-Total      | DLA       | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Duplicate           | Sulfate (SO4)             | MB-LOR    | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Silicon (Si)-Dissolved    | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Sulfur (S)-Dissolved      | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Sulfate (SO4)             | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sulfate (SO4)             | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sulfate (SO4)             | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sulfate (SO4)             | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Aluminum (Al)-Dissolved   | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Barium (Ba)-Dissolved     | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Cadmium (Cd)-Dissolved    | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Cobalt (Co)-Dissolved     | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Copper (Cu)-Dissolved     | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Manganese (Mn)-Dissolved  | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Nickel (Ni)-Dissolved     | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Zinc (Zn)-Dissolved       | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Calcium (Ca)-Dissolved    | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Silicon (Si)-Dissolved    | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Sulfur (S)-Dissolved      | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Barium (Ba)-Dissolved     | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Boron (B)-Dissolved       | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Copper (Cu)-Dissolved     | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Manganese (Mn)-Dissolved  | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Molybdenum (Mo)-Dissolved | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Sodium (Na)-Dissolved     | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8     |
| Matrix Spike        | Calcium (Ca)-Total        | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Total      | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Silicon (Si)-Total        | MS-B      | L1802392-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |

## Qualifiers for Individual Parameters Listed:

## Reference Information

| Qualifier | Description                                                                                                               |
|-----------|---------------------------------------------------------------------------------------------------------------------------|
| DLA       | Detection Limit adjusted for required dilution                                                                            |
| DLDS      | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.                         |
| DLM       | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).                    |
| DTC       | Dissolved concentration exceeds total. Results were confirmed by re-analysis.                                             |
| MB-LOR    | Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level. |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.                        |
| RRV       | Reported Result Verified By Repeat Analysis                                                                               |

### Test Method References:

| ALS Test Code                                                                                                                                                                                                                                                                                                                                                                                                                                       | Matrix | Test Description                         | Method Reference**                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------|---------------------------------------|
| <b>BE-D-L-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Diss. Be (low) in Water by CRC ICPMS     | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                        |        |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                            |        |                                          |                                       |
| <b>BE-T-L-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Total Be (Low) in Water by CRC ICPMS     | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                           |        |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                            |        |                                          |                                       |
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Dissolved organic carbon by combustion   | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.                                                                                                                                                                                                          |        |                                          |                                       |
| <b>CARBONS-TOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                               | Water  | Total organic carbon by combustion       | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".                                                                                                                                                                                                                                                                                                                                           |        |                                          |                                       |
| <b>CR-CR3-DIS-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | Water  | Dissolved Trivalent Chromium in Water    | CALCULATION                           |
| Chromium (III)-Dissolved is calculated as the difference between the dissolved chromium and the dissolved hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                     |        |                                          |                                       |
| <b>CR-CR3-TOT-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | Water  | Total Trivalent Chromium in Water        | CALCULATION                           |
| Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                       |        |                                          |                                       |
| <b>CR-CR6-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water  | Chromium, Hexavalent (Cr +6)             | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. |        |                                          |                                       |
| Results are based on an un-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                        |        |                                          |                                       |
| <b>CR6-D-IC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  | Water  | Chromium, Dissolved Hexavalent (Cr +6)   | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. |        |                                          |                                       |
| Results are based on a field-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                      |        |                                          |                                       |
| <b>EC-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water  | Conductivity (Automated)                 | APHA 2510 Auto. Conduc.               |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                              |        |                                          |                                       |
| <b>HARDNESS-CALC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                             | Water  | Hardness                                 | APHA 2340B                            |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                    |        |                                          |                                       |
| <b>HG-D-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 | Water  | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod)            |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                         |        |                                          |                                       |
| <b>HG-T-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 | Water  | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod)                       |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                        |        |                                          |                                       |



## Reference Information

**MET-D-CCMS-VA** Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-DIS-LOW-ICP-VA** Water Dissolved Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-TOT-LOW-ICP-VA** Water Total Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**NH3-F-VA** Water Ammonia in Water by Fluorescence APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NH3-F-VA** Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NO2-L-IC-N-WR** Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**NO3-L-IC-N-WR** Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**P-T-PRES-COL-VA** Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**S-DIS-ICP-VA** Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**S-TOT-ICP-VA** Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United

## Reference Information

States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**SO4-IC-N-WR**      Water      Sulfate in Water by IC      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

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*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

---

| Laboratory Definition Code | Laboratory Location                                     |
|----------------------------|---------------------------------------------------------|
| ED                         | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA           |
| WR                         | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA           |
| VA                         | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

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### Chain of Custody Numbers:

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1

### GLOSSARY OF REPORT TERMS

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*

*mg/kg - milligrams per kilogram based on dry weight of sample.*

*mg/kg ww - milligrams per kilogram based on wet weight of sample.*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*

*mg/L - milligrams per litre.*

*< - Less than.*

*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

**UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.**

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*



Contact:  
Company:  
Address:

## REFERENCE DATA

---

Project / Location:

PO Number:

ALS Work Order:

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

NELAC accredited through New York ELAP, LAB #11371

## TEM ANALYSIS DATA

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EDXA Resolution (eV): <175

Accelerating Voltage (keV): 100

Prep Start Date: 7/27/2016

Calibration Constant (µm/cm): 0.74

Camera Constant (mm-Å): 129.25

Analysis Start Date: 7/28/2016

*Pamela Johnson*

Pamela Johnson  
ALS TEM Analyst

*Shawn Smythe*

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*

## IDENTIFICATION

|                     |               |               |
|---------------------|---------------|---------------|
| Client Sample ID:   | L1802392-1 E3 | L1802392-2 R3 |
| ALS Sample ID:      | 1607739-01    | 1607739-02    |
| Method:             | EPA 100.2     | EPA 100.2     |
| Date of Collection: | 7/20/2016     | 7/19/2016     |
| Time of Collection: | 10:00         | 10:00         |

## FILTRATION & ANALYSIS

|                                       |           |           |
|---------------------------------------|-----------|-----------|
| Date of Filtration:                   | 7/26/2016 | 7/26/2016 |
| Time of Filtration:                   | 16:35     | 16:35     |
| Volume Filtered (L):                  | 0.005     | 0.001     |
| Openings Analyzed:                    | 4         | 10        |
| Avg. Opening Area (mm <sup>2</sup> ): | 0.011     | 0.011     |
| AS (MFL):                             | 4.89      | 9.77      |

## ASBESTOS COUNT

|                              |   |   |
|------------------------------|---|---|
| Chrysotile:                  | 9 | 0 |
| Amosite:                     | 0 | 0 |
| Crocidolite:                 | 0 | 0 |
| Act-Tremolite <sup>†</sup> : | 0 | 0 |
| Anthophyllite:               | 0 | 0 |
| Total Asbestos:              | 9 | 0 |

## ASBESTOS CONCENTRATION (MFL)

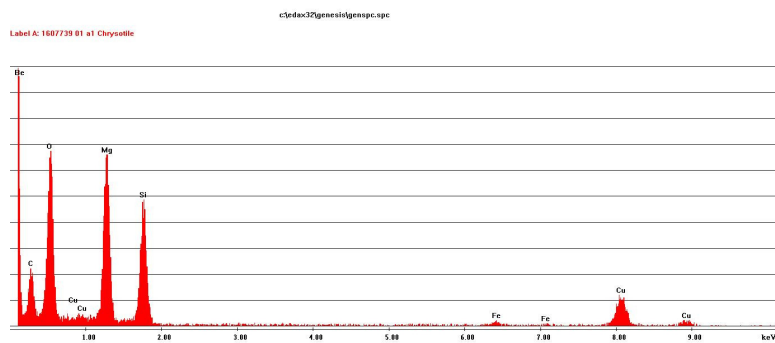
|                              |              |               |
|------------------------------|--------------|---------------|
| Chrysotile:                  | 43.98        | <AS           |
| Amosite:                     | <AS          | <AS           |
| Crocidolite:                 | <AS          | <AS           |
| Act-Tremolite <sup>†</sup> : | <AS          | <AS           |
| Anthophyllite:               | <AS          | <AS           |
| <b>Total Asbestos:</b>       | <b>43.98</b> | <b>&lt;AS</b> |

## NOTES

The extremely high concentration of suspended solids in sample L1802392-2 R3 prohibited filtration of sufficient volume to reach the recommended AS of <0.20 MFL.

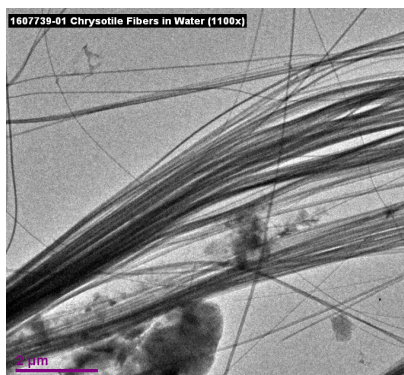
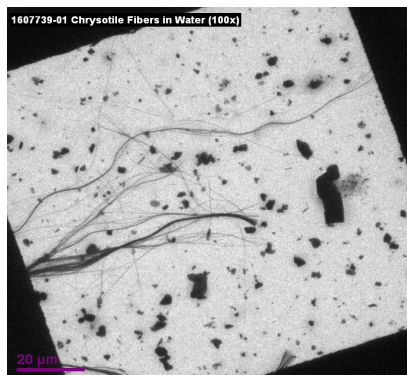
## EDXA SPECTRA

NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.



## PHOTOMICROGRAPHS

Collected using Gatan Digital Micrograph.







29-Jul-2016

Brent Mack  
ALS Environmental  
8081 Lougheed HWY  
Suite 100  
Burnaby, BC V5A1W9

Tel: (604) 253-4188  
Fax:

Re: L1802392

Work Order: **1607739**

Dear Brent,

ALS Environmental received 11 samples on 26-Jul-2016 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 17.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Rob Neman

Shawn Smythe  
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, Ohio 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental 

**www.alsglobal.com**

RIGHT SOLUTIONS RIGHT PARTNER

**Client:** ALS Environmental  
**Project:** L1802392  
**Work Order:** 1607739

**Work Order Sample Summary**

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1607739-01         | L1802392-1              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-02         | L1802392-2              | Water         |                   | 7/19/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-02         | L1802392-2              | Water         |                   | 7/19/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-03         | L1802392-3              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-04         | L1802392-4              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-05         | L1802392-5              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-06         | L1802392-6              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-07         | L1802392-7              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-08         | L1802392-8              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-09         | L1802392-9              | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-10         | L1802392-10             | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |
| 1607739-11         | L1802392-11             | Water         |                   | 7/20/2016              | 7/26/2016 10:00      | <input type="checkbox"/> |

## ALS Environmental

Date: 29-Jul-16

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**Client:** ALS Environmental

**Project:** L1802392

**Work Order:** 1607739

### Case Narrative

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The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Sample ID: L1802392-1

Collection Date: 7/20/2016

Work Order: 1607739

Lab ID: 1607739-01

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 7.9    |      | 2.0             | mg/L  | 1                  | 7/27/2016     |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Sample ID: L1802392-2

Collection Date: 7/19/2016

Work Order: 1607739

Lab ID: 1607739-02

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 140    |      | 2.0             | mg/L  | 1                  | 7/27/2016     |

Note:



## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Sample ID: L1802392-3

Collection Date: 7/20/2016

Work Order: 1607739

Lab ID: 1607739-03

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 78     |      | 2.0             | mg/L  | 1                  | 7/27/2016     |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Sample ID: L1802392-4

Collection Date: 7/20/2016

Work Order: 1607739

Lab ID: 1607739-04

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 4.8    |      | 2.0             | mg/L  | 1                  | 7/27/2016     |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Work Order: 1607739

Sample ID: L1802392-5

Lab ID: 1607739-05

Collection Date: 7/20/2016

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.0             | mg/L  | 1                  | 7/27/2016           |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Sample ID: L1802392-6

Collection Date: 7/20/2016

Work Order: 1607739

Lab ID: 1607739-06

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.0             | mg/L  | 1                  | 7/27/2016           |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Work Order: 1607739

Sample ID: L1802392-7

Lab ID: 1607739-07

Collection Date: 7/20/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | ND     |      | 2.0             | mg/L  | 1                  | 7/27/2016     |

Note:



## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Sample ID: L1802392-8

Collection Date: 7/20/2016

Work Order: 1607739

Lab ID: 1607739-08

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.0             | mg/L  | 1                  | 7/27/2016           |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Work Order: 1607739

Sample ID: L1802392-9

Lab ID: 1607739-09

Collection Date: 7/20/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | ND     |      | 2.0             | mg/L  | 1                  | 7/27/2016     |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Work Order: 1607739

Sample ID: L1802392-10

Lab ID: 1607739-10

Collection Date: 7/20/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 2.2    |      | 2.0             | mg/L  | 1                  | 7/27/2016     |

Note:

## ALS Environmental

Date: 29-Jul-16

Client: ALS Environmental

Project: L1802392

Work Order: 1607739

Sample ID: L1802392-11

Lab ID: 1607739-11

Collection Date: 7/20/2016

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.0             | mg/L  | 1                  | 7/27/2016           |

Note:

# ALS Environmental

Date: 29-Jul-16

**Client:** ALS Environmental  
**Work Order:** 1607739  
**Project:** L1802392

## QC BATCH REPORT

Batch ID: **R131436** Instrument ID: **WETCHEM** Method: **SM2540 D**

|            |                               |     |         |               |      |                |               |                          |           |       |
|------------|-------------------------------|-----|---------|---------------|------|----------------|---------------|--------------------------|-----------|-------|
| MBLK       | Sample ID: MB-R131436-R131436 |     |         |               |      | Units: mg/L    |               | Analysis Date: 7/27/2016 |           |       |
| Client ID: | Run ID: WETCHEM_160727A       |     |         |               |      | SeqNo: 1327526 |               | Prep Date:               |           | DF: 1 |
| Analyte    | Result                        | PQL | SPK Val | SPK Ref Value | %REC | Control Limit  | RPD Ref Value | %RPD                     | RPD Limit | Qual  |

Total suspended solids ND 2.0

|            |                                |     |         |               |      |                |                          |      |           |       |  |
|------------|--------------------------------|-----|---------|---------------|------|----------------|--------------------------|------|-----------|-------|--|
| LCS        | Sample ID: LCS-R131436-R131436 |     |         |               |      | Units: mg/L    | Analysis Date: 7/27/2016 |      |           |       |  |
| Client ID: | Run ID: WETCHEM_160727A        |     |         |               |      | SeqNo: 1327527 | Prep Date:               |      |           | DF: 1 |  |
| Analyte    | Result                         | PQL | SPK Val | SPK Ref Value | %REC | Control Limit  | RPD Ref Value            | %RPD | RPD Limit | Qual  |  |

Total suspended solids 1020 2.0 1000 0 102 70-130 0

|                        |                            |     |                         |               |      |                |                          |      |           |      |
|------------------------|----------------------------|-----|-------------------------|---------------|------|----------------|--------------------------|------|-----------|------|
| DUP                    | Sample ID: 1607739-10A Dup |     |                         |               |      | Units: mg/L    | Analysis Date: 7/27/2016 |      |           |      |
| Client ID: L1802392-10 |                            |     | Run ID: WETCHEM_160727A |               |      | SeqNo: 1327538 | Prep Date:               |      | DF: 1     |      |
| Analyte                | Result                     | PQL | SPK Val                 | SPK Ref Value | %REC | Control Limit  | RPD Ref Value            | %RPD | RPD Limit | Qual |

Total suspended solids ND 2.0 0 0 0 2.24 0

|                        |                            |     |                         |               |      |                |                          |      |           |      |
|------------------------|----------------------------|-----|-------------------------|---------------|------|----------------|--------------------------|------|-----------|------|
| DUP                    | Sample ID: 1607739-11A Dup |     |                         |               |      | Units: mg/L    | Analysis Date: 7/27/2016 |      |           |      |
| Client ID: L1802392-11 |                            |     | Run ID: WETCHEM_160727A |               |      | SeqNo: 1327540 | Prep Date:               |      | DF: 1     |      |
| Analyte                | Result                     | PQL | SPK Val                 | SPK Ref Value | %REC | Control Limit  | RPD Ref Value            | %RPD | RPD Limit | Qual |

Total suspended solids ND 2.0 0 0 0 1.38 0

The following samples were analyzed in this batch:

|             |             |             |
|-------------|-------------|-------------|
| 1607739-01B | 1607739-02B | 1607739-03A |
| 1607739-04A | 1607739-05A | 1607739-06A |
| 1607739-07A | 1607739-08A | 1607739-09A |
| 1607739-10A | 1607739-11A |             |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



## ALS Environmental

Date: 29-Jul-16

**Client:** ALS Environmental  
**Project:** L1802392  
**WorkOrder:** 1607739

## QUALIFIERS, ACRONYMS, UNITS

| <u>Qualifier</u> | <u>Description</u>                                                        |
|------------------|---------------------------------------------------------------------------|
| *                | Value exceeds Regulatory Limit                                            |
| a                | Not accredited                                                            |
| B                | Analyte detected in the associated Method Blank above the Reporting Limit |
| E                | Value above quantitation range                                            |
| H                | Analyzed outside of Holding Time                                          |
| J                | Analyte detected below quantitation limit                                 |
| n                | Not offered for accreditation                                             |
| ND               | Not Detected at the Reporting Limit                                       |
| O                | Sample amount is > 4 times amount spiked                                  |
| P                | Dual Column results percent difference > 40%                              |
| R                | RPD above laboratory control limit                                        |
| S                | Spike Recovery outside laboratory control limits                          |
| U                | Analyzed but not detected above the MDL                                   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| E              | EPA Method                          |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MQL            | Method Quantitation Limit           |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PDS            | Post Digestion Spike                |
| PQL            | Practical Quantitation Limit        |
| SDL            | Sample Detection Limit              |
| SW             | SW-846 Method                       |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| %                     |                    |
| mg/L                  |                    |

## Sample Receipt Checklist

Client Name: **ALS-VANCOUVER**

Date/Time Received: **26-Jul-16 10:00**

Work Order: **1607739**

Received by: **CEG**

Checklist completed by: **Shawn Smythe**

27-Jul-16

Reviewed by: **Shawn Smythe**

27-Jul-16

eSignature

Date

eSignature

Date

Matrices:

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☐

No ☒

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☐

pH adjusted by:

Login Notes: **Samples not relinquished.**

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

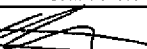
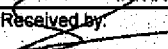
Regarding:

Comments:

CorrectiveAction:



L1802392-COFC

|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------|-------------|--------------------------------|-------------|-------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|------------------------|----------------------|----|--|--|--|--|--|--|
| <b>Report To</b>                                                                                                     |                                                                                          |              |  | <b>Report Format</b>                                                                                                                                                                                            |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | * (Rush Turnaround Time (TAT) is not available for all tests)                                                                                                                                                                                                                                                                                                                                                                               |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          |              |  | Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> FAX <input type="checkbox"/> E-MAIL (DIGITAL)                                                                            |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)<br><input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT<br><input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT<br><input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Contact: Natasha Sandys                                                                                              |                                                                                          |              |  | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                     |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                          |              |  | <input type="checkbox"/> Criteria on Report - provide details below if box checked<br>Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Phone: 867-456-4865                                                                                                  |                                                                                          |              |  | Email 1 or Fax nsandys@hemmera.com                                                                                                                                                                              |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Specify Date Required for E2, E or P:                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                 |                        |                      |    |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  | Email 2 chris@elr.ca                                                                                                                                                                                            |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| <b>Invoice To</b>                                                                                                    |                                                                                          |              |  | <b>Invoice Distribution</b>                                                                                                                                                                                     |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | <b>Analysis Request</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |                                                                                          |              |  | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX                                                                    |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                                                                                                                                                                                                                                                                                                                  |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                          |              |  | Email 1 or Fax nsandys@hemmera.com                                                                                                                                                                              |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          |              |  | Email 2 chris@elr.ca                                                                                                                                                                                            |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Contact: Natasha Sandys                                                                                              |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| <b>Project Information</b>                                                                                           |                                                                                          |              |  | <b>Oil and Gas Required Fields (client use)</b>                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| ALS Quote #: Q56044                                                                                                  |                                                                                          |              |  | Approver ID:                                                                                                                                                                                                    |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Cost Center:                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Job #: 1343-005.18                                                                                                   |                                                                                          |              |  | GL Account:                                                                                                                                                                                                     |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Routing Code:                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                 |                        |                      |    |  |  |  |  |  |  |
| PO / AFE:                                                                                                            |                                                                                          |              |  | Activity Code:                                                                                                                                                                                                  |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| LSD:                                                                                                                 |                                                                                          |              |  | Location:                                                                                                                                                                                                       |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                          |              |  | ALS Contact:                                                                                                                                                                                                    |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Sampler: AN/CH                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                        |                      |    |  |  |  |  |  |  |
| ALS Sample #<br>(lab use only)                                                                                       | Sample Identification and/or Coordinates<br>(This description will appear on the report) |              |  | Date<br>(dd-mmm-yy)                                                                                                                                                                                             | Time<br>(hh:mm) | Sample Type                                                                                      | Low Level Diss. Met (incl. Hg) and Hardness | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total | Chromium Speciation (III/VI) - Dissolved | Ammonia - N | Dissolved Organic Carbon (DOC) | Nitrate - N | Nitrite - N | Total Phosphorus | Sulphate                                                                                                                                                                                                                                                                                                                                                                                                                                    | pH, Conductivity | Asbestos-TEM-AD | Total Suspended Solids | Number of Containers |    |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
|                                                                                                                      | E3                                                                                       |              |  | 20-Jul-16                                                                                                                                                                                                       | 8:05            | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 11 |  |  |  |  |  |  |
|                                                                                                                      | R3                                                                                       |              |  | 19-Jul-16                                                                                                                                                                                                       | 16:50           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 11 |  |  |  |  |  |  |
|                                                                                                                      | R7                                                                                       |              |  | 20-Jul-16                                                                                                                                                                                                       | 13:20           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      | R11                                                                                      |              |  | 19-Jul-16                                                                                                                                                                                                       | 14:30           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      | GWCC-1                                                                                   |              |  | 20-Jul-16                                                                                                                                                                                                       | 17:15           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      | GWCC-2                                                                                   |              |  | 20-Jul-16                                                                                                                                                                                                       | 16:50           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      | GWCC-3                                                                                   |              |  | 20-Jul-16                                                                                                                                                                                                       | 16:15           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      | GWCC-4                                                                                   |              |  | 20-Jul-16                                                                                                                                                                                                       | 17:45           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      | Travel Blank                                                                             |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 7  |  |  |  |  |  |  |
|                                                                                                                      | Dup1                                                                                     |              |  | 20-Jul-16                                                                                                                                                                                                       | 16:15           | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      | FB-1                                                                                     |              |  | 20-Jul-16                                                                                                                                                                                                       | 8:05            | Water                                                                                            | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R           | R                | R                                                                                                                                                                                                                                                                                                                                                                                                                                           | R                | R               | R                      | R                    | 10 |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| <b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>                                                          |                                                                                          |              |  | <b>Special Instructions / Specify Criteria to add on report (client use)</b>                                                                                                                                    |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                                                                                                                                                                                                                                                                                                          |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                          |              |  | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results.                                                             |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                   |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>                                                                                                                                                                                                                                                                                  |                  |                 |                        |                      |    |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | Cooling Initiated <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                       |                  |                 |                        |                      |    |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | INITIAL COOLER TEMPERATURES °C                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                        |                      |    |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | 0.8 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                 |                        |                      |    |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | FINAL COOLER TEMPERATURES °C                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |                        |                      |    |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |              |  |                                                                                                                                                                                                                 |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |                        |                      |    |  |  |  |  |  |  |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                          |              |  | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                                                                                |                 |                                                                                                  |                                             |                                            |                                      |                                          |             |                                |             |             |                  | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                        |                      |    |  |  |  |  |  |  |
| Released by:                      |                                                                                          | Date: Jul 22 |  | Time: 10:30                                                                                                                                                                                                     |                 | Received by:  |                                             | Date: 22-Jul-16                            |                                      | Time: 10:30                              |             | Received by:                   |             | Date:       |                  | Time:                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                 |                        |                      |    |  |  |  |  |  |  |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-00226 v09 Fm0004 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 26-JUL-16  
Report Date: 17-AUG-16 15:54 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1803696  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.17  
C of C Numbers: 1, 2, 3  
Legal Site Desc:

Comments: 17-AUG-2016 This version of the report includes speciated chromium data for samples 1, 10, 12, 14, 16, 22, 23, 24, 25, and 26.

Brent Mack, B.Sc.  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1803696-1<br>Water<br>22-JUL-16<br>10:10<br>E1 | L1803696-2<br>Water<br>24-JUL-16<br>11:50<br>E1 | L1803696-3<br>Water<br>22-JUL-16<br>10:45<br>E1 (H) | L1803696-4<br>Water<br>24-JUL-16<br>11:10<br>E1 (H) | L1803696-5<br>Water<br><br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                     |                                                     |                                         |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                     |                                                     |                                         |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            |                                                 | 549                                             |                                                     | 546                                                 | <2.0                                    |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 289                                             |                                                 | 289                                                 |                                                     | <0.50                                   |
|                                                                       | pH (pH)                         |                                                 | 8.16                                            |                                                     | 7.93                                                | 5.42 <sup>RRV</sup>                     |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0179                                          |                                                 | 0.0150                                              |                                                     | 0.0150                                  |
|                                                                       | Nitrate (as N) (mg/L)           |                                                 | 0.116                                           |                                                     | 0.120                                               | <0.0050                                 |
|                                                                       | Nitrite (as N) (mg/L)           |                                                 | 0.0018                                          |                                                     | 0.0041                                              | <0.0010                                 |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0031                                          |                                                 | 0.0044                                              |                                                     | <0.0020                                 |
|                                                                       | Sulfate (SO4) (mg/L)            |                                                 | 158                                             |                                                     | 159                                                 | <0.30                                   |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 14.4                                            |                                                 | 14.5                                                |                                                     |                                         |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.0761                                          |                                                 | 0.0530                                              |                                                     | <0.0030                                 |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00034                                         |                                                 | 0.00031                                             |                                                     | <0.00010                                |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00094                                         |                                                 | 0.00080                                             |                                                     | <0.00010                                |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0592                                          |                                                 | 0.0587                                              |                                                     | <0.000050                               |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                       |                                                 | <0.000020                                           |                                                     | <0.000020                               |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       |                                                 | <0.000050                                           |                                                     | <0.000050                               |
|                                                                       | Boron (B)-Total (mg/L)          | 0.010                                           |                                                 | <0.010                                              |                                                     | <0.010                                  |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000450                                       |                                                 | 0.0000437                                           |                                                     | <0.000050                               |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 63.7                                            |                                                 | 64.6                                                |                                                     | <0.050                                  |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00117                                         |                                                 | 0.00049                                             |                                                     | <0.00010                                |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00041                                         |                                                 | 0.00043                                             |                                                     | <0.00010                                |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00295                                         |                                                 | 0.00295                                             |                                                     | <0.00050                                |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.255                                           |                                                 | 0.228                                               |                                                     | <0.010                                  |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000131                                        |                                                 | 0.000118                                            |                                                     | <0.000050                               |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0028                                          |                                                 | 0.0026                                              |                                                     | <0.0010                                 |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 30.5                                            |                                                 | 30.6                                                |                                                     | <0.10                                   |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.109                                           |                                                 | 0.151                                               |                                                     | <0.00010                                |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.0000057                                       |                                                 | <0.0000050                                          |                                                     | <0.0000050                              |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00135                                         |                                                 | 0.00133                                             |                                                     | <0.000050                               |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00627                                         |                                                 | 0.00407                                             |                                                     | <0.00050                                |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          |                                                 | <0.050                                              |                                                     | <0.050                                  |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.62                                            |                                                 | 0.60                                                |                                                     | <0.10                                   |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00169                                         |                                                 | 0.00170                                             |                                                     | <0.000050                               |
|                                                                       | Silicon (Si)-Total (mg/L)       | 4.11                                            |                                                 | 4.18                                                |                                                     | <0.050                                  |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                       |                                                 | <0.000010                                           |                                                     | <0.000010                               |
|                                                                       | Sodium (Na)-Total (mg/L)        | 2.83                                            |                                                 | 2.73                                                |                                                     | <0.050                                  |
|                                                                       | Strontium (Sr)-Total (mg/L)     | 0.291                                           |                                                 | 0.295                                               |                                                     | <0.00020                                |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1803696-6<br>Water<br>21-JUL-16<br>17:15<br>E2 | L1803696-7<br>Water<br>24-JUL-16<br>12:10<br>E2 | L1803696-8<br>Water<br>21-JUL-16<br>15:15<br>E4 | L1803696-9<br>Water<br>24-JUL-16<br>12:40<br>E4 | L1803696-10<br>Water<br>22-JUL-16<br>15:15<br>E7 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            |                                                 | 604                                             |                                                 | 630                                             |                                                  |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 389                                             |                                                 | 429                                             |                                                 | 413                                              |
|                                                                       | pH (pH)                         |                                                 | 8.12                                            |                                                 | 8.08                                            |                                                  |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0159                                          |                                                 | 0.0110                                          |                                                 | 0.0336                                           |
|                                                                       | Nitrate (as N) (mg/L)           |                                                 | 0.112                                           |                                                 | 0.108                                           |                                                  |
|                                                                       | Nitrite (as N) (mg/L)           |                                                 | <0.0010                                         |                                                 | <0.0010                                         |                                                  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0038                                          |                                                 | 0.0041                                          |                                                 | 0.0564                                           |
|                                                                       | Sulfate (SO4) (mg/L)            |                                                 | 184                                             |                                                 | 193                                             |                                                  |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 13.4                                            |                                                 | 12.5                                            |                                                 | 13.7                                             |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.0313                                          |                                                 | 0.0459                                          |                                                 | 2.71                                             |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00042                                         |                                                 | 0.00048                                         |                                                 | 0.00057                                          |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00119                                         |                                                 | 0.00120                                         |                                                 | 0.00442                                          |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0541                                          |                                                 | 0.0523                                          |                                                 | 0.127                                            |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                       |                                                 | <0.000020                                       |                                                 | 0.000096                                         |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       |                                                 | <0.000050                                       |                                                 | <0.000050                                        |
|                                                                       | Boron (B)-Total (mg/L)          | 0.031                                           |                                                 | 0.045                                           |                                                 | 0.034                                            |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000497                                       |                                                 | 0.0000419                                       |                                                 | 0.000178                                         |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 77.5                                            |                                                 | 78.0                                            |                                                 | 74.5                                             |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00056                                         |                                                 | 0.00066                                         |                                                 | 0.00779                                          |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00054                                         |                                                 | 0.00051                                         |                                                 | 0.00315                                          |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00360                                         |                                                 | 0.00213                                         |                                                 | 0.00960                                          |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.247                                           |                                                 | 0.285                                           |                                                 | 4.79                                             |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000071                                        |                                                 | 0.000085                                        |                                                 | 0.00319                                          |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0067                                          |                                                 | 0.0094                                          |                                                 | 0.0097                                           |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 47.8                                            |                                                 | 54.0                                            |                                                 | 51.4                                             |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.0996                                          |                                                 | 0.100                                           |                                                 | 0.367                                            |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                      |                                                 | <0.0000050                                      |                                                 | 0.0000123                                        |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00170                                         |                                                 | 0.00169                                         |                                                 | 0.00164                                          |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0135                                          |                                                 | 0.0146                                          |                                                 | 0.0220                                           |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          |                                                 | <0.050                                          |                                                 | 0.136                                            |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.85                                            |                                                 | 0.92                                            |                                                 | 1.49                                             |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00162                                         |                                                 | 0.00134                                         |                                                 | 0.00135                                          |
|                                                                       | Silicon (Si)-Total (mg/L)       | 4.46                                            |                                                 | 4.54                                            |                                                 | 8.67                                             |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                       |                                                 | <0.000010                                       |                                                 | 0.000065                                         |
|                                                                       | Sodium (Na)-Total (mg/L)        | 3.50                                            |                                                 | 4.31                                            |                                                 | 4.06                                             |
|                                                                       | Strontium (Sr)-Total (mg/L)     | 0.412                                           |                                                 | 0.451                                           |                                                 | 0.416                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1803696-11<br>Water<br>24-JUL-16<br>13:10<br>E7 | L1803696-12<br>Water<br>22-JUL-16<br>17:10<br>E8 | L1803696-13<br>Water<br>24-JUL-16<br>13:00<br>E8 | L1803696-14<br>Water<br>21-JUL-16<br>13:45<br>R4 | L1803696-15<br>Water<br>24-JUL-16<br>12:45<br>R4 |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                  |                                                  |                                                  |                                                  |                                                  |
| <b>WATER</b>                                                          |                                 |                                                  |                                                  |                                                  |                                                  |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 624                                              |                                                  | 162                                              |                                                  | 535                                              |
|                                                                       | Hardness (as CaCO3) (mg/L)      |                                                  | 80.0                                             |                                                  | 395                                              |                                                  |
|                                                                       | pH (pH)                         | 8.09                                             |                                                  | 7.78                                             |                                                  | 8.17                                             |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    |                                                  | 0.0172                                           |                                                  | 0.0229                                           |                                                  |
|                                                                       | Nitrate (as N) (mg/L)           | 0.139                                            |                                                  | 0.0982                                           |                                                  | 0.160                                            |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                          |                                                  | <0.0010                                          |                                                  | <0.0010                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                  | 0.0379                                           |                                                  | 0.0256                                           |                                                  |
|                                                                       | Sulfate (SO4) (mg/L)            | 187                                              |                                                  | 26.4                                             |                                                  | 137                                              |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) |                                                  | 15.3                                             |                                                  | 11.8                                             |                                                  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      |                                                  | 2.58                                             |                                                  | 1.55                                             |                                                  |
|                                                                       | Antimony (Sb)-Total (mg/L)      |                                                  | 0.00022                                          |                                                  | 0.00047                                          |                                                  |
|                                                                       | Arsenic (As)-Total (mg/L)       |                                                  | 0.00203                                          |                                                  | 0.00410                                          |                                                  |
|                                                                       | Barium (Ba)-Total (mg/L)        |                                                  | 0.0804                                           |                                                  | 0.116                                            |                                                  |
|                                                                       | Beryllium (Be)-Total (mg/L)     |                                                  | 0.000097                                         |                                                  | 0.000054                                         |                                                  |
|                                                                       | Bismuth (Bi)-Total (mg/L)       |                                                  | <0.000050                                        |                                                  | 0.000053                                         |                                                  |
|                                                                       | Boron (B)-Total (mg/L)          |                                                  | <0.010                                           |                                                  | <0.010                                           |                                                  |
|                                                                       | Cadmium (Cd)-Total (mg/L)       |                                                  | 0.0000814                                        |                                                  | 0.000190                                         |                                                  |
|                                                                       | Calcium (Ca)-Total (mg/L)       |                                                  | 21.4                                             |                                                  | 83.2                                             |                                                  |
|                                                                       | Chromium (Cr)-Total (mg/L)      |                                                  | 0.00495                                          |                                                  | 0.00398                                          |                                                  |
|                                                                       | Cobalt (Co)-Total (mg/L)        |                                                  | 0.00190                                          |                                                  | 0.00204                                          |                                                  |
|                                                                       | Copper (Cu)-Total (mg/L)        |                                                  | 0.0104                                           |                                                  | 0.00625                                          |                                                  |
|                                                                       | Iron (Fe)-Total (mg/L)          |                                                  | 3.47                                             |                                                  | 2.64                                             |                                                  |
|                                                                       | Lead (Pb)-Total (mg/L)          |                                                  | 0.00148                                          |                                                  | 0.00135                                          |                                                  |
|                                                                       | Lithium (Li)-Total (mg/L)       |                                                  | 0.0039                                           |                                                  | 0.0047                                           |                                                  |
|                                                                       | Magnesium (Mg)-Total (mg/L)     |                                                  | 7.42                                             |                                                  | 41.1                                             |                                                  |
|                                                                       | Manganese (Mn)-Total (mg/L)     |                                                  | 0.0989                                           |                                                  | 0.228                                            |                                                  |
|                                                                       | Mercury (Hg)-Total (mg/L)       |                                                  | <0.000025 <sup>DLM</sup>                         |                                                  | <0.000025 <sup>DLM</sup>                         |                                                  |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    |                                                  | 0.000459                                         |                                                  | 0.00147                                          |                                                  |
|                                                                       | Nickel (Ni)-Total (mg/L)        |                                                  | 0.00679                                          |                                                  | 0.0238                                           |                                                  |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                  | 0.069                                            |                                                  | 0.068                                            |                                                  |
|                                                                       | Potassium (K)-Total (mg/L)      |                                                  | 1.07                                             |                                                  | 0.78                                             |                                                  |
|                                                                       | Selenium (Se)-Total (mg/L)      |                                                  | 0.000231                                         |                                                  | 0.00180                                          |                                                  |
|                                                                       | Silicon (Si)-Total (mg/L)       |                                                  | 8.72                                             |                                                  | 7.45                                             |                                                  |
|                                                                       | Silver (Ag)-Total (mg/L)        |                                                  | 0.000031                                         |                                                  | 0.000058                                         |                                                  |
|                                                                       | Sodium (Na)-Total (mg/L)        |                                                  | 2.99                                             |                                                  | 5.03                                             |                                                  |
|                                                                       | Strontium (Sr)-Total (mg/L)     |                                                  | 0.115                                            |                                                  | 0.451                                            |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1803696-16<br>Water<br>22-JUL-16<br>18:20<br>R6 | L1803696-17<br>Water<br>24-JUL-16<br>13:30<br>R6 | L1803696-18<br>Water<br>22-JUL-16<br>08:30<br>GWCC-5 | L1803696-19<br>Water<br>24-JUL-16<br>12:00<br>GWCC-5 | L1803696-20<br>Water<br>22-JUL-16<br>08:30<br>DUP2 |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--------------------------------------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                  |                                                  |                                                      |                                                      |                                                    |
| <b>WATER</b>                                                          |                                 |                                                  |                                                  |                                                      |                                                      |                                                    |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            |                                                  | 152                                              |                                                      | 962                                                  |                                                    |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 74.7                                             |                                                  | 562                                                  |                                                      | 556                                                |
|                                                                       | pH (pH)                         |                                                  | 7.74                                             |                                                      | 7.98                                                 |                                                    |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0174                                           |                                                  | <0.0050                                              |                                                      | <0.0050                                            |
|                                                                       | Nitrate (as N) (mg/L)           |                                                  | 0.0967                                           |                                                      | 0.0053                                               |                                                    |
|                                                                       | Nitrite (as N) (mg/L)           |                                                  | <0.0010                                          |                                                      | <0.0010                                              |                                                    |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0383                                           |                                                  | <0.0020                                              |                                                      | <0.0020                                            |
|                                                                       | Sulfate (SO4) (mg/L)            |                                                  | 23.2                                             |                                                      | 310                                                  |                                                    |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 15.1                                             |                                                  | 7.16                                                 |                                                      | 7.10                                               |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 2.54                                             |                                                  | 0.0046                                               |                                                      | <0.0030                                            |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00018                                          |                                                  | 0.00076                                              |                                                      | 0.00076                                            |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00201                                          |                                                  | 0.00082                                              |                                                      | 0.00076                                            |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0774                                           |                                                  | 0.0516                                               |                                                      | 0.0533                                             |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000100                                         |                                                  | <0.000020                                            |                                                      | <0.000020                                          |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                        |                                                  | <0.000050                                            |                                                      | <0.000050                                          |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                           |                                                  | 0.031                                                |                                                      | 0.032                                              |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000799                                        |                                                  | 0.000107                                             |                                                      | 0.000110                                           |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 20.9                                             |                                                  | 126                                                  |                                                      | 127                                                |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00505                                          |                                                  | 0.00068                                              |                                                      | 0.00070                                            |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00196                                          |                                                  | <0.00010                                             |                                                      | <0.00010                                           |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00748                                          |                                                  | 0.00086                                              |                                                      | 0.00088                                            |
|                                                                       | Iron (Fe)-Total (mg/L)          | 3.78                                             |                                                  | 0.053                                                |                                                      | 0.052                                              |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.00166                                          |                                                  | <0.000050                                            |                                                      | <0.000050                                          |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0041                                           |                                                  | 0.0097                                               |                                                      | 0.0097                                             |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 6.97                                             |                                                  | 58.0                                                 |                                                      | 58.3                                               |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.101                                            |                                                  | 0.00346                                              |                                                      | 0.00341                                            |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.000025 <sup>DLM</sup>                         |                                                  | <0.000050                                            |                                                      | <0.000050                                          |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.000450                                         |                                                  | 0.00192                                              |                                                      | 0.00192                                            |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00649                                          |                                                  | 0.0191                                               |                                                      | 0.0195                                             |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.088                                            |                                                  | <0.050                                               |                                                      | <0.050                                             |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.04                                             |                                                  | 0.77                                                 |                                                      | 0.77                                               |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.000253                                         |                                                  | 0.00742                                              |                                                      | 0.00738                                            |
|                                                                       | Silicon (Si)-Total (mg/L)       | 8.72                                             |                                                  | 4.45                                                 |                                                      | 4.47                                               |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000035                                         |                                                  | <0.000010                                            |                                                      | <0.000010                                          |
|                                                                       | Sodium (Na)-Total (mg/L)        | 2.77                                             |                                                  | 3.94                                                 |                                                      | 3.99                                               |
|                                                                       | Strontium (Sr)-Total (mg/L)     | 0.114                                            |                                                  | 0.717                                                |                                                      | 0.703                                              |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1803696-21<br>Water<br>24-JUL-16<br>12:00<br>DUP2 | L1803696-22<br>Water<br>23-JUL-16<br>14:05<br>R1 | L1803696-23<br>Water<br>23-JUL-16<br>15:55<br>R2 | L1803696-24<br>Water<br>23-JUL-16<br>17:15<br>R8 | L1803696-25<br>Water<br>23-JUL-16<br>18:15<br>R9 |
|-----------------------------------------------------------------------|---------------------------------|----------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                    |                                                  |                                                  |                                                  |                                                  |
| <b>WATER</b>                                                          |                                 |                                                    |                                                  |                                                  |                                                  |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 963                                                | 422                                              | 416                                              | 280                                              | 240                                              |
|                                                                       | Hardness (as CaCO3) (mg/L)      |                                                    | 219                                              | 225                                              | 134                                              | 125                                              |
|                                                                       | pH (pH)                         | 7.99                                               | 7.87                                             | 7.99                                             | 7.74                                             | 7.52                                             |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    |                                                    | 0.0610                                           | 0.0352                                           | 0.0072                                           | 0.114                                            |
|                                                                       | Nitrate (as N) (mg/L)           | <0.0050                                            | 0.258                                            | 0.0475                                           | <0.0050                                          | 0.212                                            |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                            | <0.0010                                          | <0.0010                                          | <0.0010                                          | <0.0010                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                    | 0.338                                            | 0.0730                                           | 0.0074                                           | 0.373                                            |
|                                                                       | Sulfate (SO4) (mg/L)            | 310                                                | 117                                              | 104                                              | 80.6                                             | 60.4                                             |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) |                                                    | 18.3                                             | 18.9                                             | 18.8                                             | 34.3                                             |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      |                                                    | 5.07                                             | 4.60                                             | 0.191                                            | 8.54                                             |
|                                                                       | Antimony (Sb)-Total (mg/L)      |                                                    | 0.00069                                          | 0.00053                                          | 0.00109                                          | 0.00058                                          |
|                                                                       | Arsenic (As)-Total (mg/L)       |                                                    | 0.00547                                          | 0.00415                                          | 0.00063                                          | 0.00662                                          |
|                                                                       | Barium (Ba)-Total (mg/L)        |                                                    | 0.162                                            | 0.170                                            | 0.0582                                           | 0.283                                            |
|                                                                       | Beryllium (Be)-Total (mg/L)     |                                                    | 0.000167                                         | 0.000152                                         | <0.000020                                        | 0.000280                                         |
|                                                                       | Bismuth (Bi)-Total (mg/L)       |                                                    | 0.000074                                         | 0.000051                                         | <0.000050                                        | 0.000097                                         |
|                                                                       | Boron (B)-Total (mg/L)          |                                                    | <0.010                                           | <0.010                                           | <0.010                                           | <0.010                                           |
|                                                                       | Cadmium (Cd)-Total (mg/L)       |                                                    | 0.000403                                         | 0.000118                                         | 0.0000438                                        | 0.000342                                         |
|                                                                       | Calcium (Ca)-Total (mg/L)       |                                                    | 56.0                                             | 40.2                                             | 32.3                                             | 37.6                                             |
|                                                                       | Chromium (Cr)-Total (mg/L)      |                                                    | 0.0139                                           | 0.0110                                           | 0.00155                                          | 0.0194                                           |
|                                                                       | Cobalt (Co)-Total (mg/L)        |                                                    | 0.00483                                          | 0.00339                                          | 0.00020                                          | 0.00735                                          |
|                                                                       | Copper (Cu)-Total (mg/L)        |                                                    | 0.0161                                           | 0.00914                                          | 0.00365                                          | 0.0247                                           |
|                                                                       | Iron (Fe)-Total (mg/L)          |                                                    | 9.02                                             | 7.13                                             | 0.334                                            | 14.1                                             |
|                                                                       | Lead (Pb)-Total (mg/L)          |                                                    | 0.00657                                          | 0.00305                                          | 0.000151                                         | 0.00593                                          |
|                                                                       | Lithium (Li)-Total (mg/L)       |                                                    | 0.0055                                           | 0.0069                                           | <0.0010                                          | 0.0069                                           |
|                                                                       | Magnesium (Mg)-Total (mg/L)     |                                                    | 21.7                                             | 29.7                                             | 12.2                                             | 14.8                                             |
|                                                                       | Manganese (Mn)-Total (mg/L)     |                                                    | 0.363                                            | 0.235                                            | 0.0182                                           | 0.480                                            |
|                                                                       | Mercury (Hg)-Total (mg/L)       |                                                    | 0.000155                                         | <0.000025 <sup>DLM</sup>                         | 0.0000078                                        | <0.000050 <sup>DLM</sup>                         |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    |                                                    | 0.00198                                          | 0.000670                                         | 0.00106                                          | 0.00126                                          |
|                                                                       | Nickel (Ni)-Total (mg/L)        |                                                    | 0.0184                                           | 0.0109                                           | 0.00437                                          | 0.0216                                           |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                    | 0.232                                            | 0.165                                            | <0.050                                           | 0.436                                            |
|                                                                       | Potassium (K)-Total (mg/L)      |                                                    | 1.14                                             | 0.87                                             | <0.10                                            | 0.92                                             |
|                                                                       | Selenium (Se)-Total (mg/L)      |                                                    | 0.00204                                          | 0.000553                                         | 0.000800                                         | 0.00119                                          |
|                                                                       | Silicon (Si)-Total (mg/L)       |                                                    | 11.6                                             | 12.4                                             | 5.89                                             | 17.8                                             |
|                                                                       | Silver (Ag)-Total (mg/L)        |                                                    | 0.000171                                         | 0.000045                                         | 0.000012                                         | 0.000129                                         |
|                                                                       | Sodium (Na)-Total (mg/L)        |                                                    | 2.28                                             | 2.52                                             | 4.19                                             | 2.18                                             |
|                                                                       | Strontium (Sr)-Total (mg/L)     |                                                    | 0.235                                            | 0.213                                            | 0.125                                            | 0.144                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1803696-26<br>Water<br>24-JUL-16<br>08:50<br>SL |  |  |  |  |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--|--|--|--|
| Grouping                                                              | Analyte                         |                                                  |  |  |  |  |
| <b>WATER</b>                                                          |                                 |                                                  |  |  |  |  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 1600                                             |  |  |  |  |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 1020                                             |  |  |  |  |
|                                                                       | pH (pH)                         | 8.37                                             |  |  |  |  |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | <0.0050                                          |  |  |  |  |
|                                                                       | Nitrate (as N) (mg/L)           | <0.010 <sup>DLDS</sup>                           |  |  |  |  |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0020 <sup>DLDS</sup>                          |  |  |  |  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0023                                           |  |  |  |  |
|                                                                       | Sulfate (SO4) (mg/L)            | 735                                              |  |  |  |  |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 8.56                                             |  |  |  |  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.0439                                           |  |  |  |  |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00284                                          |  |  |  |  |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.0151                                           |  |  |  |  |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0289                                           |  |  |  |  |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                        |  |  |  |  |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                        |  |  |  |  |
|                                                                       | Boron (B)-Total (mg/L)          | 0.044                                            |  |  |  |  |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000270                                        |  |  |  |  |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 227                                              |  |  |  |  |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00221                                          |  |  |  |  |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00019                                          |  |  |  |  |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00120                                          |  |  |  |  |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.084                                            |  |  |  |  |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000053                                         |  |  |  |  |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0104                                           |  |  |  |  |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 108                                              |  |  |  |  |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.00465                                          |  |  |  |  |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                       |  |  |  |  |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00202                                          |  |  |  |  |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0195                                           |  |  |  |  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                           |  |  |  |  |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.47                                             |  |  |  |  |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.0160                                           |  |  |  |  |
|                                                                       | Silicon (Si)-Total (mg/L)       | 3.72                                             |  |  |  |  |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                        |  |  |  |  |
|                                                                       | Sodium (Na)-Total (mg/L)        | 2.65                                             |  |  |  |  |
|                                                                       | Strontium (Sr)-Total (mg/L)     | 0.988                                            |  |  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                  |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1803696-1<br>Water<br>22-JUL-16<br>10:10<br>E1 | L1803696-2<br>Water<br>24-JUL-16<br>11:50<br>E1 | L1803696-3<br>Water<br>22-JUL-16<br>10:45<br>E1 (H) | L1803696-4<br>Water<br>24-JUL-16<br>11:10<br>E1 (H) | L1803696-5<br>Water<br><br>TRAVEL BLANK |
|------------------|---------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------|
| Grouping         | Analyte                               |                                                                       |                                                 |                                                 |                                                     |                                                     |                                         |
| WATER            |                                       |                                                                       |                                                 |                                                 |                                                     |                                                     |                                         |
| Total Metals     | Sulfur (S)-Total (mg/L)               | 53.9                                                                  |                                                 | 54.6                                            |                                                     | <0.50                                               |                                         |
|                  | Thallium (Tl)-Total (mg/L)            | 0.000013                                                              |                                                 | <0.000010                                       |                                                     | <0.000010                                           |                                         |
|                  | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |                                                 | <0.00010                                        |                                                     | <0.00010                                            |                                         |
|                  | Titanium (Ti)-Total (mg/L)            | 0.00215                                                               |                                                 | 0.00160                                         |                                                     | <0.00030                                            |                                         |
|                  | Uranium (U)-Total (mg/L)              | 0.00192                                                               |                                                 | 0.00198                                         |                                                     | <0.000010                                           |                                         |
|                  | Vanadium (V)-Total (mg/L)             | 0.00074                                                               |                                                 | 0.00070                                         |                                                     | <0.00050                                            |                                         |
|                  | Zinc (Zn)-Total (mg/L)                | <0.0030                                                               |                                                 | <0.0030                                         |                                                     | <0.0030                                             |                                         |
|                  | Zirconium (Zr)-Total (mg/L)           | 0.00077                                                               |                                                 | 0.00079                                         |                                                     | <0.00030                                            |                                         |
| Dissolved Metals | Dissolved Mercury Filtration Location | FIELD                                                                 |                                                 | FIELD                                           |                                                     |                                                     |                                         |
|                  | Dissolved Metals Filtration Location  | FIELD                                                                 |                                                 | FIELD                                           |                                                     |                                                     |                                         |
|                  | Aluminum (Al)-Dissolved (mg/L)        | 0.0319                                                                |                                                 | 0.0385                                          |                                                     |                                                     |                                         |
|                  | Antimony (Sb)-Dissolved (mg/L)        | 0.00028                                                               |                                                 | 0.00029                                         |                                                     |                                                     |                                         |
|                  | Arsenic (As)-Dissolved (mg/L)         | 0.00080                                                               |                                                 | 0.00075                                         |                                                     |                                                     |                                         |
|                  | Barium (Ba)-Dissolved (mg/L)          | 0.0586                                                                |                                                 | 0.0587                                          |                                                     |                                                     |                                         |
|                  | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             |                                                 | <0.000020                                       |                                                     |                                                     |                                         |
|                  | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |                                                 | <0.000050                                       |                                                     |                                                     |                                         |
|                  | Boron (B)-Dissolved (mg/L)            | <0.010                                                                |                                                 | <0.010                                          |                                                     |                                                     |                                         |
|                  | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000319                                                             |                                                 | 0.0000322                                       |                                                     |                                                     |                                         |
|                  | Calcium (Ca)-Dissolved (mg/L)         | 63.4                                                                  |                                                 | 64.0                                            |                                                     |                                                     |                                         |
|                  | Chromium (Cr)-Dissolved (mg/L)        | 0.00036                                                               |                                                 | 0.00035                                         |                                                     |                                                     |                                         |
|                  | Cobalt (Co)-Dissolved (mg/L)          | 0.00031                                                               |                                                 | 0.00040                                         |                                                     |                                                     |                                         |
|                  | Copper (Cu)-Dissolved (mg/L)          | 0.00265                                                               |                                                 | 0.00272                                         |                                                     |                                                     |                                         |
|                  | Iron (Fe)-Dissolved (mg/L)            | 0.137                                                                 |                                                 | 0.169                                           |                                                     |                                                     |                                         |
|                  | Lead (Pb)-Dissolved (mg/L)            | 0.000051                                                              |                                                 | 0.000063                                        |                                                     |                                                     |                                         |
|                  | Lithium (Li)-Dissolved (mg/L)         | 0.0026                                                                |                                                 | 0.0029                                          |                                                     |                                                     |                                         |
|                  | Magnesium (Mg)-Dissolved (mg/L)       | 31.7                                                                  |                                                 | 31.5                                            |                                                     |                                                     |                                         |
|                  | Manganese (Mn)-Dissolved (mg/L)       | 0.0904                                                                |                                                 | 0.149                                           |                                                     |                                                     |                                         |
|                  | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            |                                                 | <0.0000050                                      |                                                     |                                                     |                                         |
|                  | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00110                                                               |                                                 | 0.00111                                         |                                                     |                                                     |                                         |
|                  | Nickel (Ni)-Dissolved (mg/L)          | 0.00472                                                               |                                                 | 0.00393                                         |                                                     |                                                     |                                         |
|                  | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |                                                 | <0.050                                          |                                                     |                                                     |                                         |
|                  | Potassium (K)-Dissolved (mg/L)        | 0.58                                                                  |                                                 | 0.59                                            |                                                     |                                                     |                                         |
|                  | Selenium (Se)-Dissolved (mg/L)        | 0.00187                                                               |                                                 | 0.00176                                         |                                                     |                                                     |                                         |
|                  | Silicon (Si)-Dissolved (mg/L)         | 4.03                                                                  |                                                 | 4.14                                            |                                                     |                                                     |                                         |
|                  | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |                                                 | <0.000010                                       |                                                     |                                                     |                                         |
|                  | Sodium (Na)-Dissolved (mg/L)          | 2.82                                                                  |                                                 | 2.76                                            |                                                     |                                                     |                                         |
|                  | Strontium (Sr)-Dissolved (mg/L)       | 0.287                                                                 |                                                 | 0.288                                           |                                                     |                                                     |                                         |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1803696-6<br>Water<br>21-JUL-16<br>17:15<br>E2 | L1803696-7<br>Water<br>24-JUL-16<br>12:10<br>E2 | L1803696-8<br>Water<br>21-JUL-16<br>15:15<br>E4 | L1803696-9<br>Water<br>24-JUL-16<br>12:40<br>E4 | L1803696-10<br>Water<br>22-JUL-16<br>15:15<br>E7 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>            |                                       |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Total Metals</b>     | Sulfur (S)-Total (mg/L)               | 81.0                                                                  |                                                 |                                                 | 85.3                                            |                                                 | 77.8                                             |
|                         | Thallium (Tl)-Total (mg/L)            | 0.000024                                                              |                                                 |                                                 | 0.000018                                        |                                                 | 0.000048                                         |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |                                                 |                                                 | <0.00010                                        |                                                 | <0.00010                                         |
|                         | Titanium (Ti)-Total (mg/L)            | 0.00063                                                               |                                                 |                                                 | 0.00147                                         |                                                 | 0.0770                                           |
|                         | Uranium (U)-Total (mg/L)              | 0.00211                                                               |                                                 |                                                 | 0.00229                                         |                                                 | 0.00246                                          |
|                         | Vanadium (V)-Total (mg/L)             | <0.00050                                                              |                                                 |                                                 | 0.00051                                         |                                                 | 0.00828                                          |
|                         | Zinc (Zn)-Total (mg/L)                | <0.0030                                                               |                                                 |                                                 | <0.0030                                         |                                                 | 0.0322                                           |
|                         | Zirconium (Zr)-Total (mg/L)           | 0.00063                                                               |                                                 |                                                 | 0.00073                                         |                                                 | 0.00088                                          |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 | FIELD                                            |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 | FIELD                                            |
|                         | Aluminum (Al)-Dissolved (mg/L)        | 0.0248                                                                |                                                 |                                                 | 0.0168                                          |                                                 | 0.0268                                           |
|                         | Antimony (Sb)-Dissolved (mg/L)        | 0.00038                                                               |                                                 |                                                 | 0.00047                                         |                                                 | 0.00038                                          |
|                         | Arsenic (As)-Dissolved (mg/L)         | 0.00100                                                               |                                                 |                                                 | 0.00110                                         |                                                 | 0.00099                                          |
|                         | Barium (Ba)-Dissolved (mg/L)          | 0.0538                                                                |                                                 |                                                 | 0.0526                                          |                                                 | 0.0638                                           |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             |                                                 |                                                 | <0.000020                                       |                                                 | <0.000020                                        |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |                                                 |                                                 | <0.000050                                       |                                                 | <0.000050                                        |
|                         | Boron (B)-Dissolved (mg/L)            | 0.028                                                                 |                                                 |                                                 | 0.043                                           |                                                 | 0.034                                            |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000506                                                             |                                                 |                                                 | 0.0000353                                       |                                                 | 0.0000382                                        |
|                         | Calcium (Ca)-Dissolved (mg/L)         | 75.7                                                                  |                                                 |                                                 | 78.7                                            |                                                 | 76.1                                             |
|                         | Chromium (Cr)-Dissolved (mg/L)        | 0.00040                                                               |                                                 |                                                 | 0.00047                                         |                                                 | 0.00049                                          |
|                         | Cobalt (Co)-Dissolved (mg/L)          | 0.00052                                                               |                                                 |                                                 | 0.00047                                         |                                                 | 0.00063                                          |
|                         | Copper (Cu)-Dissolved (mg/L)          | 0.00221                                                               |                                                 |                                                 | 0.00193                                         |                                                 | 0.00222                                          |
|                         | Iron (Fe)-Dissolved (mg/L)            | 0.188                                                                 |                                                 |                                                 | 0.185                                           |                                                 | 0.182                                            |
|                         | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                                             |                                                 |                                                 | <0.000050                                       |                                                 | 0.000079                                         |
|                         | Lithium (Li)-Dissolved (mg/L)         | 0.0067                                                                |                                                 |                                                 | 0.0094                                          |                                                 | 0.0082                                           |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | 48.5                                                                  |                                                 |                                                 | 56.4                                            |                                                 | 54.1                                             |
|                         | Manganese (Mn)-Dissolved (mg/L)       | 0.0915                                                                |                                                 |                                                 | 0.0942                                          |                                                 | 0.203                                            |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            |                                                 |                                                 | <0.0000050                                      |                                                 | <0.0000050                                       |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00143                                                               |                                                 |                                                 | 0.00148                                         |                                                 | 0.00132                                          |
|                         | Nickel (Ni)-Dissolved (mg/L)          | 0.0124                                                                |                                                 |                                                 | 0.0142                                          |                                                 | 0.0104                                           |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |                                                 |                                                 | <0.050                                          |                                                 | <0.050                                           |
|                         | Potassium (K)-Dissolved (mg/L)        | 0.80                                                                  |                                                 |                                                 | 0.92                                            |                                                 | 0.95                                             |
|                         | Selenium (Se)-Dissolved (mg/L)        | 0.00157                                                               |                                                 |                                                 | 0.00137                                         |                                                 | 0.00114                                          |
|                         | Silicon (Si)-Dissolved (mg/L)         | 4.32                                                                  |                                                 |                                                 | 4.53                                            |                                                 | 4.62                                             |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |                                                 |                                                 | <0.000010                                       |                                                 | <0.000010                                        |
|                         | Sodium (Na)-Dissolved (mg/L)          | 3.52                                                                  |                                                 |                                                 | 4.29                                            |                                                 | 3.93                                             |
|                         | Strontium (Sr)-Dissolved (mg/L)       | 0.398                                                                 |                                                 |                                                 | 0.450                                           |                                                 | 0.411                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1803696-11<br>Water<br>24-JUL-16<br>13:10<br>E7 | L1803696-12<br>Water<br>22-JUL-16<br>17:10<br>E8 | L1803696-13<br>Water<br>24-JUL-16<br>13:00<br>E8 | L1803696-14<br>Water<br>21-JUL-16<br>13:45<br>R4 | L1803696-15<br>Water<br>24-JUL-16<br>12:45<br>R4 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                  |                                                  |                                                  |                                                  |                                                  |
| <b>WATER</b>            |                                       |                                                                       |                                                  |                                                  |                                                  |                                                  |                                                  |
| <b>Total Metals</b>     | Sulfur (S)-Total (mg/L)               |                                                                       |                                                  | 9.60                                             |                                                  | 65.5                                             |                                                  |
|                         | Thallium (Tl)-Total (mg/L)            |                                                                       |                                                  | 0.000028                                         |                                                  | 0.000030                                         |                                                  |
|                         | Tin (Sn)-Total (mg/L)                 |                                                                       |                                                  | <0.00010                                         |                                                  | <0.00010                                         |                                                  |
|                         | Titanium (Ti)-Total (mg/L)            |                                                                       |                                                  | 0.0890                                           |                                                  | 0.0374                                           |                                                  |
|                         | Uranium (U)-Total (mg/L)              |                                                                       |                                                  | 0.000827                                         |                                                  | 0.00466                                          |                                                  |
|                         | Vanadium (V)-Total (mg/L)             |                                                                       |                                                  | 0.00767                                          |                                                  | 0.00508                                          |                                                  |
|                         | Zinc (Zn)-Total (mg/L)                |                                                                       |                                                  | 0.0186                                           |                                                  | 0.0130                                           |                                                  |
|                         | Zirconium (Zr)-Total (mg/L)           |                                                                       |                                                  | 0.00071                                          |                                                  | 0.00095                                          |                                                  |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location |                                                                       |                                                  | FIELD                                            |                                                  | FIELD                                            |                                                  |
|                         | Dissolved Metals Filtration Location  |                                                                       |                                                  | FIELD                                            |                                                  | FIELD                                            |                                                  |
|                         | Aluminum (Al)-Dissolved (mg/L)        |                                                                       |                                                  | 0.0995                                           |                                                  | 0.0146                                           |                                                  |
|                         | Antimony (Sb)-Dissolved (mg/L)        |                                                                       |                                                  | 0.00011                                          |                                                  | 0.00035                                          |                                                  |
|                         | Arsenic (As)-Dissolved (mg/L)         |                                                                       |                                                  | 0.00063                                          |                                                  | 0.00234                                          |                                                  |
|                         | Barium (Ba)-Dissolved (mg/L)          |                                                                       |                                                  | 0.0369                                           |                                                  | 0.0694                                           |                                                  |
|                         | Beryllium (Be)-Dissolved (mg/L)       |                                                                       |                                                  | 0.000021                                         |                                                  | <0.000020                                        |                                                  |
|                         | Bismuth (Bi)-Dissolved (mg/L)         |                                                                       |                                                  | <0.000050                                        |                                                  | <0.000050                                        |                                                  |
|                         | Boron (B)-Dissolved (mg/L)            |                                                                       |                                                  | <0.010                                           |                                                  | <0.010                                           |                                                  |
|                         | Cadmium (Cd)-Dissolved (mg/L)         |                                                                       |                                                  | 0.0000083                                        |                                                  | 0.0000511                                        |                                                  |
|                         | Calcium (Ca)-Dissolved (mg/L)         |                                                                       |                                                  | 20.9                                             |                                                  | 85.3                                             |                                                  |
|                         | Chromium (Cr)-Dissolved (mg/L)        |                                                                       |                                                  | 0.00037                                          |                                                  | 0.00030                                          |                                                  |
|                         | Cobalt (Co)-Dissolved (mg/L)          |                                                                       |                                                  | 0.00028                                          |                                                  | 0.00089                                          |                                                  |
|                         | Copper (Cu)-Dissolved (mg/L)          |                                                                       |                                                  | 0.00274                                          |                                                  | 0.00175                                          |                                                  |
|                         | Iron (Fe)-Dissolved (mg/L)            |                                                                       |                                                  | 0.279                                            |                                                  | 0.162                                            |                                                  |
|                         | Lead (Pb)-Dissolved (mg/L)            |                                                                       |                                                  | 0.000063                                         |                                                  | <0.000050                                        |                                                  |
|                         | Lithium (Li)-Dissolved (mg/L)         |                                                                       |                                                  | 0.0023                                           |                                                  | 0.0038                                           |                                                  |
|                         | Magnesium (Mg)-Dissolved (mg/L)       |                                                                       |                                                  | 6.77                                             |                                                  | 44.1                                             |                                                  |
|                         | Manganese (Mn)-Dissolved (mg/L)       |                                                                       |                                                  | 0.0238                                           |                                                  | 0.150                                            |                                                  |
|                         | Mercury (Hg)-Dissolved (mg/L)         |                                                                       |                                                  | <0.0000050                                       |                                                  | <0.0000050                                       |                                                  |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      |                                                                       |                                                  | 0.000342                                         |                                                  | 0.00121                                          |                                                  |
|                         | Nickel (Ni)-Dissolved (mg/L)          |                                                                       |                                                  | 0.00225                                          |                                                  | 0.0156                                           |                                                  |
|                         | Phosphorus (P)-Dissolved (mg/L)       |                                                                       |                                                  | <0.050                                           |                                                  | <0.050                                           |                                                  |
|                         | Potassium (K)-Dissolved (mg/L)        |                                                                       |                                                  | 0.79                                             |                                                  | 0.59                                             |                                                  |
|                         | Selenium (Se)-Dissolved (mg/L)        |                                                                       |                                                  | 0.000173                                         |                                                  | 0.00185                                          |                                                  |
|                         | Silicon (Si)-Dissolved (mg/L)         |                                                                       |                                                  | 5.23                                             |                                                  | 5.23                                             |                                                  |
|                         | Silver (Ag)-Dissolved (mg/L)          |                                                                       |                                                  | <0.000010                                        |                                                  | <0.000010                                        |                                                  |
|                         | Sodium (Na)-Dissolved (mg/L)          |                                                                       |                                                  | 2.79                                             |                                                  | 5.17                                             |                                                  |
|                         | Strontium (Sr)-Dissolved (mg/L)       |                                                                       |                                                  | 0.108                                            |                                                  | 0.460                                            |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1803696-16<br>Water<br>22-JUL-16<br>18:20<br>R6 | L1803696-17<br>Water<br>24-JUL-16<br>13:30<br>R6 | L1803696-18<br>Water<br>22-JUL-16<br>08:30<br>GWCC-5 | L1803696-19<br>Water<br>24-JUL-16<br>12:00<br>GWCC-5 | L1803696-20<br>Water<br>22-JUL-16<br>08:30<br>DUP2 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                  |                                                  |                                                      |                                                      |                                                    |
| <b>WATER</b>            |                                       |                                                                       |                                                  |                                                  |                                                      |                                                      |                                                    |
| <b>Total Metals</b>     | Sulfur (S)-Total (mg/L)               | 8.85                                                                  |                                                  |                                                  | 111                                                  |                                                      | 111                                                |
|                         | Thallium (Tl)-Total (mg/L)            | 0.000028                                                              |                                                  |                                                  | 0.000016                                             |                                                      | 0.000015                                           |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |                                                  |                                                  | <0.00010                                             |                                                      | <0.00010                                           |
|                         | Titanium (Ti)-Total (mg/L)            | 0.0870                                                                |                                                  |                                                  | <0.00030                                             |                                                      | <0.00030                                           |
|                         | Uranium (U)-Total (mg/L)              | 0.000854                                                              |                                                  |                                                  | 0.00247                                              |                                                      | 0.00239                                            |
|                         | Vanadium (V)-Total (mg/L)             | 0.00782                                                               |                                                  |                                                  | <0.00050                                             |                                                      | <0.00050                                           |
|                         | Zinc (Zn)-Total (mg/L)                | 0.0153                                                                |                                                  |                                                  | <0.0030                                              |                                                      | <0.0030                                            |
|                         | Zirconium (Zr)-Total (mg/L)           | 0.00073                                                               |                                                  |                                                  | <0.00030                                             |                                                      | <0.00030                                           |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 |                                                  |                                                  | FIELD                                                |                                                      | FIELD                                              |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 |                                                  |                                                  | FIELD                                                |                                                      | FIELD                                              |
|                         | Aluminum (Al)-Dissolved (mg/L)        | 0.112                                                                 |                                                  |                                                  | 0.0015                                               |                                                      | 0.0019                                             |
|                         | Antimony (Sb)-Dissolved (mg/L)        | 0.00011                                                               |                                                  |                                                  | 0.00076                                              |                                                      | 0.00074                                            |
|                         | Arsenic (As)-Dissolved (mg/L)         | 0.00071                                                               |                                                  |                                                  | 0.00069                                              |                                                      | 0.00072                                            |
|                         | Barium (Ba)-Dissolved (mg/L)          | 0.0389                                                                |                                                  |                                                  | 0.0536                                               |                                                      | 0.0561                                             |
|                         | Beryllium (Be)-Dissolved (mg/L)       | 0.000024                                                              |                                                  |                                                  | <0.000020                                            |                                                      | <0.000020                                          |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |                                                  |                                                  | <0.000050                                            |                                                      | <0.000050                                          |
|                         | Boron (B)-Dissolved (mg/L)            | <0.010                                                                |                                                  |                                                  | 0.030                                                |                                                      | 0.030                                              |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000170                                                             |                                                  |                                                  | 0.000109                                             |                                                      | 0.000115                                           |
|                         | Calcium (Ca)-Dissolved (mg/L)         | 19.9                                                                  |                                                  |                                                  | 126                                                  |                                                      | 124                                                |
|                         | Chromium (Cr)-Dissolved (mg/L)        | 0.00040                                                               |                                                  |                                                  | 0.00062                                              |                                                      | 0.00064                                            |
|                         | Cobalt (Co)-Dissolved (mg/L)          | 0.00031                                                               |                                                  |                                                  | <0.00010                                             |                                                      | <0.00010                                           |
|                         | Copper (Cu)-Dissolved (mg/L)          | 0.00305                                                               |                                                  |                                                  | 0.00078                                              |                                                      | 0.00079                                            |
|                         | Iron (Fe)-Dissolved (mg/L)            | 0.271                                                                 |                                                  |                                                  | 0.038                                                |                                                      | 0.039                                              |
|                         | Lead (Pb)-Dissolved (mg/L)            | 0.000065                                                              |                                                  |                                                  | <0.000050                                            |                                                      | <0.000050                                          |
|                         | Lithium (Li)-Dissolved (mg/L)         | 0.0023                                                                |                                                  |                                                  | 0.0096                                               |                                                      | 0.0098                                             |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | 6.11                                                                  |                                                  |                                                  | 59.9                                                 |                                                      | 59.7                                               |
|                         | Manganese (Mn)-Dissolved (mg/L)       | 0.0248                                                                |                                                  |                                                  | 0.00316                                              |                                                      | 0.00312                                            |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            |                                                  |                                                  | <0.0000050                                           |                                                      | <0.0000050                                         |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | 0.000316                                                              |                                                  |                                                  | 0.00167                                              |                                                      | 0.00168                                            |
|                         | Nickel (Ni)-Dissolved (mg/L)          | 0.00239                                                               |                                                  |                                                  | 0.0193                                               |                                                      | 0.0194                                             |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |                                                  |                                                  | <0.050                                               |                                                      | <0.050                                             |
|                         | Potassium (K)-Dissolved (mg/L)        | 0.77                                                                  |                                                  |                                                  | 0.79                                                 |                                                      | 0.75                                               |
|                         | Selenium (Se)-Dissolved (mg/L)        | 0.000182                                                              |                                                  |                                                  | 0.00769                                              |                                                      | 0.00731                                            |
|                         | Silicon (Si)-Dissolved (mg/L)         | 5.15                                                                  |                                                  |                                                  | 4.52                                                 |                                                      | 4.40                                               |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |                                                  |                                                  | <0.000010                                            |                                                      | <0.000010                                          |
|                         | Sodium (Na)-Dissolved (mg/L)          | 2.97                                                                  |                                                  |                                                  | 4.02                                                 |                                                      | 4.05                                               |
|                         | Strontium (Sr)-Dissolved (mg/L)       | 0.106                                                                 |                                                  |                                                  | 0.697                                                |                                                      | 0.699                                              |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1803696-21<br>Water<br>24-JUL-16<br>12:00<br>DUP2 | L1803696-22<br>Water<br>23-JUL-16<br>14:05<br>R1 | L1803696-23<br>Water<br>23-JUL-16<br>15:55<br>R2 | L1803696-24<br>Water<br>23-JUL-16<br>17:15<br>R8 | L1803696-25<br>Water<br>23-JUL-16<br>18:15<br>R9 |
|-----------------------------------------------------------------------|---------------------------------------|----------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                    |                                                  |                                                  |                                                  |                                                  |
| <b>WATER</b>                                                          |                                       |                                                    |                                                  |                                                  |                                                  |                                                  |
| <b>Total Metals</b>                                                   | Sulfur (S)-Total (mg/L)               |                                                    | 39.5                                             | 35.1                                             | 26.8                                             | 20.9                                             |
|                                                                       | Thallium (Tl)-Total (mg/L)            |                                                    | 0.000076                                         | 0.000044                                         | <0.000010                                        | 0.000062                                         |
|                                                                       | Tin (Sn)-Total (mg/L)                 |                                                    | <0.00010                                         | <0.00010                                         | <0.00010                                         | 0.00011                                          |
|                                                                       | Titanium (Ti)-Total (mg/L)            |                                                    | 0.115                                            | 0.111                                            | 0.00454                                          | 0.244                                            |
|                                                                       | Uranium (U)-Total (mg/L)              |                                                    | 0.00157                                          | 0.00243                                          | 0.000086                                         | 0.00104                                          |
|                                                                       | Vanadium (V)-Total (mg/L)             |                                                    | 0.0145                                           | 0.0141                                           | 0.00103                                          | 0.0274                                           |
|                                                                       | Zinc (Zn)-Total (mg/L)                |                                                    | 0.0413                                           | 0.0201                                           | 0.0041                                           | 0.0476                                           |
|                                                                       | Zirconium (Zr)-Total (mg/L)           |                                                    | 0.00134                                          | 0.00099                                          | 0.00067                                          | 0.00209                                          |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location |                                                    | FIELD                                            | FIELD                                            | FIELD                                            | FIELD                                            |
|                                                                       | Dissolved Metals Filtration Location  |                                                    | FIELD                                            | FIELD                                            | FIELD                                            | FIELD                                            |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        |                                                    | 0.0749                                           | 0.0941                                           | 0.0456                                           | 0.198                                            |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        |                                                    | 0.00026                                          | 0.00034                                          | 0.00105                                          | 0.00023                                          |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         |                                                    | 0.00067                                          | 0.00095                                          | 0.00043                                          | 0.00136                                          |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          |                                                    | 0.0509                                           | 0.0630                                           | 0.0499                                           | 0.0879                                           |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       |                                                    | <0.000020                                        | 0.000020                                         | <0.000020                                        | 0.000034                                         |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         |                                                    | <0.000050                                        | <0.000050                                        | <0.000050                                        | <0.000050                                        |
|                                                                       | Boron (B)-Dissolved (mg/L)            |                                                    | <0.010                                           | <0.010                                           | <0.010                                           | <0.010                                           |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         |                                                    | 0.0000465                                        | 0.0000131                                        | 0.0000318                                        | 0.0000361                                        |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         |                                                    | 55.1                                             | 39.9                                             | 33.1                                             | 32.2                                             |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        |                                                    | 0.00053                                          | 0.00103                                          | 0.00107                                          | 0.00145                                          |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          |                                                    | 0.00038                                          | 0.00036                                          | <0.00010                                         | 0.00082                                          |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          |                                                    | 0.00322                                          | 0.00219                                          | 0.00236                                          | 0.00521                                          |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            |                                                    | 0.292                                            | 0.503                                            | 0.083                                            | 0.985                                            |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            |                                                    | 0.000100                                         | 0.000076                                         | <0.000050                                        | 0.000132                                         |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         |                                                    | 0.0018                                           | 0.0035                                           | <0.0010                                          | <0.0010                                          |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       |                                                    | 19.8                                             | 30.4                                             | 12.4                                             | 10.8                                             |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       |                                                    | 0.0984                                           | 0.0971                                           | 0.00821                                          | 0.209                                            |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         |                                                    | 0.0000070                                        | <0.0000050                                       | <0.0000050                                       | 0.0000076                                        |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      |                                                    | 0.000831                                         | 0.000436                                         | 0.000680                                         | 0.000676                                         |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          |                                                    | 0.00328                                          | 0.00340                                          | 0.00354                                          | 0.00426                                          |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       |                                                    | <0.050                                           | <0.050                                           | <0.050                                           | <0.050                                           |
|                                                                       | Potassium (K)-Dissolved (mg/L)        |                                                    | 0.45                                             | 0.51                                             | <0.10                                            | 0.29                                             |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        |                                                    | 0.00160                                          | 0.000378                                         | 0.000790                                         | 0.000811                                         |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         |                                                    | 4.50                                             | 5.78                                             | 5.93                                             | 5.05                                             |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          |                                                    | <0.000010                                        | <0.000010                                        | <0.000010                                        | <0.000010                                        |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          |                                                    | 1.98                                             | 2.30                                             | 3.79                                             | 1.70                                             |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)       |                                                    | 0.216                                            | 0.191                                            | 0.128                                            | 0.109                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1803696-26<br>Water<br>24-JUL-16<br>08:50<br>SL |  |  |  |  |
|-----------------------------------------------------------------------|---------------------------------------|--------------------------------------------------|--|--|--|--|
| Grouping                                                              | Analyte                               |                                                  |  |  |  |  |
| <b>WATER</b>                                                          |                                       |                                                  |  |  |  |  |
| <b>Total Metals</b>                                                   | Sulfur (S)-Total (mg/L)               | 256                                              |  |  |  |  |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000016                                         |  |  |  |  |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                         |  |  |  |  |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.00103                                          |  |  |  |  |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00339                                          |  |  |  |  |
|                                                                       | Vanadium (V)-Total (mg/L)             | <0.00050                                         |  |  |  |  |
|                                                                       | Zinc (Zn)-Total (mg/L)                | <0.0030                                          |  |  |  |  |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | <0.00030                                         |  |  |  |  |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                            |  |  |  |  |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                            |  |  |  |  |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0018                                           |  |  |  |  |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00281                                          |  |  |  |  |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.0144                                           |  |  |  |  |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0279                                           |  |  |  |  |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                        |  |  |  |  |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                        |  |  |  |  |
|                                                                       | Boron (B)-Dissolved (mg/L)            | 0.041                                            |  |  |  |  |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000139                                        |  |  |  |  |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 230                                              |  |  |  |  |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00104                                          |  |  |  |  |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | <0.00010                                         |  |  |  |  |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00095                                          |  |  |  |  |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | <0.010                                           |  |  |  |  |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                        |  |  |  |  |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0102                                           |  |  |  |  |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 109                                              |  |  |  |  |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.00165                                          |  |  |  |  |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                       |  |  |  |  |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00170                                          |  |  |  |  |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.0170                                           |  |  |  |  |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                           |  |  |  |  |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 1.44                                             |  |  |  |  |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.0156                                           |  |  |  |  |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 3.47                                             |  |  |  |  |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                        |  |  |  |  |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 2.52                                             |  |  |  |  |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)       | 0.907                                            |  |  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1803696-1<br>Water<br>22-JUL-16<br>10:10<br>E1 | L1803696-2<br>Water<br>24-JUL-16<br>11:50<br>E1 | L1803696-3<br>Water<br>22-JUL-16<br>10:45<br>E1 (H) | L1803696-4<br>Water<br>24-JUL-16<br>11:10<br>E1 (H) | L1803696-5<br>Water<br>TRAVEL BLANK |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                     |                                                     |                                     |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                     |                                                     |                                     |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          | 52.1                                            |                                                 | 51.9                                                |                                                     |                                     |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       |                                                 | <0.000010                                           |                                                     |                                     |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        |                                                 | <0.00010                                            |                                                     |                                     |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00062                                         |                                                 | 0.00084                                             |                                                     |                                     |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00180                                         |                                                 | 0.00185                                             |                                                     |                                     |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                        |                                                 | <0.00050                                            |                                                     |                                     |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0018                                          |                                                 | 0.0013                                              |                                                     |                                     |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00068                                         |                                                 | 0.00071                                             |                                                     |                                     |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 |                                                     |                                                     |                                     |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00117                                         |                                                 |                                                     |                                                     |                                     |
|                                                                       | Hexavalent Chromium (mg/L)           | <0.0010                                         |                                                 |                                                     |                                                     |                                     |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 |                                                     |                                                     |                                     |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1803696-6<br>Water<br>21-JUL-16<br>17:15<br>E2 | L1803696-7<br>Water<br>24-JUL-16<br>12:10<br>E2 | L1803696-8<br>Water<br>21-JUL-16<br>15:15<br>E4 | L1803696-9<br>Water<br>24-JUL-16<br>12:40<br>E4 | L1803696-10<br>Water<br>22-JUL-16<br>15:15<br>E7 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          | 76.0                                            |                                                 | 82.3                                            |                                                 | 79.0                                             |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | 0.000023                                        |                                                 | 0.000020                                        |                                                 | <0.000010                                        |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        |                                                 | <0.00010                                        |                                                 | <0.00010                                         |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00049                                         |                                                 | 0.00045                                         |                                                 | 0.00069                                          |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00191                                         |                                                 | 0.00215                                         |                                                 | 0.00220                                          |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                        |                                                 | <0.00050                                        |                                                 | <0.00050                                         |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0031                                          |                                                 | 0.0030                                          |                                                 | 0.0078                                           |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00059                                         |                                                 | 0.00071                                         |                                                 | 0.00085                                          |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 |                                                 |                                                 |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                 |                                                 |                                                 |                                                 | 0.00779                                          |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                 |                                                 |                                                 |                                                 | <0.0010                                          |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 |                                                 |                                                 |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1803696-11<br>Water<br>24-JUL-16<br>13:10<br>E7 | L1803696-12<br>Water<br>22-JUL-16<br>17:10<br>E8 | L1803696-13<br>Water<br>24-JUL-16<br>13:00<br>E8 | L1803696-14<br>Water<br>21-JUL-16<br>13:45<br>R4 | L1803696-15<br>Water<br>24-JUL-16<br>12:45<br>R4 |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                  |                                                  |                                                  |                                                  |                                                  |
| <b>WATER</b>                                                          |                                      |                                                  |                                                  |                                                  |                                                  |                                                  |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          |                                                  | 9.61                                             |                                                  | 64.9                                             |                                                  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       |                                                  | <0.000010                                        |                                                  | <0.000010                                        |                                                  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            |                                                  | <0.00010                                         |                                                  | <0.00010                                         |                                                  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       |                                                  | 0.00147                                          |                                                  | 0.00036                                          |                                                  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         |                                                  | 0.000611                                         |                                                  | 0.00442                                          |                                                  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        |                                                  | 0.00103                                          |                                                  | <0.00050                                         |                                                  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           |                                                  | 0.0016                                           |                                                  | 0.0019                                           |                                                  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      |                                                  | 0.00073                                          |                                                  | 0.00087                                          |                                                  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                  |                                                  |                                                  |                                                  |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                  | 0.00495                                          |                                                  | 0.00398                                          |                                                  |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                  | <0.0010                                          |                                                  | <0.0010                                          |                                                  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                  |                                                  |                                                  |                                                  |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1803696-16<br>Water<br>22-JUL-16<br>18:20<br>R6 | L1803696-17<br>Water<br>24-JUL-16<br>13:30<br>R6 | L1803696-18<br>Water<br>22-JUL-16<br>08:30<br>GWCC-5 | L1803696-19<br>Water<br>24-JUL-16<br>12:00<br>GWCC-5 | L1803696-20<br>Water<br>22-JUL-16<br>08:30<br>DUP2 |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|--------------------------------------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                  |                                                  |                                                      |                                                      |                                                    |
| <b>WATER</b>                                                          |                                      |                                                  |                                                  |                                                      |                                                      |                                                    |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          | 8.67                                             |                                                  | 105                                                  |                                                      | 104                                                |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                        |                                                  | 0.000016                                             |                                                      | 0.000015                                           |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                         |                                                  | <0.00010                                             |                                                      | <0.00010                                           |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00148                                          |                                                  | <0.00030                                             |                                                      | <0.00030                                           |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.000574                                         |                                                  | 0.00230                                              |                                                      | 0.00228                                            |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00108                                          |                                                  | <0.00050                                             |                                                      | <0.00050                                           |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0030                                           |                                                  | <0.0010                                              |                                                      | <0.0010                                            |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00076                                          |                                                  | <0.00030                                             |                                                      | <0.00030                                           |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                  |                                                  |                                                      |                                                      |                                                    |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00505                                          |                                                  |                                                      |                                                      |                                                    |
|                                                                       | Hexavalent Chromium (mg/L)           | <0.0010                                          |                                                  |                                                      |                                                      |                                                    |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                  |                                                  |                                                      |                                                      |                                                    |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1803696-21<br>Water<br>24-JUL-16<br>12:00<br>DUP2 | L1803696-22<br>Water<br>23-JUL-16<br>14:05<br>R1 | L1803696-23<br>Water<br>23-JUL-16<br>15:55<br>R2 | L1803696-24<br>Water<br>23-JUL-16<br>17:15<br>R8 | L1803696-25<br>Water<br>23-JUL-16<br>18:15<br>R9 |
|-----------------------------------------------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                    |                                                  |                                                  |                                                  |                                                  |
| <b>WATER</b>                                                          |                                      |                                                    |                                                  |                                                  |                                                  |                                                  |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          |                                                    | 39.4                                             | 34.5                                             | 27.3                                             | 20.1                                             |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       |                                                    | <0.000010                                        | <0.000010                                        | <0.000010                                        | <0.000010                                        |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            |                                                    | <0.00010                                         | <0.00010                                         | <0.00010                                         | <0.00010                                         |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       |                                                    | 0.00160                                          | 0.00198                                          | 0.00079                                          | 0.00395                                          |
|                                                                       | Uranium (U)-Dissolved (mg/L)         |                                                    | 0.00109                                          | 0.00193                                          | 0.000061                                         | 0.000448                                         |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        |                                                    | <0.00050                                         | 0.00117                                          | <0.00050                                         | 0.00154                                          |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           |                                                    | 0.0018                                           | 0.0015                                           | 0.0019                                           | 0.0022                                           |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      |                                                    | 0.00120                                          | 0.00098                                          | 0.00067                                          | 0.00162                                          |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                    |                                                  | <0.00042                                         | 0.00107                                          | 0.00045                                          |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                    | 0.0139                                           | 0.00993                                          | 0.00155                                          | 0.0183                                           |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                    | <0.0010                                          | 0.0011                                           | <0.0010                                          | 0.0011                                           |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                    |                                                  | 0.0010                                           | <0.0010                                          | 0.0010                                           |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1803696-26<br>Water<br>24-JUL-16<br>08:50<br>SL |  |  |  |  |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|--|--|--|--|
| Grouping                                                              | Analyte                              |                                                  |  |  |  |  |
| <b>WATER</b>                                                          |                                      |                                                  |  |  |  |  |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          | 245                                              |  |  |  |  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | 0.000015                                         |  |  |  |  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                         |  |  |  |  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | <0.00030                                         |  |  |  |  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00313                                          |  |  |  |  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                         |  |  |  |  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | <0.0010                                          |  |  |  |  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | <0.00030                                         |  |  |  |  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      | <0.00042                                         |  |  |  |  |
|                                                                       | Chromium (III)-Total (mg/L)          | <0.00076                                         |  |  |  |  |
|                                                                       | Hexavalent Chromium (mg/L)           | 0.0018                                           |  |  |  |  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) | 0.0016                                           |  |  |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## Reference Information

## QC Samples with Qualifiers &amp; Comments:

| QC Type Description | Parameter                 | Qualifier | Applies to Sample Number(s)                                                   |
|---------------------|---------------------------|-----------|-------------------------------------------------------------------------------|
| Matrix Spike        | Copper (Cu)-Dissolved     | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Manganese (Mn)-Dissolved  | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Dissolved Organic Carbon  | MS-B      | L1803696-1, -10, -14, -18, -20, -26, -3, -6, -8                               |
| Matrix Spike        | Barium (Ba)-Dissolved     | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Manganese (Mn)-Dissolved  | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Sodium (Na)-Dissolved     | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Calcium (Ca)-Dissolved    | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Silicon (Si)-Dissolved    | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Calcium (Ca)-Total        | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |
| Matrix Spike        | Magnesium (Mg)-Total      | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |
| Matrix Spike        | Silicon (Si)-Total        | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |
| Matrix Spike        | Sulfur (S)-Total          | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |
| Matrix Spike        | Dissolved Organic Carbon  | MS-B      | L1803696-12, -16, -22, -23, -24, -25                                          |
| Matrix Spike        | Antimony (Sb)-Total       | MS-B      | L1803696-18, -20, -22, -23                                                    |
| Matrix Spike        | Arsenic (As)-Total        | MS-B      | L1803696-18, -20, -22, -23                                                    |
| Matrix Spike        | Boron (B)-Total           | MS-B      | L1803696-18, -20, -22, -23                                                    |
| Matrix Spike        | Sodium (Na)-Total         | MS-B      | L1803696-18, -20, -22, -23                                                    |
| Matrix Spike        | Strontium (Sr)-Total      | MS-B      | L1803696-18, -20, -22, -23                                                    |
| Matrix Spike        | Uranium (U)-Total         | MS-B      | L1803696-18, -20, -22, -23                                                    |
| Matrix Spike        | Antimony (Sb)-Dissolved   | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Barium (Ba)-Dissolved     | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Boron (B)-Dissolved       | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Manganese (Mn)-Dissolved  | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Molybdenum (Mo)-Dissolved | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Sodium (Na)-Dissolved     | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1803696-1, -10, -12, -14, -16, -18, -20, -22, -23, -24, -25, -26, -3, -6, -8 |
| Matrix Spike        | Barium (Ba)-Total         | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |
| Matrix Spike        | Manganese (Mn)-Total      | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |
| Matrix Spike        | Sodium (Na)-Total         | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |
| Matrix Spike        | Strontium (Sr)-Total      | MS-B      | L1803696-1, -10, -12, -14, -16, -24, -25, -26, -3, -5, -6, -8                 |

## Qualifiers for Individual Parameters Listed:

| Qualifier | Description                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------|
| DLDS      | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.      |
| DLM       | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.     |
| RRV       | Reported Result Verified By Repeat Analysis                                                            |

## Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---------------|--------|------------------|--------------------|
|---------------|--------|------------------|--------------------|

## Reference Information

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                          |                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------|---------------------------------------|
| <b>BE-D-L-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Diss. Be (low) in Water by CRC ICPMS     | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |
| <b>BE-T-L-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Total Be (Low) in Water by CRC ICPMS     | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Dissolved organic carbon by combustion   | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.                                                                                                                                                                                                                                                      |       |                                          |                                       |
| <b>CR-CR3-DIS-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Dissolved Trivalent Chromium in Water    | CALCULATION                           |
| Chromium (III)-Dissolved is calculated as the difference between the dissolved chromium and the dissolved hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                                                 |       |                                          |                                       |
| <b>CR-CR3-TOT-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Total Trivalent Chromium in Water        | CALCULATION                           |
| Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                                                                   |       |                                          |                                       |
| <b>CR-CR6-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Chromium, Hexavalent (Cr +6)             | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.                                             |       |                                          |                                       |
| Results are based on an un-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                       |
| <b>CR6-D-IC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | Chromium, Dissolved Hexavalent (Cr +6)   | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.                                             |       |                                          |                                       |
| Results are based on a field-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                       |
| <b>EC-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Conductivity (Automated)                 | APHA 2510 Auto. Conduc.               |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                       |
| <b>HARDNESS-CALC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Water | Hardness                                 | APHA 2340B                            |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                                                                |       |                                          |                                       |
| <b>HG-D-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod)            |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                     |       |                                          |                                       |
| <b>HG-T-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod)                       |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                       |
| <b>MET-D-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Water | Dissolved Metals in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |
| <b>MET-DIS-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Dissolved Metals in Water by ICPOES      | EPA 3005A/6010B                       |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). |       |                                          |                                       |
| <b>MET-T-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Water | Total Metals in Water by CRC ICPMS       | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |



## Reference Information

**MET-TOT-LOW-ICP-VA**      Water      Total Metals in Water by ICPOES      EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**NH3-F-VA**      Water      Ammonia in Water by Fluorescence      APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NH3-F-VA**      Water      Ammonia in Water by Fluorescence      J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NO2-L-IC-N-WR**      Water      Nitrite in Water by IC (Low Level)      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**NO3-L-IC-N-WR**      Water      Nitrate in Water by IC (Low Level)      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**P-T-PRES-COL-VA**      Water      Total P in Water by Colour      APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

**PH-PCT-VA**      Water      pH by Meter (Automated)      APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PH-PCT-VA**      Water      pH by Meter (Automated)      APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**S-DIS-ICP-VA**      Water      Dissolved Sulfur in Water by ICPOES      EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**S-TOT-ICP-VA**      Water      Total Sulfur in Water by ICPOES      EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**SO4-IC-N-WR**      Water      Sulfate in Water by IC      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|----------------------------|---------------------|
|----------------------------|---------------------|

ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

## Reference Information

|    |                                                         |
|----|---------------------------------------------------------|
| ED | WR                                                      |
|    | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA           |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

### Chain of Custody Numbers:

|   |   |   |
|---|---|---|
| 1 | 2 | 3 |
|---|---|---|

### GLOSSARY OF REPORT TERMS

*Surrogate* - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

*mg/kg* - milligrams per kilogram based on dry weight of sample.

*mg/kg ww* - milligrams per kilogram based on wet weight of sample.

*mg/kg lwt* - milligrams per kilogram based on lipid-adjusted weight of sample.

*mg/L* - milligrams per litre.

*<* - Less than.

*D.L.* - The reported Detection Limit, also known as the Limit of Reporting (LOR).

*N/A* - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



04-Aug-2016

Brent Mack  
ALS Environmental  
8081 Lougheed HWY  
Suite 100  
Burnaby, BC V5A1W9

Tel: (604) 253-4188  
Fax:

Re: L1803696

Work Order: **1607863**

Dear Brent,

ALS Environmental received 16 samples on 28-Jul-2016 11:40 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 21.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Shawn Smythe

Shawn Smythe  
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, Ohio 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

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Environmental

**www.alsglobal.com**

RIGHT SOLUTIONS RIGHT PARTNER

## ALS Environmental

Date: 04-Aug-16

**Client:** ALS Environmental  
**Project:** L1803696  
**Work Order:** 1607863

### Work Order Sample Summary

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1607863-01         | L1803696-1 E1           | Water         |                   | 7/22/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-02         | L1803696-3 E1 (H)       | Water         |                   | 7/22/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-03         | L1803696-5 TRAVEL BANK  | Water         |                   | 7/25/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-04         | L1803696-6 E2           | Water         |                   | 7/21/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-05         | L1803696-8 E4           | Water         |                   | 7/21/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-06         | L1803696-10 E7          | Water         |                   | 7/22/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-07         | L1803696-12 E8          | Water         |                   | 7/22/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-08         | L1803696-14 R4          | Water         |                   | 7/21/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-09         | L1803696-16 R6          | Water         |                   | 7/22/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-10         | L1803696-18 GWCC-5      | Water         |                   | 7/22/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-11         | L1803696-20 DUP2        | Water         |                   | 7/22/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-12         | L1803696-22 R1          | Water         |                   | 7/23/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-13         | L1803696-23 R2          | Water         |                   | 7/23/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-14         | L1803696-24 R8          | Water         |                   | 7/23/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-15         | L1803696-25 R9          | Water         |                   | 7/23/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |
| 1607863-16         | L1803696-26 SL          | Water         |                   | 7/24/2016              | 7/28/2016 11:40      | <input type="checkbox"/> |

## ALS Environmental

Date: 04-Aug-16

---

**Client:** ALS Environmental

**Project:** L1803696

**Work Order:** 1607863

### Case Narrative

---

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-1 E1

Lab ID: 1607863-01

Collection Date: 7/22/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 2.6    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:



## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-3 E1 (H)

Lab ID: 1607863-02

Collection Date: 7/22/2016

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.5             | mg/L  | 1                  | 7/29/2016           |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-5 TRAVEL BANK

Lab ID: 1607863-03

Collection Date: 7/25/2016

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.5             | mg/L  | 1                  | 7/29/2016           |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-6 E2

Lab ID: 1607863-04

Collection Date: 7/21/2016

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.5             | mg/L  | 1                  | 7/29/2016           |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-8 E4

Lab ID: 1607863-05

Collection Date: 7/21/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 2.8    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-10 E7

Lab ID: 1607863-06

Collection Date: 7/22/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 92     |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Sample ID: L1803696-12 E8

Collection Date: 7/22/2016

Work Order: 1607863

Lab ID: 1607863-07

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 96     |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:



## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Sample ID: L1803696-14 R4

Collection Date: 7/21/2016

Work Order: 1607863

Lab ID: 1607863-08

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 67     |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-16 R6

Lab ID: 1607863-09

Collection Date: 7/22/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 100    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-18 GWCC-5

Lab ID: 1607863-10

Collection Date: 7/22/2016

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.5             | mg/L  | 1                  | 7/29/2016           |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Sample ID: L1803696-20 DUP2

Collection Date: 7/22/2016

Work Order: 1607863

Lab ID: 1607863-11

Matrix: WATER

| Analyses                                  | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS BY SM2540 D</b> |        |      | <b>SM2540 D</b> |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids                    | ND     |      | 2.5             | mg/L  | 1                  | 7/29/2016           |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Sample ID: L1803696-22 R1

Collection Date: 7/23/2016

Work Order: 1607863

Lab ID: 1607863-12

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 280    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Sample ID: L1803696-23 R2

Collection Date: 7/23/2016

Work Order: 1607863

Lab ID: 1607863-13

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 150    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:



## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Sample ID: L1803696-24 R8

Collection Date: 7/23/2016

Work Order: 1607863

Lab ID: 1607863-14

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 6.3    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Work Order: 1607863

Sample ID: L1803696-25 R9

Lab ID: 1607863-15

Collection Date: 7/23/2016

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 400    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

Client: ALS Environmental

Project: L1803696

Sample ID: L1803696-26 SL

Collection Date: 7/24/2016

Work Order: 1607863

Lab ID: 1607863-16

Matrix: WATER

| Analyses                           | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------|-------|--------------------|---------------|
| <hr/>                              |        |      |                 |       |                    |               |
| TOTAL SUSPENDED SOLIDS BY SM2540 D |        |      | SM2540 D        |       |                    | Analyst: rmb  |
| Total suspended solids             | 6.4    |      | 2.5             | mg/L  | 1                  | 7/29/2016     |

Note:

## ALS Environmental

Date: 04-Aug-16

**Client:** ALS Environmental  
**Project:** L1803696  
**WorkOrder:** 1607863

## QUALIFIERS, ACRONYMS, UNITS

| <u>Qualifier</u> | <u>Description</u>                                                        |
|------------------|---------------------------------------------------------------------------|
| *                | Value exceeds Regulatory Limit                                            |
| a                | Not accredited                                                            |
| B                | Analyte detected in the associated Method Blank above the Reporting Limit |
| E                | Value above quantitation range                                            |
| H                | Analyzed outside of Holding Time                                          |
| J                | Analyte detected below quantitation limit                                 |
| n                | Not offered for accreditation                                             |
| ND               | Not Detected at the Reporting Limit                                       |
| O                | Sample amount is > 4 times amount spiked                                  |
| P                | Dual Column results percent difference > 40%                              |
| R                | RPD above laboratory control limit                                        |
| S                | Spike Recovery outside laboratory control limits                          |
| U                | Analyzed but not detected above the MDL                                   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| E              | EPA Method                          |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MQL            | Method Quantitation Limit           |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PDS            | Post Digestion Spike                |
| PQL            | Practical Quantitation Limit        |
| SDL            | Sample Detection Limit              |
| SW             | SW-846 Method                       |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| %                     |                    |
| mg/L                  |                    |

## Sample Receipt Checklist

Client Name: **ALS-VANCOUVER**

Date/Time Received: **28-Jul-16 11:40**

Work Order: **1607863**

Received by: **RDN**

Checklist completed by: **L eanna F ischer**

28-Jul-16

Reviewed by: **Shawn Smythe**

01-Aug-16

eSignature

Date

eSignature

Date

Matrices:

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

8.4

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☐

pH adjusted by:

-

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Contact: Brent Mack  
Company: ALS Environmental  
Address: 8081 Lougheed HWY, Suite 100  
Burnaby, BC V5A1W9

## REFERENCE DATA

---

Project / Location: L1803696

PO Number: L1803696

ALS Work Order: 1607863

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

NELAC accredited through New York ELAP, LAB #11371

## TEM ANALYSIS DATA

---

EDXA Resolution (eV): <175

Accelerating Voltage (keV): 100

Prep Start Date: 7/29/2016

Calibration Constant (µm/cm): 0.74

Camera Constant (mm-Å): 129.25

Analysis Start Date: 8/1/2016

*Pamela Johnson*

Pamela Johnson  
ALS TEM Analyst

*Shawn Smythe*

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*

## IDENTIFICATION

|                     |               |                   |
|---------------------|---------------|-------------------|
| Client Sample ID:   | L1803696-6 E2 | L1803696-22<br>R1 |
| ALS Sample ID:      | 1607863-04    | 1607863-12        |
| Method:             | EPA 100.2     | EPA 100.2         |
| Date of Collection: | 7/21/2016     | 7/23/2016         |
| Time of Collection: | 11:40         | 11:40             |

## FILTRATION & ANALYSIS

|                                       |           |           |
|---------------------------------------|-----------|-----------|
| Date of Filtration:                   | 7/29/2016 | 7/29/2016 |
| Time of Filtration:                   | 10:00     | 10:00     |
| Volume Filtered (L):                  | 0.02      | 0.001     |
| Openings Analyzed:                    | 10        | 10        |
| Avg. Opening Area (mm <sup>2</sup> ): | 0.0108    | 0.0108    |
| AS (MFL):                             | 0.50      | 9.95      |

## ASBESTOS COUNT

|                              |   |   |
|------------------------------|---|---|
| Chrysotile:                  | 2 | 0 |
| Amosite:                     | 0 | 0 |
| Crocidolite:                 | 0 | 0 |
| Act-Tremolite <sup>†</sup> : | 0 | 0 |
| Anthophyllite:               | 0 | 0 |
| Total Asbestos:              | 2 | 0 |

## ASBESTOS CONCENTRATION (MFL)

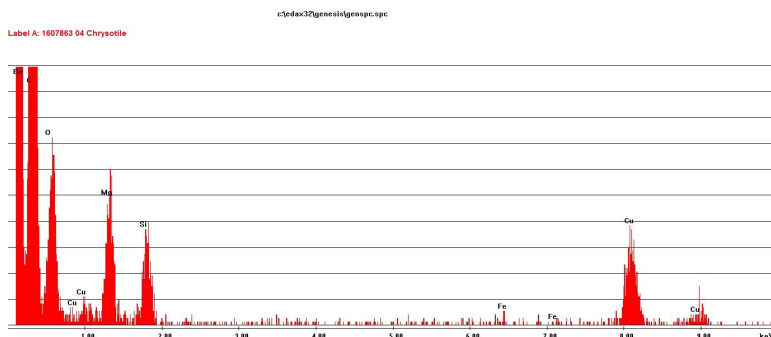
|                              |             |               |
|------------------------------|-------------|---------------|
| Chrysotile:                  | 1.00        | <AS           |
| Amosite:                     | <AS         | <AS           |
| Crocidolite:                 | <AS         | <AS           |
| Act-Tremolite <sup>†</sup> : | <AS         | <AS           |
| Anthophyllite:               | <AS         | <AS           |
| <b>Total Asbestos:</b>       | <b>1.00</b> | <b>&lt;AS</b> |

## NOTES

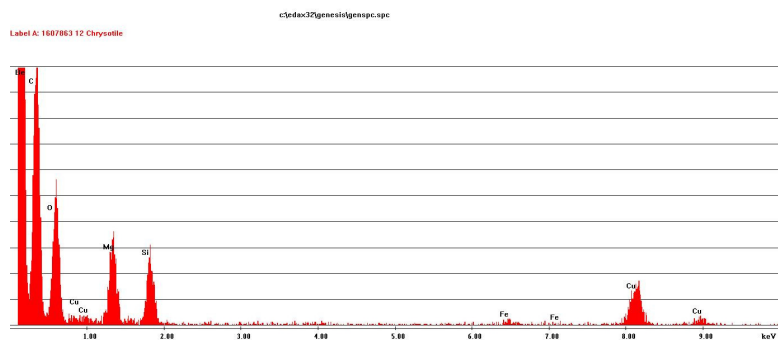
Both samples contained an extremely high concentration of suspended solids, primarily organic material, which prohibited filtration of sufficient volume to reach the method recommended AS of <0.20 MFL. In addition, both samples contained chrysotile asbestos fibers that were too short to be counted by this method.

## EDXA SPECTRA

NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.

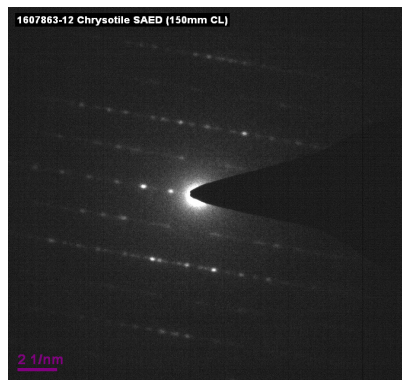
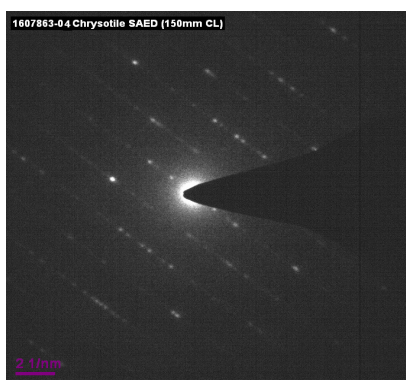






## PHOTOMICROGRAPHS

Collected using Gatan Digital Micrograph.





**ALS Environmental**

www.alsglobal.com

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1803696-COFC

COC Number: 1

Page 1 of 3

| Report To                                                                                                            |                                                                                          | Report Format / D                                                                                                                                         |                 |             | sh Turnaround Time (TAT) is not available for all tests)                                                                                            |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------|------------------|----------|------------------|-----------------|------------------------|----------------------|--|--|
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          | Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) |                 |             | R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)                                                    |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Contact: Natasha Sandys                                                                                              |                                                                                          | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                               |                 |             | P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT                                   |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                          | <input type="checkbox"/> Criteria on Report - provide details below if box checked                                                                        |                 |             | E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT                                 |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Phone: 867-456-4865                                                                                                  |                                                                                          | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX                                 |                 |             | E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge                                                |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
|                                                                                                                      |                                                                                          | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |                 |             | Specify Date Required for E2, E or P:                                                                                                               |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
|                                                                                                                      |                                                                                          | Email 2 chris@elr.ca                                                                                                                                      |                 |             | Analysis Request                                                                                                                                    |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                     |                                                                                          | Invoice Distribution                                                                                                                                      |                 |             | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                          |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                          | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX              |                 |             |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |                 |             |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Contact: Natasha Sandys                                                                                              |                                                                                          | Email 2 chris@elr.ca                                                                                                                                      |                 |             |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Project Information                                                                                                  |                                                                                          | Oil and Gas Required Fields (client use)                                                                                                                  |                 |             |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| ALS Quote #: Q56044                                                                                                  |                                                                                          | Approver ID:                                                                                                                                              |                 |             | Cost Center:                                                                                                                                        |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| Job #: 1343-005.17                                                                                                   |                                                                                          | GL Account:                                                                                                                                               |                 |             | Routing Code:                                                                                                                                       |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| PO / AFE:                                                                                                            |                                                                                          | Activity Code:                                                                                                                                            |                 |             |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| LSD:                                                                                                                 |                                                                                          | Location:                                                                                                                                                 |                 |             |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                          | ALS Contact:                                                                                                                                              |                 |             | Sampler:                                                                                                                                            |                                            |                                      | AN/CH                                    |             |                                                                                                                                                                                                                                                                                                                                  |           |             |                  |          |                  |                 |                        |                      |  |  |
| ALS Sample #<br>(lab use only)                                                                                       | Sample Identification and/or Coordinates<br>(This description will appear on the report) | Date<br>(dd-mmm-yy)                                                                                                                                       | Time<br>(hh:mm) | Sample Type | Low Level Dis. Met (incl. Hg) and Hardness                                                                                                          | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total | Chromium Speciation (III/VI) - Dissolved | Ammonia - N | Dissolved Organic Carbon (DOC)                                                                                                                                                                                                                                                                                                   | Nitrate-N | Nitrite - N | Total Phosphorus | Sulphate | pH, Conductivity | Asbestos-TEM-AD | Total Suspended Solids | Number of Containers |  |  |
| E1                                                                                                                   |                                                                                          | 22-Jul-16                                                                                                                                                 | 10:10           | Water       | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                                                                                                                                                                                                |           |             |                  |          |                  |                 | R                      | 9                    |  |  |
| E1                                                                                                                   |                                                                                          | 24-Jul-16                                                                                                                                                 | 11:50           | Water       |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  | R         | R           | R                | R        | R                |                 |                        | 1                    |  |  |
| E1(H)                                                                                                                |                                                                                          | 22-Jul-16                                                                                                                                                 | 10:45           | Water       | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                                                                                                                                                                                                |           |             |                  |          |                  |                 | R                      | 9                    |  |  |
| E1(H)                                                                                                                |                                                                                          | 24-Jul-16                                                                                                                                                 | 11:10           | Water       |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  | R         | R           | R                | R        | R                |                 |                        | 1                    |  |  |
| Travel Blank                                                                                                         |                                                                                          |                                                                                                                                                           |                 | Water       |                                                                                                                                                     | R                                          |                                      |                                          | R           | R                                                                                                                                                                                                                                                                                                                                | R         | R           | R                | R        | R                |                 | R                      | 7                    |  |  |
| E2                                                                                                                   |                                                                                          | 21-Jul-16                                                                                                                                                 | 17:15           | Water       | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                                                                                                                                                                                                |           |             |                  |          |                  | R               | R                      | 10                   |  |  |
| E2                                                                                                                   |                                                                                          | 24-Jul-16                                                                                                                                                 | 12:10           | Water       |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  | R         | R           | R                | R        | R                |                 |                        | 1                    |  |  |
| E4                                                                                                                   |                                                                                          | 21-Jul-16                                                                                                                                                 | 15:15           | Water       | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                                                                                                                                                                                                |           |             |                  |          |                  |                 | R                      | 9                    |  |  |
| E4                                                                                                                   |                                                                                          | 24-Jul-16                                                                                                                                                 | 12:40           | Water       |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  | R         | R           | R                | R        | R                |                 |                        | 1                    |  |  |
| E7                                                                                                                   |                                                                                          | 22-Jul-16                                                                                                                                                 | 15:15           | Water       | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                                                                                                                                                                                                |           |             |                  |          |                  |                 | R                      | 9                    |  |  |
| E7                                                                                                                   |                                                                                          | 24-Jul-16                                                                                                                                                 | 13:10           | Water       |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                                                                                                                                                                                                  | R         | R           | R                | R        | R                |                 |                        | 1                    |  |  |
| E8                                                                                                                   |                                                                                          | 22-Jul-16                                                                                                                                                 | 17:10           | Water       | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                                                                                                                                                                                                |           |             |                  |          |                  |                 | R                      | 9                    |  |  |
| Drinking Water (DW) Samples <sup>1</sup> (client use)                                                                |                                                                                          |                                                                                                                                                           |                 |             | Special Instructions / Specify Criteria to add on report (client Use)                                                                               |                                            |                                      |                                          |             | SAMPLE CONDITION AS RECEIVED (lab use only)                                                                                                                                                                                                                                                                                      |           |             |                  |          |                  |                 |                        |                      |  |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                          |                                                                                                                                                           |                 |             | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results. |                                            |                                      |                                          |             | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/><br>Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/><br>Cooling Initiated <input checked="" type="checkbox"/> |           |             |                  |          |                  |                 |                        |                      |  |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                          |                                                                                                                                                           |                 |             |                                                                                                                                                     |                                            |                                      |                                          |             | INITIAL COOLER TEMPERATURES °C: 1.0 1.0 3.0 FINAL COOLER TEMPERATURES °C:                                                                                                                                                                                                                                                        |           |             |                  |          |                  |                 |                        |                      |  |  |
| SHIPMENT RELEASE (client use)                                                                                        |                                                                                          |                                                                                                                                                           |                 |             | INITIAL SHIPMENT RECEPTION (lab use only)                                                                                                           |                                            |                                      |                                          |             | FINAL SHIPMENT RECEPTION (lab use only)                                                                                                                                                                                                                                                                                          |           |             |                  |          |                  |                 |                        |                      |  |  |
| Released by: Date: Time:                                                                                             |                                                                                          |                                                                                                                                                           |                 |             | Received by: Date: 26-Jul-16 Time: 10:15                                                                                                            |                                            |                                      |                                          |             | Received by: Sarah Date: July 27 Time: 11:35                                                                                                                                                                                                                                                                                     |           |             |                  |          |                  |                 |                        |                      |  |  |

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

8/4°C



**ALS Environmental**

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# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1803696-COFC

COC Number: 1

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| Report To                                                                                                            |                                                                                          | Report Format                                                                                                                                             |                 | (Rush Turnaround Time (TAT) is not available for all tests)                                                                                     |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------|-------------|--------------------------------|-------------|--------------|------------------|----------|-------------------------------------|-----------------|------------------------------|----------------------|--|
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          | Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) |                 | R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)                                                |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Contact: Natasha Sandys                                                                                              |                                                                                          | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                               |                 | P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                          | <input type="checkbox"/> Criteria on Report - provide details below if box checked                                                                        |                 | E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT                             |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Phone: 867-456-4865                                                                                                  |                                                                                          | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX                                 |                 | E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge                                            |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
|                                                                                                                      |                                                                                          | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |                 | Specify Date Required for E2,E or P:                                                                                                            |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
|                                                                                                                      |                                                                                          | Email 2 chris@elr.ca                                                                                                                                      |                 | Analysis Request                                                                                                                                |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                     |                                                                                          | Invoice Distribution                                                                                                                                      |                 | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                      |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                          | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX              |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Contact: Natasha Sandys                                                                                              |                                                                                          | Email 2 chris@elr.ca                                                                                                                                      |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Project Information                                                                                                  |                                                                                          | Oil and Gas Required Fields (client use)                                                                                                                  |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| ALS Quote #: Q56044                                                                                                  |                                                                                          | Approver ID:                                                                                                                                              |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Job #: 1343-005.18                                                                                                   |                                                                                          | GL Account:                                                                                                                                               |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| PO / AFE:                                                                                                            |                                                                                          | Routing Code:                                                                                                                                             |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| LSD:                                                                                                                 |                                                                                          | Activity Code:                                                                                                                                            |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                          | ALS Contact:                                                                                                                                              |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
|                                                                                                                      |                                                                                          | Sampler: AN/CH                                                                                                                                            |                 | F/P P P F/P P F/P                                                                                                                               |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| ALS Sample #<br>(lab use only)                                                                                       | Sample Identification and/or Coordinates<br>(This description will appear on the report) | Date<br>(dd-mm-yy)                                                                                                                                        | Time<br>(hh:mm) | Sample Type                                                                                                                                     | Low Level Diss. Met (incl. Hg) and Hardness | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total | Chromium Speciation (III/VI) - Dissolved | Ammonia - N | Dissolved Organic Carbon (DOC) | Nitrate - N | Nitrite - N  | Total Phosphorus | Sulphate | pH, Conductivity, Total Susp Solids | Asbestos-TEM-AD | Total Suspended Solids (TSS) | Number of Containers |  |
| E8                                                                                                                   |                                                                                          | 24-Jul-16                                                                                                                                                 | 13:00           | Water                                                                                                                                           |                                             |                                            |                                      |                                          |             |                                | R           | R            | R                | R        | R                                   |                 |                              | 1                    |  |
| R4                                                                                                                   |                                                                                          | 21-Jul-16                                                                                                                                                 | 13:45           | Water                                                                                                                                           | R                                           | R                                          |                                      |                                          | R           | R                              |             |              |                  |          |                                     |                 | R                            | 9                    |  |
| R4                                                                                                                   |                                                                                          | 24-Jul-16                                                                                                                                                 | 12:45           | Water                                                                                                                                           |                                             |                                            |                                      |                                          |             |                                | R           | R            | R                | R        | R                                   |                 |                              | 1                    |  |
| R6                                                                                                                   |                                                                                          | 22-Jul-16                                                                                                                                                 | 18:20           | Water                                                                                                                                           | R                                           | R                                          |                                      |                                          | R           | R                              |             |              |                  |          |                                     |                 | R                            | 9                    |  |
| R6                                                                                                                   |                                                                                          | 24-Jul-16                                                                                                                                                 | 13:30           | Water                                                                                                                                           |                                             |                                            |                                      |                                          |             |                                | R           | R            | R                | R        | R                                   |                 |                              | 1                    |  |
| GWCC-5                                                                                                               |                                                                                          | 22-Jul-16                                                                                                                                                 | 8:30            | Water                                                                                                                                           | R                                           | R                                          |                                      |                                          | R           | R                              |             |              |                  |          |                                     |                 | R                            | 9                    |  |
| GWCC-5                                                                                                               |                                                                                          | 24-Jul-16                                                                                                                                                 | 12:00           | Water                                                                                                                                           |                                             |                                            |                                      |                                          |             |                                | R           | R            | R                | R        | R                                   |                 |                              | 1                    |  |
| Dup 2                                                                                                                |                                                                                          | 22-Jul-16                                                                                                                                                 | 8:30            | Water                                                                                                                                           | R                                           | R                                          |                                      |                                          | R           | R                              |             |              |                  |          |                                     |                 | R                            | 9                    |  |
| Dup 2                                                                                                                |                                                                                          | 24-Jul-16                                                                                                                                                 | 12:00           | Water                                                                                                                                           |                                             |                                            |                                      |                                          |             |                                | R           | R            | R                | R        | R                                   |                 |                              | 1                    |  |
| R1                                                                                                                   |                                                                                          | 23-Jul-16                                                                                                                                                 | 14:05           | Water                                                                                                                                           | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R            | R                | R        | R                                   | R               | R                            | 11                   |  |
| R2                                                                                                                   |                                                                                          | 23-Jul-16                                                                                                                                                 | 15:55           | Water                                                                                                                                           | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R            | R                | R        | R                                   |                 | R                            | 10                   |  |
| R8                                                                                                                   |                                                                                          | 23-Jul-16                                                                                                                                                 | 17:15           | Water                                                                                                                                           | R                                           | R                                          |                                      |                                          | R           | R                              | R           | R            | R                | R        | R                                   |                 | R                            | 10                   |  |
| Drinking Water (DW) Samples <sup>1</sup> (client use)                                                                |                                                                                          | Special Instructions / Specify Criteria to add on report (client Use)                                                                                     |                 | SAMPLE CONDITION AS RECEIVED (lab use only)                                                                                                     |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                          | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results.       |                 | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                       |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                                  |                                                                                          |                                                                                                                                                           |                 | Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                          |                                                                                                                                                           |                 | Cooling initiated <input type="checkbox"/>                                                                                                      |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
|                                                                                                                      |                                                                                          |                                                                                                                                                           |                 | INITIAL COOLER TEMPERATURES °C FINAL COOLER TEMPERATURES °C                                                                                     |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
|                                                                                                                      |                                                                                          |                                                                                                                                                           |                 |                                                                                                                                                 |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| SHIPMENT RELEASE (client use)                                                                                        |                                                                                          | INITIAL SHIPMENT RECEPTION (lab use only)                                                                                                                 |                 | FINAL SHIPMENT RECEPTION (lab use only)                                                                                                         |                                             |                                            |                                      |                                          |             |                                |             |              |                  |          |                                     |                 |                              |                      |  |
| Released by:                                                                                                         |                                                                                          | Date:                                                                                                                                                     |                 | Time:                                                                                                                                           |                                             | Received by:                               |                                      | Date:                                    |             | Time:                          |             | Received by: |                  | Date:    |                                     | Time:           |                              |                      |  |
|                                                                                                                      |                                                                                          |                                                                                                                                                           |                 |                                                                                                                                                 |                                             | Sorel                                      |                                      | 27                                       |             | 11:35                          |             |              |                  |          |                                     |                 |                              |                      |  |

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NA-FM-0126a v03 FROM 04 JANUARY 2014

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

8/40C



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COC Number: 1

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|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|----------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------|--|-------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------|--|----------------|--|--------------|---|-------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|--|---|----|
| Report To                                                                                                            |  |                                                                                          |  |       |  | Rush Turnaround Time (TAT) is not available for all tests                                                                                                 |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Company: Hemmera Environchem Inc.                                                                                    |  |                                                                                          |  |       |  | Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Contact: Natasha Sandys                                                                                              |  |                                                                                          |  |       |  | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                               |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |  |                                                                                          |  |       |  | <input type="checkbox"/> Criteria on Report - provide details below if box checked                                                                        |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Phone: 867-456-4865                                                                                                  |  |                                                                                          |  |       |  | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX                                 |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  | Email 2 chris@elr.ca                                                                                                                                      |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                     |  |                                                                                          |  |       |  | Invoice Distribution                                                                                                                                      |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |  |                                                                                          |  |       |  | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX              |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Company: Hemmera Environchem Inc.                                                                                    |  |                                                                                          |  |       |  | Email 1 or Fax nsandys@hemmera.com                                                                                                                        |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Contact: Natasha Sandys                                                                                              |  |                                                                                          |  |       |  | Email 2 chris@elr.ca                                                                                                                                      |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Project Information                                                                                                  |  |                                                                                          |  |       |  | Oil and Gas Required Fields (client use)                                                                                                                  |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| ALS Quote #: Q56044                                                                                                  |  |                                                                                          |  |       |  | Approver ID:                                                                                                                                              |  |                 |  | Cost Center:   |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Job #: 1343-005.18                                                                                                   |  |                                                                                          |  |       |  | GL Account:                                                                                                                                               |  |                 |  | Routing Code:  |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| PO / AFE:                                                                                                            |  |                                                                                          |  |       |  | Activity Code:                                                                                                                                            |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| LSD:                                                                                                                 |  |                                                                                          |  |       |  | Location:                                                                                                                                                 |  |                 |  |                |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| ALS Lab Work Order # (lab use only)                                                                                  |  |                                                                                          |  |       |  | ALS Contact:                                                                                                                                              |  |                 |  | Sampler: AN/CH |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| ALS Sample #<br>(lab use only)                                                                                       |  | Sample Identification and/or Coordinates<br>(This description will appear on the report) |  |       |  | Date<br>(dd-mm-yy)                                                                                                                                        |  | Time<br>(hh:mm) |  | Sample Type    |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  | R9                                                                                       |  |       |  | 23-Jul-16                                                                                                                                                 |  | 18:15           |  | Water          |  | R            | R |       |  |                                                                                                                                                                                                                                                                                                            | R | R | R | R | R | R | R | R |  | R | 10 |
|                                                                                                                      |  | SL                                                                                       |  |       |  | 24-Jul-16                                                                                                                                                 |  | 8:50            |  | Water          |  | R            | R |       |  |                                                                                                                                                                                                                                                                                                            | R | R | R | R | R | R | R | R |  | R | 10 |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  | Water          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |
| Drinking Water (DW) Samples <sup>1</sup> (client use)                                                                |  |                                                                                          |  |       |  | Special Instructions / Specify Criteria to add on report (client Use)                                                                                     |  |                 |  |                |  |              |   |       |  | SAMPLE CONDITION AS RECEIVED (lab use only)                                                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |  |   |    |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |  |                                                                                          |  |       |  | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results.       |  |                 |  |                |  |              |   |       |  | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/><br>Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/><br>Cooling Initiated <input type="checkbox"/> |   |   |   |   |   |   |   |   |  |   |    |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |  |                                                                                          |  |       |  |                                                                                                                                                           |  |                 |  |                |  |              |   |       |  | INITIAL COOLER TEMPERATURES °C FINAL COOLER TEMPERATURES °C                                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |  |   |    |
| SHIPMENT RELEASE (client use)                                                                                        |  |                                                                                          |  |       |  | INITIAL SHIPMENT RECEPTION (lab use only)                                                                                                                 |  |                 |  |                |  |              |   |       |  | FINAL SHIPMENT RECEPTION (lab use only)                                                                                                                                                                                                                                                                    |   |   |   |   |   |   |   |   |  |   |    |
| Released by:                                                                                                         |  | Date:                                                                                    |  | Time: |  | Received by:                                                                                                                                              |  | Date:           |  | Time:          |  | Received by: |   | Date: |  | Time:                                                                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |   |  |   |    |
|                                                                                                                      |  |                                                                                          |  |       |  | Sandy                                                                                                                                                     |  | July 27         |  | 11:35          |  |              |   |       |  |                                                                                                                                                                                                                                                                                                            |   |   |   |   |   |   |   |   |  |   |    |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0128a r09 FrontMatter January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

 $2/4^{\circ}\text{C}$



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 19-AUG-16  
Report Date: 20-SEP-16 17:51 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1816106  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.19  
C of C Numbers:  
Legal Site Desc:

### Comments:

20-SEP-2016 This report replaces the previous version and contains additional analyses, as requested.

---

Brent Mack, B.Sc.  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1816106-1<br>Water<br>16-AUG-16<br>17:10<br>E1 | L1816106-2<br>Water<br>17-AUG-16<br>14:20<br>E2 | L1816106-3<br>Water<br>16-AUG-16<br>16:10<br>E3 | L1816106-5<br>Water<br>16-AUG-16<br>14:10<br>R3 | L1816106-6<br>Water<br>17-AUG-16<br>09:40<br>R7 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 473                                             | 568                                             | 446                                             | 426                                             | 224                                             |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 238                                             | 301                                             | 231                                             | 207                                             | 109                                             |
|                                                                       | pH (pH)                         | 8.09                                            | 8.17                                            | 8.06                                            | 8.00                                            | 7.80                                            |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0183                                          | 0.0204                                          | 0.0705                                          | 0.0571                                          | 0.0931                                          |
|                                                                       | Nitrate (as N) (mg/L)           | 0.122                                           | 0.129                                           | 0.0891                                          | 0.0473                                          | 0.0977                                          |
|                                                                       | Nitrite (as N) (mg/L)           | 0.0017                                          | 0.0024                                          | 0.0024                                          | <0.0010                                         | <0.0010                                         |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0042                                          | 0.0047                                          | 0.503                                           | 0.331                                           | 0.135                                           |
|                                                                       | Sulfate (SO4) (mg/L)            | 130                                             | 171                                             | 128                                             | 122                                             | 51.2                                            |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 18.5                                            | 17.2                                            | 19.3                                            | 20.2                                            | 32.6                                            |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.170                                           | 0.128                                           | 6.99                                            | 5.77                                            | 3.45                                            |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00038                                         | 0.00043                                         | 0.00098                                         | 0.00056                                         | 0.00037                                         |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00103                                         | 0.00114                                         | 0.00718                                         | 0.00473                                         | 0.00348                                         |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0678                                          | 0.0664                                          | 0.293                                           | 0.271                                           | 0.165                                           |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000021                                        | <0.000020                                       | 0.000266                                        | 0.000204                                        | 0.000121                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       | <0.000050                                       | 0.000326                                        | 0.000058                                        | <0.000050                                       |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                          | 0.016                                           | 0.024                                           | <0.010                                          | <0.010                                          |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000490                                       | 0.0000526                                       | 0.000796                                        | 0.000251                                        | 0.000120                                        |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 57.4                                            | 64.5                                            | 47.4                                            | 45.2                                            | 25.6                                            |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00154                                         | 0.00117                                         | 0.0190                                          | 0.0108                                          | 0.00756                                         |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00056                                         | 0.00060                                         | 0.00718                                         | 0.00448                                         | 0.00314                                         |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00324                                         | 0.00309                                         | 0.0252                                          | 0.0160                                          | 0.0111                                          |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.545                                           | 0.481                                           | 13.1                                            | 10.2                                            | 5.75                                            |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000254                                        | 0.000211                                        | 0.00940                                         | 0.00487                                         | 0.00213                                         |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0025                                          | 0.0042                                          | 0.0072                                          | 0.0058                                          | 0.0025                                          |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 25.0                                            | 33.4                                            | 32.1                                            | 28.8                                            | 13.4                                            |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.147                                           | 0.154                                           | 0.463                                           | 0.304                                           | 0.362                                           |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.000025 <sup>DLM</sup>                        | <0.000025 <sup>DLM</sup>                        | 0.000081                                        | 0.000042                                        | <0.000050 <sup>DLM</sup>                        |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00119                                         | 0.00135                                         | 0.00349                                         | 0.00181                                         | 0.000888                                        |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00599                                         | 0.00813                                         | 0.0303                                          | 0.0161                                          | 0.0103                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          | <0.050                                          | 0.436                                           | 0.363                                           | 0.152                                           |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.49                                            | 0.57                                            | 1.24                                            | 1.07                                            | 0.45                                            |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00166                                         | 0.00185                                         | 0.00275                                         | 0.00148                                         | 0.000941                                        |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.16                                            | 5.05                                            | 16.3                                            | 15.8                                            | 10.4                                            |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                       | <0.000010                                       | 0.000295                                        | 0.000132                                        | 0.000044                                        |
|                                                                       | Sodium (Na)-Total (mg/L)        | 2.36                                            | 2.75                                            | 3.54                                            | 2.94                                            | 2.13                                            |
|                                                                       | Strontium (Sr)-Total (mg/L)     | 0.252                                           | 0.309                                           | 0.235                                           | 0.192                                           | 0.0894                                          |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1816106-7<br>Water<br>16-AUG-16<br>12:30<br>R11 | L1816106-8<br>Water<br>17-AUG-16<br>13:30<br>GWCC-1 | L1816106-9<br>Water<br>17-AUG-16<br>13:10<br>GWCC-2 | L1816106-10<br>Water<br>17-AUG-16<br>12:50<br>GWCC-3 | L1816106-11<br>Water<br>17-AUG-16<br>12:25<br>GWCC-4 |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                  |                                                     |                                                     |                                                      |                                                      |
| <b>WATER</b>                                                          |                                 |                                                  |                                                     |                                                     |                                                      |                                                      |
| Physical Tests                                                        | Conductivity (uS/cm)            | 309                                              | 1300                                                | 1900                                                | 1610                                                 | 1360                                                 |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 142                                              | 758                                                 | 1180                                                | 1000                                                 | 810                                                  |
|                                                                       | pH (pH)                         | 7.78                                             | 8.11                                                | 8.15                                                | 7.63                                                 | 8.01                                                 |
| Anions and Nutrients                                                  | Ammonia, Total (as N) (mg/L)    | 0.115                                            | 0.0073                                              | <0.0050                                             | <0.0050                                              | <0.0050                                              |
|                                                                       | Nitrate (as N) (mg/L)           | 0.0583                                           | 0.174                                               | 0.351                                               | 0.343                                                | 0.242                                                |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                          | <0.0020 <sup>DLDS</sup>                             | <0.0050 <sup>DLDS</sup>                             | <0.0050 <sup>DLDS</sup>                              | <0.0020 <sup>DLDS</sup>                              |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.583                                            | 0.0024                                              | 0.012                                               | <0.0020                                              | <0.0020                                              |
|                                                                       | Sulfate (SO4) (mg/L)            | 84.9                                             | 549                                                 | 916                                                 | 760                                                  | 562                                                  |
| Organic / Inorganic Carbon                                            | Dissolved Organic Carbon (mg/L) | 20.5                                             | 9.83                                                | 7.92                                                | 7.86                                                 | 8.43                                                 |
| Total Metals                                                          | Aluminum (Al)-Total (mg/L)      | 7.66                                             | 0.107                                               | 0.0032                                              | <0.0030                                              | <0.0030                                              |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00097                                          | 0.00281                                             | 0.00207                                             | 0.00116                                              | 0.00104                                              |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00670                                          | 0.00518                                             | 0.00331                                             | 0.00093                                              | 0.00108                                              |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.270                                            | 0.0279                                              | 0.0250                                              | 0.0225                                               | 0.0281                                               |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000282                                         | <0.000020                                           | <0.000020                                           | <0.000020                                            | <0.000020                                            |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | 0.000206                                         | <0.000050                                           | 0.000088                                            | <0.000050                                            | <0.000050                                            |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                           | 0.088                                               | 0.181                                               | 0.139                                                | 0.103                                                |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.000450                                         | 0.0000585                                           | 0.000167                                            | 0.0000883                                            | 0.0000688                                            |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 37.7                                             | 157                                                 | 188                                                 | 136                                                  | 118                                                  |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.0173                                           | 0.00131                                             | 0.00188                                             | 0.00121                                              | 0.00080                                              |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00657                                          | 0.00015                                             | <0.00010                                            | <0.00010                                             | <0.00010                                             |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.0235                                           | 0.00183                                             | 0.00155                                             | 0.00093                                              | 0.00100                                              |
|                                                                       | Iron (Fe)-Total (mg/L)          | 15.6                                             | 0.200                                               | <0.010                                              | <0.010                                               | <0.010                                               |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.0112                                           | 0.000090                                            | <0.000050                                           | <0.000050                                            | <0.000050                                            |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0073                                           | 0.0244                                              | 0.0580                                              | 0.0230                                               | 0.0140                                               |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 17.1                                             | 87.3                                                | 169                                                 | 151                                                  | 120                                                  |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.407                                            | 0.00389                                             | 0.00027                                             | 0.00023                                              | 0.00036                                              |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.000164                                         | <0.0000050                                          | <0.0000050                                          | <0.0000050                                           | <0.0000050                                           |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00424                                          | 0.0155                                              | 0.00305                                             | 0.00287                                              | 0.00256                                              |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0223                                           | 0.0308                                              | 0.0503                                              | 0.0376                                               | 0.0376                                               |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.335                                            | <0.050                                              | <0.050                                              | <0.050                                               | <0.050                                               |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.49                                             | 1.55                                                | 2.27                                                | 1.68                                                 | 1.45                                                 |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00282                                          | 0.0113                                              | 0.0102                                              | 0.00297                                              | 0.00189                                              |
|                                                                       | Silicon (Si)-Total (mg/L)       | 19.1                                             | 6.52                                                | 6.27                                                | 5.02                                                 | 5.29                                                 |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000384                                         | <0.000010                                           | <0.000010                                           | <0.000010                                            | <0.000010                                            |
|                                                                       | Sodium (Na)-Total (mg/L)        | 3.02                                             | 3.77                                                | 11.5                                                | 5.37                                                 | 4.43                                                 |
|                                                                       | Strontium (Sr)-Total (mg/L)     | 0.183                                            | 0.995                                               | 1.46                                                | 0.921                                                | 0.632                                                |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1816106-12<br>Water<br>16-AUG-16<br>17:10<br>FB-1 | L1816106-13<br>Water<br>16-AUG-16<br>17:10<br>DUP-1 | L1816106-14<br>Water<br><br>TRAVEL BLANK |  |  |
|-----------------------------------------------------------------------|---------------------------------|----------------------------------------------------|-----------------------------------------------------|------------------------------------------|--|--|
| Grouping                                                              | Analyte                         |                                                    |                                                     |                                          |  |  |
| <b>WATER</b>                                                          |                                 |                                                    |                                                     |                                          |  |  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | <2.0                                               | 475                                                 | <2.0 <sup>HTC</sup>                      |  |  |
|                                                                       | Hardness (as CaCO3) (mg/L)      | <0.50                                              | 238                                                 | <0.50                                    |  |  |
|                                                                       | pH (pH)                         | 5.73                                               | 8.18                                                | 5.63                                     |  |  |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | <0.0050                                            | 0.0170                                              | <0.0050                                  |  |  |
|                                                                       | Nitrate (as N) (mg/L)           | <0.0050                                            | 0.118                                               | <0.0050                                  |  |  |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                            | <0.0010                                             | <0.0010                                  |  |  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.0020                                            | 0.0044                                              | <0.0020                                  |  |  |
|                                                                       | Sulfate (SO4) (mg/L)            | <0.30                                              | 130                                                 | <0.30                                    |  |  |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | <0.50                                              | 18.7                                                |                                          |  |  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | <0.0030                                            | 0.145                                               | <0.0030                                  |  |  |
|                                                                       | Antimony (Sb)-Total (mg/L)      | <0.00010                                           | 0.00031                                             | <0.00010                                 |  |  |
|                                                                       | Arsenic (As)-Total (mg/L)       | <0.00010                                           | 0.00090                                             | <0.00010 <sup>RRV</sup>                  |  |  |
|                                                                       | Barium (Ba)-Total (mg/L)        | <0.000050                                          | 0.0607                                              | 0.000051                                 |  |  |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                          | <0.000020                                           | <0.000020                                |  |  |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                          | <0.000050                                           | <0.000050                                |  |  |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                             | <0.010                                              | <0.010                                   |  |  |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | <0.0000050                                         | 0.0000232                                           | <0.0000050                               |  |  |
|                                                                       | Calcium (Ca)-Total (mg/L)       | <0.050                                             | 56.9                                                | <0.050                                   |  |  |
|                                                                       | Chromium (Cr)-Total (mg/L)      | <0.00010                                           | 0.00112                                             | <0.00010                                 |  |  |
|                                                                       | Cobalt (Co)-Total (mg/L)        | <0.00010                                           | 0.00051                                             | <0.00010                                 |  |  |
|                                                                       | Copper (Cu)-Total (mg/L)        | <0.00050                                           | 0.00297                                             | <0.00050                                 |  |  |
|                                                                       | Iron (Fe)-Total (mg/L)          | <0.010                                             | 0.524                                               | <0.010                                   |  |  |
|                                                                       | Lead (Pb)-Total (mg/L)          | <0.000050                                          | 0.000213                                            | <0.000050                                |  |  |
|                                                                       | Lithium (Li)-Total (mg/L)       | <0.0010                                            | 0.0022                                              | <0.0010                                  |  |  |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | <0.10                                              | 24.9                                                | <0.10                                    |  |  |
|                                                                       | Manganese (Mn)-Total (mg/L)     | <0.00010                                           | 0.128                                               | <0.00010                                 |  |  |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                         | 0.0000057                                           | <0.0000050                               |  |  |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | <0.000050                                          | 0.00100                                             | <0.000050                                |  |  |
|                                                                       | Nickel (Ni)-Total (mg/L)        | <0.00050                                           | 0.00469                                             | <0.00050                                 |  |  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                             | <0.050                                              | <0.050                                   |  |  |
|                                                                       | Potassium (K)-Total (mg/L)      | <0.10                                              | 0.48                                                | <0.10                                    |  |  |
|                                                                       | Selenium (Se)-Total (mg/L)      | <0.000050                                          | 0.00146                                             | <0.000050                                |  |  |
|                                                                       | Silicon (Si)-Total (mg/L)       | <0.050                                             | 5.16                                                | <0.050                                   |  |  |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                          | <0.000010                                           | <0.000010                                |  |  |
|                                                                       | Sodium (Na)-Total (mg/L)        | <0.050                                             | 1.95                                                | <0.050                                   |  |  |
|                                                                       | Strontium (Sr)-Total (mg/L)     | <0.00020                                           | 0.212                                               | <0.00020                                 |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1816106-1<br>Water<br>16-AUG-16<br>17:10<br>E1 | L1816106-2<br>Water<br>17-AUG-16<br>14:20<br>E2 | L1816106-3<br>Water<br>16-AUG-16<br>16:10<br>E3 | L1816106-5<br>Water<br>16-AUG-16<br>14:10<br>R3 | L1816106-6<br>Water<br>17-AUG-16<br>09:40<br>R7 |
|-----------------------------------------------------------------------|---------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>                                                          |                                       |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Total Metals</b>                                                   | Sulfur (S)-Total (mg/L)               | 46.5                                            | 61.0                                            | 44.4                                            | 42.2                                            | 17.9                                            |
|                                                                       | Thallium (Tl)-Total (mg/L)            | <0.000010                                       | 0.000016                                        | 0.000092                                        | 0.000068                                        | 0.000030                                        |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                        | <0.00010                                        | 0.00012                                         | <0.00010                                        | <0.00010                                        |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.00451                                         | 0.00357                                         | 0.111                                           | 0.155                                           | 0.100                                           |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00153                                         | 0.00166                                         | 0.00258                                         | 0.00217                                         | 0.000476                                        |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00121                                         | 0.00098                                         | 0.0218                                          | 0.0176                                          | 0.0115                                          |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0031                                          | 0.0035                                          | 0.0575                                          | 0.0343                                          | 0.0160                                          |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00101                                         | 0.00092                                         | 0.00227                                         | 0.00134                                         | 0.00132                                         |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                           | FIELD                                           | FIELD                                           | FIELD                                           | FIELD                                           |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                           | FIELD                                           | FIELD                                           | FIELD                                           | FIELD                                           |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0546                                          | 0.0469                                          | 0.0601                                          | 0.0639                                          | 0.168                                           |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00032                                         | 0.00040                                         | 0.00043                                         | 0.00021                                         | 0.00022                                         |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00083                                         | 0.00099                                         | 0.00097                                         | 0.00076                                         | 0.00139                                         |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0647                                          | 0.0641                                          | 0.0640                                          | 0.0642                                          | 0.0775                                          |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                       | <0.000020                                       | <0.000020                                       | <0.000020                                       | 0.000035                                        |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                       | <0.000050                                       | <0.000050                                       | <0.000050                                       | <0.000050                                       |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                          | 0.016                                           | 0.023                                           | <0.010                                          | <0.010                                          |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000422                                       | 0.0000472                                       | 0.0000206                                       | 0.0000148                                       | 0.0000247                                       |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 55.4                                            | 63.5                                            | 42.9                                            | 40.9                                            | 23.7                                            |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00066                                         | 0.00055                                         | 0.00107                                         | 0.00084                                         | 0.00137                                         |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00040                                         | 0.00045                                         | 0.00056                                         | 0.00044                                         | 0.00094                                         |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00303                                         | 0.00287                                         | 0.00256                                         | 0.00257                                         | 0.00480                                         |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.243                                           | 0.254                                           | 0.350                                           | 0.361                                           | 1.15                                            |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | 0.000078                                        | 0.000071                                        | 0.000124                                        | 0.000070                                        | 0.000089                                        |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0024                                          | 0.0045                                          | 0.0015                                          | 0.0017                                          | <0.0010                                         |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 24.1                                            | 34.5                                            | 30.1                                            | 25.5                                            | 12.1                                            |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.135                                           | 0.137                                           | 0.147                                           | 0.131                                           | 0.269                                           |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                      | <0.0000050                                      | <0.0000050                                      | <0.0000050                                      | <0.0000050                                      |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00104                                         | 0.00116                                         | 0.00122                                         | 0.000980                                        | 0.000692                                        |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00445                                         | 0.00758                                         | 0.00492                                         | 0.00394                                         | 0.00456                                         |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                          | <0.050                                          | <0.050                                          | <0.050                                          | <0.050                                          |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.43                                            | 0.54                                            | 0.45                                            | 0.36                                            | 0.18                                            |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00157                                         | 0.00194                                         | 0.00148                                         | 0.000958                                        | 0.000798                                        |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 4.88                                            | 4.91                                            | 5.96                                            | 6.04                                            | 5.35                                            |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                       | <0.000010                                       | <0.000010                                       | <0.000010                                       | <0.000010                                       |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 2.41                                            | 2.74                                            | 3.30                                            | 2.97                                            | 1.82                                            |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)       | 0.251                                           | 0.312                                           | 0.203                                           | 0.190                                           | 0.0808                                          |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1816106-7<br>Water<br>16-AUG-16<br>12:30<br>R11 | L1816106-8<br>Water<br>17-AUG-16<br>13:30<br>GWCC-1 | L1816106-9<br>Water<br>17-AUG-16<br>13:10<br>GWCC-2 | L1816106-10<br>Water<br>17-AUG-16<br>12:50<br>GWCC-3 | L1816106-11<br>Water<br>17-AUG-16<br>12:25<br>GWCC-4 |
|-----------------------------------------------------------------------|---------------------------------------|--------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                  |                                                     |                                                     |                                                      |                                                      |
| <b>WATER</b>                                                          |                                       |                                                  |                                                     |                                                     |                                                      |                                                      |
| <b>Total Metals</b>                                                   | Sulfur (S)-Total (mg/L)               | 28.4                                             | 191                                                 | 319                                                 | 252                                                  | 194                                                  |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000140                                         | 0.000050                                            | 0.000076                                            | 0.000087                                             | 0.000069                                             |
|                                                                       | Tin (Sn)-Total (mg/L)                 | 0.00011                                          | <0.00010                                            | <0.00010                                            | <0.00010                                             | <0.00010                                             |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.0925                                           | 0.00585                                             | <0.00030                                            | <0.00030                                             | <0.00030                                             |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00158                                          | 0.00264                                             | 0.00451                                             | 0.00287                                              | 0.00187                                              |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.0217                                           | 0.00081                                             | <0.00050                                            | <0.00050                                             | <0.00050                                             |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0587                                           | 0.0033                                              | 0.0053                                              | 0.0034                                               | <0.0030                                              |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00216                                          | <0.00030                                            | <0.00030                                            | <0.00030                                             | <0.00030                                             |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                            | FIELD                                               | FIELD                                               | FIELD                                                | FIELD                                                |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                            | FIELD                                               | FIELD                                               | FIELD                                                | FIELD                                                |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0728                                           | 0.0025                                              | 0.0023                                              | 0.0016                                               | 0.0017                                               |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00023                                          | 0.00269                                             | 0.00207                                             | 0.00115                                              | 0.00098                                              |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00073                                          | 0.00472                                             | 0.00323                                             | 0.00106                                              | 0.00104                                              |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0507                                           | 0.0178                                              | 0.0245                                              | 0.0256                                               | 0.0288                                               |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                        | <0.000020                                           | <0.000020                                           | <0.000020                                            | <0.000020                                            |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                        | <0.000050                                           | <0.000050                                           | <0.000050                                            | <0.000050                                            |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                           | 0.083                                               | 0.166                                               | 0.120                                                | 0.093                                                |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000216                                        | 0.0000398                                           | 0.000168                                            | 0.000131 <sup>DTC</sup>                              | 0.0000807                                            |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 34.6                                             | 152                                                 | 186                                                 | 136                                                  | 118                                                  |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00089                                          | 0.00070                                             | 0.00161                                             | 0.00130                                              | 0.00075                                              |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00063                                          | <0.00010                                            | <0.00010                                            | <0.00010                                             | <0.00010                                             |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00252                                          | 0.00149                                             | 0.00151                                             | 0.00104                                              | 0.00097                                              |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.433                                            | <0.010                                              | <0.010                                              | <0.010                                               | <0.010                                               |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | 0.000175                                         | <0.000050                                           | <0.000050                                           | <0.000050                                            | <0.000050                                            |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | <0.0010                                          | 0.0239                                              | 0.0551                                              | 0.0220                                               | 0.0140                                               |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 13.5                                             | 91.7                                                | 174                                                 | 160                                                  | 125                                                  |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.163                                            | 0.00052                                             | 0.00027                                             | 0.00019                                              | 0.00032                                              |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | 0.0000055                                        | <0.0000050                                          | <0.0000050                                          | <0.0000050                                           | <0.0000050                                           |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00132                                          | 0.00198                                             | 0.00223                                             | 0.00271                                              | 0.00224                                              |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00283                                          | 0.0281                                              | 0.0488                                              | 0.0438                                               | 0.0383                                               |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                           | <0.050                                              | <0.050                                              | <0.050                                               | <0.050                                               |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.31                                             | 1.49                                                | 2.25                                                | 1.72                                                 | 1.45                                                 |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00179                                          | 0.0114                                              | 0.0103                                              | 0.00349                                              | 0.00206                                              |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.82                                             | 6.26                                                | 6.29                                                | 5.12                                                 | 5.29                                                 |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                        | <0.000010                                           | <0.000010                                           | <0.000010                                            | <0.000010                                            |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 2.83                                             | 3.66                                                | 11.0                                                | 6.51                                                 | 4.53                                                 |
|                                                                       | Strontium (Sr)-Dissolved (mg/L)       | 0.153                                            | 0.953                                               | 1.44                                                | 0.917                                                | 0.597                                                |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1816106-12<br>Water<br>16-AUG-16<br>17:10<br>FB-1 | L1816106-13<br>Water<br>16-AUG-16<br>17:10<br>DUP-1 | L1816106-14<br>Water<br><br>TRAVEL BLANK |  |  |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------|------------------------------------------|--|--|
| Grouping                | Analyte                               |                                                                       |                                                    |                                                     |                                          |  |  |
| <b>WATER</b>            |                                       |                                                                       |                                                    |                                                     |                                          |  |  |
| <b>Total Metals</b>     | Sulfur (S)-Total (mg/L)               | <0.50                                                                 | 46.2                                               | <0.50                                               |                                          |  |  |
|                         | Thallium (Tl)-Total (mg/L)            | <0.000010                                                             | 0.000013                                           | <0.000010                                           |                                          |  |  |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              | <0.00010                                           | <0.00010                                            |                                          |  |  |
|                         | Titanium (Ti)-Total (mg/L)            | <0.00030                                                              | 0.00341                                            | <0.00030                                            |                                          |  |  |
|                         | Uranium (U)-Total (mg/L)              | <0.000010                                                             | 0.00127                                            | <0.000010                                           |                                          |  |  |
|                         | Vanadium (V)-Total (mg/L)             | <0.00050                                                              | 0.00114                                            | <0.00050                                            |                                          |  |  |
|                         | Zinc (Zn)-Total (mg/L)                | <0.0030                                                               | <0.0030                                            | <0.0030                                             |                                          |  |  |
|                         | Zirconium (Zr)-Total (mg/L)           | <0.00030                                                              | 0.00084                                            | <0.00030                                            |                                          |  |  |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 | FIELD                                              |                                                     |                                          |  |  |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 | FIELD                                              |                                                     |                                          |  |  |
|                         | Aluminum (Al)-Dissolved (mg/L)        | <0.0010                                                               | 0.0457                                             |                                                     |                                          |  |  |
|                         | Antimony (Sb)-Dissolved (mg/L)        | <0.00010                                                              | 0.00028                                            |                                                     |                                          |  |  |
|                         | Arsenic (As)-Dissolved (mg/L)         | <0.00010                                                              | 0.00065                                            |                                                     |                                          |  |  |
|                         | Barium (Ba)-Dissolved (mg/L)          | <0.000050                                                             | 0.0544                                             |                                                     |                                          |  |  |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             | <0.000020                                          |                                                     |                                          |  |  |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             | <0.000050                                          |                                                     |                                          |  |  |
|                         | Boron (B)-Dissolved (mg/L)            | <0.010                                                                | <0.010                                             |                                                     |                                          |  |  |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | <0.0000050                                                            | 0.0000187                                          |                                                     |                                          |  |  |
|                         | Calcium (Ca)-Dissolved (mg/L)         | <0.050                                                                | 55.7                                               |                                                     |                                          |  |  |
|                         | Chromium (Cr)-Dissolved (mg/L)        | <0.00010                                                              | 0.00055                                            |                                                     |                                          |  |  |
|                         | Cobalt (Co)-Dissolved (mg/L)          | <0.00010                                                              | 0.00034                                            |                                                     |                                          |  |  |
|                         | Copper (Cu)-Dissolved (mg/L)          | <0.00020                                                              | 0.00248                                            |                                                     |                                          |  |  |
|                         | Iron (Fe)-Dissolved (mg/L)            | <0.010                                                                | 0.251                                              |                                                     |                                          |  |  |
|                         | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                                             | 0.000068                                           |                                                     |                                          |  |  |
|                         | Lithium (Li)-Dissolved (mg/L)         | <0.0010                                                               | 0.0022                                             |                                                     |                                          |  |  |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | <0.10                                                                 | 24.1                                               |                                                     |                                          |  |  |
|                         | Manganese (Mn)-Dissolved (mg/L)       | <0.00010                                                              | 0.110                                              |                                                     |                                          |  |  |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            | <0.0000050                                         |                                                     |                                          |  |  |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | <0.000050                                                             | 0.000858                                           |                                                     |                                          |  |  |
|                         | Nickel (Ni)-Dissolved (mg/L)          | <0.00050                                                              | 0.00374                                            |                                                     |                                          |  |  |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                | <0.050                                             |                                                     |                                          |  |  |
|                         | Potassium (K)-Dissolved (mg/L)        | <0.10                                                                 | 0.44                                               |                                                     |                                          |  |  |
|                         | Selenium (Se)-Dissolved (mg/L)        | <0.000050                                                             | 0.00152                                            |                                                     |                                          |  |  |
|                         | Silicon (Si)-Dissolved (mg/L)         | <0.050                                                                | 4.93                                               |                                                     |                                          |  |  |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             | <0.000010                                          |                                                     |                                          |  |  |
|                         | Sodium (Na)-Dissolved (mg/L)          | <0.050                                                                | 1.90                                               |                                                     |                                          |  |  |
|                         | Strontium (Sr)-Dissolved (mg/L)       | <0.00020                                                              | 0.215                                              |                                                     |                                          |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1816106-1<br>Water<br>16-AUG-16<br>17:10<br>E1 | L1816106-2<br>Water<br>17-AUG-16<br>14:20<br>E2 | L1816106-3<br>Water<br>16-AUG-16<br>16:10<br>E3 | L1816106-5<br>Water<br>16-AUG-16<br>14:10<br>R3 | L1816106-6<br>Water<br>17-AUG-16<br>09:40<br>R7 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          | 45.7                                            | 59.6                                            | 45.0                                            | 42.3                                            | 17.6                                            |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       | <0.000010                                       | <0.000010                                       | <0.000010                                       | <0.000010                                       |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        | <0.00010                                        | <0.00010                                        | <0.00010                                        | <0.00010                                        |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00121                                         | 0.00099                                         | 0.00194                                         | 0.00124                                         | 0.00331                                         |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00148                                         | 0.00160                                         | 0.00142                                         | 0.00153                                         | 0.000239                                        |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00058                                         | 0.00050                                         | 0.00088                                         | 0.00083                                         | 0.00141                                         |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0030                                          | <0.0010                                         | 0.0011                                          | 0.0015                                          | <0.0010                                         |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00094                                         | 0.00087                                         | 0.00100                                         | 0.00083                                         | 0.00147                                         |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 | 0.00107                                         |                                                 | 0.00137                                         |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00154                                         | 0.00117                                         | 0.0180                                          | 0.0108                                          | 0.00756                                         |
|                                                                       | Hexavalent Chromium (mg/L)           | <0.0010                                         | <0.0010                                         | 0.0010                                          | <0.0010                                         | <0.0010                                         |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 | <0.0010                                         |                                                 | <0.0010                                         |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1816106-7<br>Water<br>16-AUG-16<br>12:30<br>R11 | L1816106-8<br>Water<br>17-AUG-16<br>13:30<br>GWCC-1 | L1816106-9<br>Water<br>17-AUG-16<br>13:10<br>GWCC-2 | L1816106-10<br>Water<br>17-AUG-16<br>12:50<br>GWCC-3 | L1816106-11<br>Water<br>17-AUG-16<br>12:25<br>GWCC-4 |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                  |                                                     |                                                     |                                                      |                                                      |
| <b>WATER</b>                                                          |                                      |                                                  |                                                     |                                                     |                                                      |                                                      |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          | 29.2                                             | 186                                                 | 302                                                 | 249                                                  | 190                                                  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                        | 0.000047                                            | 0.000075                                            | 0.000080                                             | 0.000061                                             |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                         | <0.00010                                            | <0.00010                                            | <0.00010                                             | <0.00010                                             |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00247                                          | <0.00030                                            | <0.00030                                            | <0.00030                                             | <0.00030                                             |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.000581                                         | 0.00250                                             | 0.00432                                             | 0.00275                                              | 0.00172                                              |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00067                                          | <0.00050                                            | <0.00050                                            | <0.00050                                             | <0.00050                                             |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0011                                           | 0.0025                                              | 0.0043                                              | 0.0036                                               | 0.0035                                               |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00139                                          | <0.00030                                            | <0.00030                                            | <0.00030                                             | <0.00030                                             |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                  |                                                     | <0.00043                                            | <0.00042                                             |                                                      |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.0159                                           | <0.00073                                            | <0.00075                                            | <0.00072                                             |                                                      |
|                                                                       | Hexavalent Chromium (mg/L)           | 0.0014                                           | 0.0013                                              | 0.0022                                              | 0.0017                                               |                                                      |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                  |                                                     | 0.0020                                              | 0.0020                                               |                                                      |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1816106-12<br>Water<br>16-AUG-16<br>17:10<br>FB-1 | L1816106-13<br>Water<br>16-AUG-16<br>17:10<br>DUP-1 | L1816106-14<br>Water<br><br>TRAVEL BLANK |  |  |
|-----------------------------------------------------------------------|--------------------------------------|----------------------------------------------------|-----------------------------------------------------|------------------------------------------|--|--|
| Grouping                                                              | Analyte                              |                                                    |                                                     |                                          |  |  |
| <b>WATER</b>                                                          |                                      |                                                    |                                                     |                                          |  |  |
| <b>Dissolved Metals</b>                                               | Sulfur (S)-Dissolved (mg/L)          | <0.50                                              | 44.7                                                |                                          |  |  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                          | <0.000010                                           |                                          |  |  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                           | <0.00010                                            |                                          |  |  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | <0.00030                                           | 0.00101                                             |                                          |  |  |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | <0.000010                                          | 0.00128                                             |                                          |  |  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                           | 0.00052                                             |                                          |  |  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | <0.0010                                            | <0.0010                                             |                                          |  |  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | <0.00030                                           | 0.00081                                             |                                          |  |  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                    |                                                     |                                          |  |  |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                    | 0.00112                                             |                                          |  |  |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                    | <0.0010                                             |                                          |  |  |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                    |                                                     |                                          |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



## Reference Information

### QC Samples with Qualifiers & Comments:

| QC Type Description | Parameter                | Qualifier | Applies to Sample Number(s)                                |
|---------------------|--------------------------|-----------|------------------------------------------------------------|
| Method Blank        | Molybdenum (Mo)-Total    | MB-LOR    | L1816106-1, -2, -3, -5, -6, -7, -8                         |
| Matrix Spike        | Dissolved Organic Carbon | MS-B      | L1816106-1, -13, -2, -3, -5, -6, -7                        |
| Matrix Spike        | Barium (Ba)-Dissolved    | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Barium (Ba)-Dissolved    | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Boron (B)-Dissolved      | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Nickel (Ni)-Dissolved    | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sodium (Na)-Dissolved    | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sodium (Na)-Dissolved    | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Strontium (Sr)-Dissolved | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Strontium (Sr)-Dissolved | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Iron (Fe)-Dissolved      | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Dissolved | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Dissolved | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Silicon (Si)-Dissolved   | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Silicon (Si)-Dissolved   | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Silicon (Si)-Dissolved   | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Boron (B)-Total          | MS-B      | L1816106-1, -2, -3, -5, -6, -7, -8                         |
| Matrix Spike        | Sodium (Na)-Total        | MS-B      | L1816106-1, -2, -3, -5, -6, -7, -8                         |
| Matrix Spike        | Sulfur (S)-Dissolved     | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sulfur (S)-Dissolved     | MS-B      | L1816106-1, -10, -11, -12, -13, -2, -3, -5, -6, -7, -8, -9 |

### Qualifiers for Individual Parameters Listed:

| Qualifier | Description                                                                                                                  |
|-----------|------------------------------------------------------------------------------------------------------------------------------|
| DLDS      | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.                            |
| DLM       | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).                       |
| DTC       | Dissolved concentration exceeds total. Results were confirmed by re-analysis.                                                |
| HTC       | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |
| MB-LOR    | Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.    |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.                           |
| RRV       | Reported Result Verified By Repeat Analysis                                                                                  |

### Test Method References:

| ALS Test Code                                                                                                                                                                                                                              | Matrix | Test Description                       | Method Reference**                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------|---------------------------------------|
| <b>BE-D-L-CCMS-VA</b>                                                                                                                                                                                                                      | Water  | Diss. Be (low) in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                               |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                   |        |                                        |                                       |
| <b>BE-T-L-CCMS-VA</b>                                                                                                                                                                                                                      | Water  | Total Be (Low) in Water by CRC ICPMS   | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                  |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                   |        |                                        |                                       |
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                      | Water  | Dissolved organic carbon by combustion | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis. |        |                                        |                                       |
| <b>CR-CR3-DIS-CALC-ED</b>                                                                                                                                                                                                                  | Water  | Dissolved Trivalent Chromium in Water  | CALCULATION                           |
| Chromium (III)-Dissolved is calculated as the difference between the dissolved chromium and the dissolved hexavalent chromium (Cr(VI)) results.                                                                                            |        |                                        |                                       |
| <b>CR-CR3-TOT-CALC-ED</b>                                                                                                                                                                                                                  | Water  | Total Trivalent Chromium in Water      | CALCULATION                           |
| Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.                                                                                                              |        |                                        |                                       |

## Reference Information

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                          |                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------|-----------------------------------------------|
| <b>CR-CR6-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | Chromium, Hexavalent (Cr +6)             | APHA 3500-Cr C (Ion Chromatography)           |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.                                                                                                                                           |       |                                          |                                               |
| Results are based on an un-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                               |
| <b>CR6-D-IC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Water | Chromium, Dissolved Hexavalent (Cr +6)   | APHA 3500-Cr C (Ion Chromatography)           |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.                                                                                                                                           |       |                                          |                                               |
| Results are based on a field-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                          |                                               |
| <b>EC-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | Conductivity (Automated)                 | APHA 2510 Auto. Conduc.                       |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                               |
| <b>HARDNESS-CALC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Hardness                                 | APHA 2340B                                    |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                               |
| <b>HG-D-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod)                    |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                                                   |       |                                          |                                               |
| <b>HG-T-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod)                               |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                               |
| <b>MET-D-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Dissolved Metals in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                        |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                               |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                          |                                               |
| <b>MET-DIS-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water | Dissolved Metals in Water by ICPOES      | EPA 3005A/6010B                               |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).                                                                                               |       |                                          |                                               |
| <b>MET-T-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Total Metals in Water by CRC ICPMS       | EPA 200.2/6020A (mod)                         |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                          |                                               |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                          |                                               |
| <b>MET-TOT-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water | Total Metals in Water by ICPOES          | EPA 3005A/6010B                               |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). |       |                                          |                                               |
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Water | Ammonia in Water by Fluorescence         | APHA 4500 NH <sub>3</sub> -NITROGEN (AMMONIA) |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                                                                                                                                                           |       |                                          |                                               |
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Water | Ammonia in Water by Fluorescence         | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC       |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                                                                                                                                                           |       |                                          |                                               |
| <b>NO2-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Nitrite in Water by IC (Low Level)       | EPA 300.1 (mod)                               |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                               |
| <b>NO3-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Water | Nitrate in Water by IC (Low Level)       | EPA 300.1 (mod)                               |

## Reference Information

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**P-T-PRES-COL-VA** Water Total P in Water by Colour APHA 4500-P Phosphorus  
 This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H "pH Value"  
 This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H pH Value  
 This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**S-DIS-ICP-VA** Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B  
 This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**S-TOT-ICP-VA** Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B  
 This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**SO4-IC-N-WR** Water Sulfate in Water by IC EPA 300.1 (mod)  
 Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

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*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

---

| Laboratory Definition Code | Laboratory Location                                     |
|----------------------------|---------------------------------------------------------|
| ED                         | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA           |
| WR                         | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA           |
| VA                         | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

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**Chain of Custody Numbers:**

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## Reference Information

### GLOSSARY OF REPORT TERMS

*Surrogate* - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

*mg/kg* - milligrams per kilogram based on dry weight of sample.

*mg/kg ww* - milligrams per kilogram based on wet weight of sample.

*mg/kg lwt* - milligrams per kilogram based on lipid-adjusted weight of sample.

*mg/L* - milligrams per litre.

*<* - Less than.

*D.L.* - The reported Detection Limit, also known as the Limit of Reporting (LOR).

*N/A* - Result not available. Refer to qualifier code and definition for explanation.

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*



Contact: Brent Mack  
Company: ALS Environmental  
Address: 8081 Lougheed HWY, Suite 100  
Burnaby, BC V5A1W9

## REFERENCE DATA

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Project / Location: L1816106

PO Number: L1816106

ALS Work Order: 1608964

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

NELAC accredited through New York ELAP, LAB #11371

## TEM ANALYSIS DATA

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EDXA Resolution (eV): <175

Calibration Constant (µm/cm): 0.74

Accelerating Voltage (keV): 100

Camera Constant (mm-Å): 129.25

Prep Start Date: 8/29/2016

Analysis Start Date: 8/31/2016

*Pamela Johnson*

*Shawn Smythe*

---

Pamela Johnson  
ALS TEM Analyst

---

Shawn Smythe  
ALS Project Manager

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## IDENTIFICATION

|                     |               |               |
|---------------------|---------------|---------------|
| Client Sample ID:   | L1816106-2 E2 | L1816106-5 R3 |
| ALS Sample ID:      | 1608964-02    | 1608964-04    |
| Method:             | EPA 100.2     | EPA 100.2     |
| Date of Collection: | 8/17/2016     | 8/16/2016     |
| Time of Collection: | 14:20         | 14:10         |

## FILTRATION & ANALYSIS

|                                       |           |           |
|---------------------------------------|-----------|-----------|
| Date of Filtration:                   | 8/29/2016 | 8/29/2016 |
| Time of Filtration:                   | 1:05      | 1:05      |
| Volume Filtered (L):                  | 0.015     | 0.002     |
| Openings Analyzed:                    | 4         | 10        |
| Avg. Opening Area (mm <sup>2</sup> ): | 0.0108    | 0.0108    |
| AS (MFL):                             | 1.66      | 4.98      |

## ASBESTOS COUNT

|                              |    |   |
|------------------------------|----|---|
| Chrysotile:                  | 14 | 0 |
| Amosite:                     | 0  | 0 |
| Crocidolite:                 | 0  | 0 |
| Act-Tremolite <sup>†</sup> : | 0  | 0 |
| Anthophyllite:               | 0  | 0 |
| Total Asbestos:              | 14 | 0 |

## ASBESTOS CONCENTRATION (MFL)

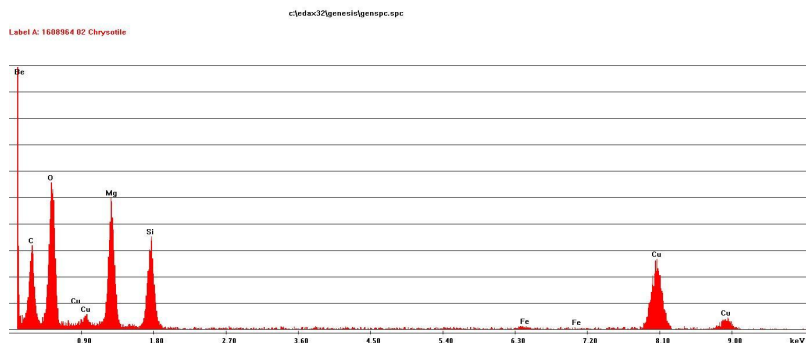
|                              |              |               |
|------------------------------|--------------|---------------|
| Chrysotile:                  | 23.23        | <AS           |
| Amosite:                     | <AS          | <AS           |
| Crocidolite:                 | <AS          | <AS           |
| Act-Tremolite <sup>†</sup> : | <AS          | <AS           |
| Anthophyllite:               | <AS          | <AS           |
| <b>Total Asbestos:</b>       | <b>23.23</b> | <b>&lt;AS</b> |

## NOTES

Samples L1816106-2 E2 and L1816106-5 R3; Excessive suspended solids prevented filtration of sufficient volume required to attain the recommended method AS of <0.20 MFL.

## EDXA SPECTRA

NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.





01-Sep-2016

Brent Mack  
ALS Environmental  
8081 Lougheed HWY  
Suite 100  
Burnaby, BC V5A1W9

Tel: (604) 253-4188  
Fax:

Re: L1816106

Work Order: **1608964**

Dear Brent,

ALS Environmental received 13 samples on 26-Aug-2016 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 19.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Shawn Smythe

Shawn Smythe  
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, Ohio 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental

**www.alsglobal.com**

RIGHT SOLUTIONS RIGHT PARTNER



**Client:** ALS Environmental  
**Project:** L1816106  
**Work Order:** 1608964

**Work Order Sample Summary**

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1608964-01         | L1816106-1              | Water         |                   | 8/16/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-02         | L1816106-2              | Water         |                   | 8/17/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-03         | L1816106-3              | Water         |                   | 8/16/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-04         | L1816106-5              | Water         |                   | 8/17/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-05         | L1816106-6              | Water         |                   | 8/16/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-06         | L1816106-7              | Water         |                   | 8/17/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-07         | L1816106-8              | Water         |                   | 8/16/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-08         | L1816106-9              | Water         |                   | 8/17/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-09         | L1816106-10             | Water         |                   | 8/17/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-10         | L1816106-11             | Water         |                   | 8/17/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-11         | L1816106-12             | Water         |                   | 8/16/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-12         | L1816106-13             | Water         |                   | 8/16/2016              | 8/26/2016            | <input type="checkbox"/> |
| 1608964-13         | L1816106-14             | Water         |                   | 8/16/2016              | 8/26/2016            | <input type="checkbox"/> |

---

**Client:** ALS Environmental**Project:** L1816106**Work Order:** 1608964**Case Narrative**

---

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-1

Lab ID: 1608964-01

Collection Date: 8/16/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 4.9    | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-2

Lab ID: 1608964-02

Collection Date: 8/17/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 4.1    | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Sample ID: L1816106-3

Collection Date: 8/16/2016

Work Order: 1608964

Lab ID: 1608964-03

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 600    | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-5

Lab ID: 1608964-04

Collection Date: 8/17/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 440    | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-6

Lab ID: 1608964-05

Collection Date: 8/16/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 230    | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:



## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-7

Lab ID: 1608964-06

Collection Date: 8/17/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 1,100  | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Sample ID: L1816106-8

Collection Date: 8/16/2016

Work Order: 1608964

Lab ID: 1608964-07

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 4.8    | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Sample ID: L1816106-9

Collection Date: 8/17/2016

Work Order: 1608964

Lab ID: 1608964-08

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-10

Lab ID: 1608964-09

Collection Date: 8/17/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-11

Lab ID: 1608964-10

Collection Date: 8/17/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-12

Lab ID: 1608964-11

Collection Date: 8/16/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-13

Lab ID: 1608964-12

Collection Date: 8/16/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:



## ALS Environmental

Date: 01-Sep-16

Client: ALS Environmental

Project: L1816106

Work Order: 1608964

Sample ID: L1816106-14

Lab ID: 1608964-13

Collection Date: 8/16/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     | H    | 2.0             | mg/L  | 1                  | 8/30/2016           |

Note:

**Client:** ALS Environmental  
**Work Order:** 1608964  
**Project:** L1816106

**QC BATCH REPORT**

Batch ID: **R132428** Instrument ID: **WETCHEM** Method: **E160.2**

|             |                                      |     |         |               |      |                       |                                 |      |              |      |
|-------------|--------------------------------------|-----|---------|---------------|------|-----------------------|---------------------------------|------|--------------|------|
| <b>MBLK</b> | Sample ID: <b>MB-R132428-R132428</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>8/30/2016</b> |      |              |      |
| Client ID:  | Run ID: <b>WETCHEM_160830C</b>       |     |         |               |      | SeqNo: <b>1346893</b> | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte     | Result                               | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids ND 2.0

|            |                                       |     |         |               |      |                       |                                 |      |              |      |
|------------|---------------------------------------|-----|---------|---------------|------|-----------------------|---------------------------------|------|--------------|------|
| <b>LCS</b> | Sample ID: <b>LCS-R132428-R132428</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>8/30/2016</b> |      |              |      |
| Client ID: | Run ID: <b>WETCHEM_160830C</b>        |     |         |               |      | SeqNo: <b>1346894</b> | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte    | Result                                | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids 905.2 2.0 1000 0 90.5 70-130 0

|                               |                                   |     |         |               |      |                       |                                 |      |              |      |
|-------------------------------|-----------------------------------|-----|---------|---------------|------|-----------------------|---------------------------------|------|--------------|------|
| <b>DUP</b>                    | Sample ID: <b>1608964-10A Dup</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>8/30/2016</b> |      |              |      |
| Client ID: <b>L1816106-11</b> | Run ID: <b>WETCHEM_160830C</b>    |     |         |               |      | SeqNo: <b>1346906</b> | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte                       | Result                            | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids ND 2.0 0 0 0 0.93 0 H

|                               |                                   |     |         |               |      |                       |                                 |      |              |      |
|-------------------------------|-----------------------------------|-----|---------|---------------|------|-----------------------|---------------------------------|------|--------------|------|
| <b>DUP</b>                    | Sample ID: <b>1608964-13A Dup</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>8/30/2016</b> |      |              |      |
| Client ID: <b>L1816106-14</b> | Run ID: <b>WETCHEM_160830C</b>    |     |         |               |      | SeqNo: <b>1346910</b> | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte                       | Result                            | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids ND 2.0 0 0 0 1.12 0 H

The following samples were analyzed in this batch:

|             |             |             |
|-------------|-------------|-------------|
| 1608964-01A | 1608964-02A | 1608964-03A |
| 1608964-04A | 1608964-05A | 1608964-06A |
| 1608964-07A | 1608964-08A | 1608964-09A |
| 1608964-10A | 1608964-11A | 1608964-12A |
| 1608964-13A |             |             |

## ALS Environmental

Date: 01-Sep-16

**Client:** ALS Environmental  
**Project:** L1816106  
**WorkOrder:** 1608964

## QUALIFIERS, ACRONYMS, UNITS

| <u>Qualifier</u> | <u>Description</u>                                                        |
|------------------|---------------------------------------------------------------------------|
| *                | Value exceeds Regulatory Limit                                            |
| a                | Not accredited                                                            |
| B                | Analyte detected in the associated Method Blank above the Reporting Limit |
| E                | Value above quantitation range                                            |
| H                | Analyzed outside of Holding Time                                          |
| J                | Analyte detected below quantitation limit                                 |
| n                | Not offered for accreditation                                             |
| ND               | Not Detected at the Reporting Limit                                       |
| O                | Sample amount is > 4 times amount spiked                                  |
| P                | Dual Column results percent difference > 40%                              |
| R                | RPD above laboratory control limit                                        |
| S                | Spike Recovery outside laboratory control limits                          |
| U                | Analyzed but not detected above the MDL                                   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| E              | EPA Method                          |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MQL            | Method Quantitation Limit           |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PDS            | Post Digestion Spike                |
| PQL            | Practical Quantitation Limit        |
| SDL            | Sample Detection Limit              |
| SW             | SW-846 Method                       |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| %                     |                    |
| mg/L                  |                    |

## Sample Receipt Checklist

Client Name: **ALS-VANCOUVER**

Date/Time Received: **26-Aug-16 00:00**

Work Order: **1608964**

Received by: **RDN**

Checklist completed by: **Chris Gibson**

29-Aug-16

Reviewed by: **Shawn Smythe**

29-Aug-16

eSignature

Date

eSignature

Date

Matrices:

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

5.8

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

pH adjusted?

Yes ☐

No ☐

N/A ☒

pH adjusted by:

-

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Contact: Brent Mack  
Company: ALS Environmental  
Address: 8081 Lougheed HWY, Suite 100  
Burnaby, BC V5A1W9

## REFERENCE DATA

---

Project / Location: L1816106

PO Number: L1816106

ALS Work Order: 1608811

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

NELAC accredited through New York ELAP, LAB #11371

## TEM ANALYSIS DATA

---

EDXA Resolution (eV): <175

Calibration Constant (µm/cm): 0.74

Accelerating Voltage (keV): 100

Camera Constant (mm-Å): 129.25

Prep Start Date: 8/24/2016

Analysis Start Date: 8/26/2016

*Pamela Johnson*

*Shawn Smythe*

Pamela Johnson  
ALS TEM Analyst

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*

## IDENTIFICATION

|                     |               |               |               |
|---------------------|---------------|---------------|---------------|
| Client Sample ID:   | L1816106-2 E2 | L1816106-4 E3 | L1816106-5 R3 |
| ALS Sample ID:      | 1608811-01    | 1608811-02    | 1608811-03    |
| Method:             | EPA 100.2     | EPA 100.2     | EPA 100.2     |
| Date of Collection: | 8/17/2016     | 8/17/2016     | 8/16/2016     |
| Time of Collection: | Not Provided  | Not Provided  | Not Provided  |

## FILTRATION & ANALYSIS

|                                       |           |           |           |
|---------------------------------------|-----------|-----------|-----------|
| Date of Filtration:                   | 8/23/2016 | 8/23/2016 | 8/23/2016 |
| Time of Filtration:                   | 16:35     | 16:35     | 16:35     |
| Volume Filtered (L):                  | 0.015     | 0.001     | 0.001     |
| Openings Analyzed:                    | 4         | 4         | 10        |
| Avg. Opening Area (mm <sup>2</sup> ): | 0.0108    | 0.0108    | 0.0108    |
| AS (MFL):                             | 1.66      | 24.88     | 9.95      |

## ASBESTOS COUNT

|                              |    |    |   |
|------------------------------|----|----|---|
| Chrysotile:                  | 49 | 15 | 0 |
| Amosite:                     | 0  | 0  | 0 |
| Crocidolite:                 | 0  | 0  | 0 |
| Act-Tremolite <sup>†</sup> : | 0  | 0  | 0 |
| Anthophyllite:               | 0  | 0  | 0 |
| Total Asbestos:              | 49 | 15 | 0 |

## ASBESTOS CONCENTRATION (MFL)

|                              |              |               |               |
|------------------------------|--------------|---------------|---------------|
| Chrysotile:                  | 81.29        | 373.26        | <AS           |
| Amosite:                     | <AS          | <AS           | <AS           |
| Crocidolite:                 | <AS          | <AS           | <AS           |
| Act-Tremolite <sup>†</sup> : | <AS          | <AS           | <AS           |
| Anthophyllite:               | <AS          | <AS           | <AS           |
| <b>Total Asbestos:</b>       | <b>81.29</b> | <b>373.26</b> | <b>&lt;AS</b> |

## NOTES

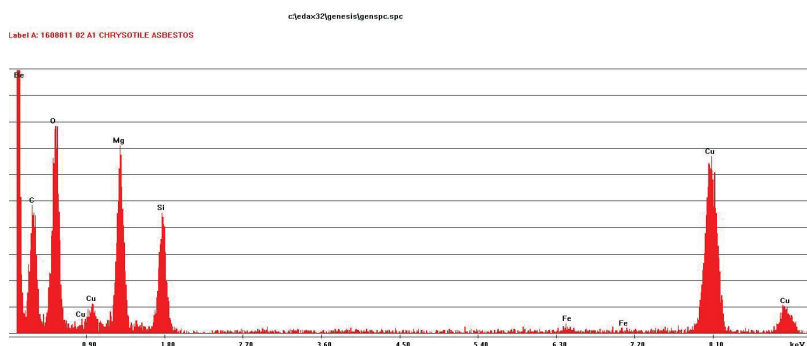
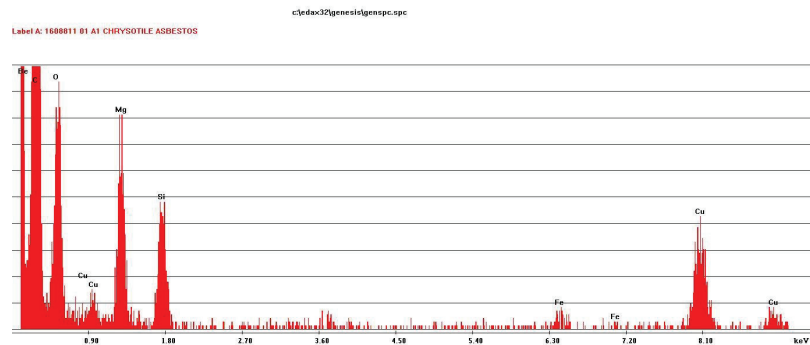
All samples contained excessive suspended solids prohibiting filtration of sufficient sample to reach the recommended method AS of <0.20 MFL.

Analysis of samples L1816106-2 E2 and L1816106-4 E2 was terminated with the completion of the minimum 4 openings due to heavy concentrations of asbestos.

Analysis of sample L1816106-5 R3 was terminated with the completion of the maximum 10 openings.

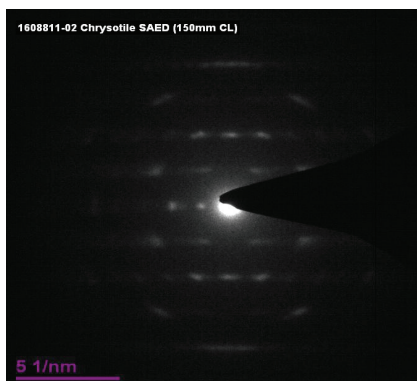
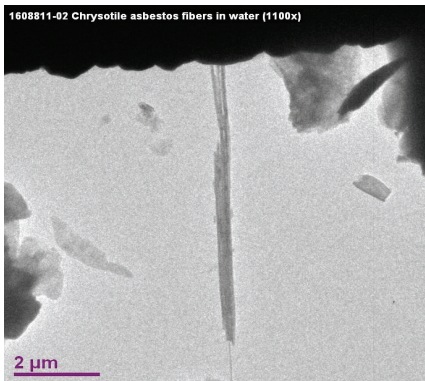
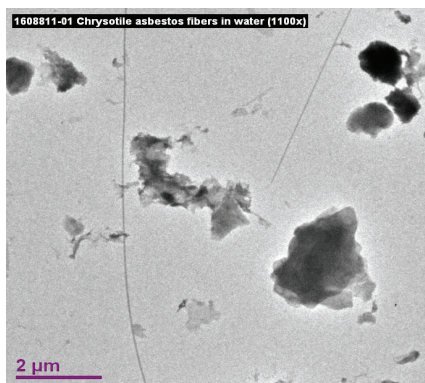
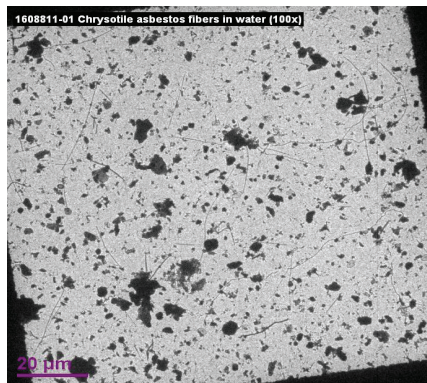
## EDXA SPECTRA

NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.



## PHOTOMICROGRAPHS

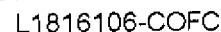
Collected using Gatan Digital Micrograph.







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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

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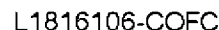
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NA 7M-0328a v08 Final04-January 2011

8, 7, 6, 6, 5



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NA-FIA-0328a v09 Print/04 January 201

8, 7, 6, 6, 5



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 22-AUG-16  
Report Date: 20-SEP-16 17:55 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1816799  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.19  
C of C Numbers: 1, 2  
Legal Site Desc:

### Comments:

20-SEP-2016 This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.  
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1816799-1<br>Water<br>18-AUG-16<br>15:10<br>E4 | L1816799-2<br>Water<br>20-AUG-16<br>14:25<br>E4 | L1816799-3<br>Water<br>18-AUG-16<br>13:15<br>E8 | L1816799-4<br>Water<br>20-AUG-16<br>14:50<br>E8 | L1816799-5<br>Water<br>18-AUG-16<br>13:55<br>R4 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            |                                                 | 561                                             |                                                 | 192                                             |                                                 |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 307                                             |                                                 | 81.5                                            |                                                 | 207                                             |
|                                                                       | pH (pH)                         |                                                 | 7.88                                            |                                                 | 7.78                                            |                                                 |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0306                                          |                                                 | 0.0146                                          |                                                 | 0.0829                                          |
|                                                                       | Nitrate (as N) (mg/L)           |                                                 | 0.116                                           |                                                 | 0.0939                                          |                                                 |
|                                                                       | Nitrite (as N) (mg/L)           |                                                 | <0.0010                                         |                                                 | <0.0010                                         |                                                 |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0183                                          |                                                 | 0.0181                                          |                                                 | 0.538                                           |
|                                                                       | Sulfate (SO4) (mg/L)            |                                                 | 176                                             |                                                 | 36.4                                            |                                                 |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 17.7                                            |                                                 | 22.2                                            |                                                 | 18.4                                            |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 1.29                                            |                                                 | 2.48                                            |                                                 | 8.01                                            |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00062                                         |                                                 | 0.00022                                         |                                                 | 0.00162                                         |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00227                                         |                                                 | 0.00189                                         |                                                 | 0.0119                                          |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.104                                           |                                                 | 0.0801                                          |                                                 | 0.385                                           |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000055                                        |                                                 | 0.000092                                        |                                                 | 0.000323                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       |                                                 | <0.000050                                       |                                                 | 0.000128                                        |
|                                                                       | Boron (B)-Total (mg/L)          | 0.025                                           |                                                 | <0.010                                          |                                                 | <0.010                                          |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.000169                                        |                                                 | 0.0000638                                       |                                                 | 0.00143                                         |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 61.4                                            |                                                 | 22.7                                            |                                                 | 63.0                                            |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00500                                         |                                                 | 0.00461                                         |                                                 | 0.0220                                          |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00175                                         |                                                 | 0.00197                                         |                                                 | 0.00881                                         |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00654                                         |                                                 | 0.00742                                         |                                                 | 0.0382                                          |
|                                                                       | Iron (Fe)-Total (mg/L)          | 2.33                                            |                                                 | 3.52                                            |                                                 | 14.7                                            |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.00135                                         |                                                 | 0.00134                                         |                                                 | 0.0100                                          |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0064                                          |                                                 | 0.0040                                          |                                                 | 0.0083                                          |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 36.2                                            |                                                 | 7.64                                            |                                                 | 23.2                                            |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.212                                           |                                                 | 0.132                                           |                                                 | 0.729                                           |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.0000183                                       |                                                 | <0.000025 <sup>DLM</sup>                        |                                                 | 0.000143                                        |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00173                                         |                                                 | 0.000439                                        |                                                 | 0.00338                                         |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0154                                          |                                                 | 0.00670                                         |                                                 | 0.0458                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.067                                           |                                                 | 0.090                                           |                                                 | 0.672                                           |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.73                                            |                                                 | 0.97                                            |                                                 | 1.27                                            |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00202                                         |                                                 | 0.000327                                        |                                                 | 0.00611                                         |
|                                                                       | Silicon (Si)-Total (mg/L)       | 6.81                                            |                                                 | 10.1                                            |                                                 | 17.9                                            |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000056                                        |                                                 | 0.000022                                        |                                                 | 0.000825                                        |
|                                                                       | Sodium (Na)-Total (mg/L)        | 3.53                                            |                                                 | 3.21                                            |                                                 | 3.45                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1816799-6<br>Water<br>20-AUG-16<br>14:30<br>R4 | L1816799-7<br>Water<br>18-AUG-16<br>18:10<br>R6 | L1816799-8<br>Water<br>20-AUG-16<br>15:05<br>R6 | L1816799-9<br>Water<br>18-AUG-16<br>16:50<br>GWCC-5 | L1816799-10<br>Water<br>20-AUG-16<br>14:10<br>GWCC-5 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                     |                                                      |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                     |                                                      |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 399                                             |                                                 | 183                                             |                                                     | 950                                                  |
|                                                                       | Hardness (as CaCO3) (mg/L)      |                                                 | 78.8                                            |                                                 | 601                                                 |                                                      |
|                                                                       | pH (pH)                         | 7.96                                            |                                                 | 7.78                                            |                                                     | 7.86                                                 |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    |                                                 | 0.0172                                          |                                                 | <0.0050                                             |                                                      |
|                                                                       | Nitrate (as N) (mg/L)           | 0.147                                           |                                                 | 0.0920                                          |                                                     | <0.010 <sup>DLDS</sup>                               |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                         |                                                 | <0.0010                                         |                                                     | <0.0020 <sup>DLDS</sup>                              |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                 | 0.0108                                          |                                                 | <0.0020                                             |                                                      |
|                                                                       | Sulfate (SO4) (mg/L)            | 98.8                                            |                                                 | 33.2                                            |                                                     | 333                                                  |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) |                                                 | 22.1                                            |                                                 | 8.27                                                |                                                      |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                 |                                                     |                                                      |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      |                                                 | 1.94                                            |                                                 | <0.0030                                             |                                                      |
|                                                                       | Antimony (Sb)-Total (mg/L)      |                                                 | 0.00018                                         |                                                 | 0.00081                                             |                                                      |
|                                                                       | Arsenic (As)-Total (mg/L)       |                                                 | 0.00160                                         |                                                 | 0.00061                                             |                                                      |
|                                                                       | Barium (Ba)-Total (mg/L)        |                                                 | 0.0687                                          |                                                 | 0.0491                                              |                                                      |
|                                                                       | Beryllium (Be)-Total (mg/L)     |                                                 | 0.000086                                        |                                                 | <0.000020                                           |                                                      |
|                                                                       | Bismuth (Bi)-Total (mg/L)       |                                                 | <0.000050                                       |                                                 | <0.000050                                           |                                                      |
|                                                                       | Boron (B)-Total (mg/L)          |                                                 | <0.010                                          |                                                 | 0.058                                               |                                                      |
|                                                                       | Cadmium (Cd)-Total (mg/L)       |                                                 | 0.0000407                                       |                                                 | 0.000113                                            |                                                      |
|                                                                       | Calcium (Ca)-Total (mg/L)       |                                                 | 21.6                                            |                                                 | 130                                                 |                                                      |
|                                                                       | Chromium (Cr)-Total (mg/L)      |                                                 | 0.00365                                         |                                                 | 0.00074                                             |                                                      |
|                                                                       | Cobalt (Co)-Total (mg/L)        |                                                 | 0.00156                                         |                                                 | <0.00010                                            |                                                      |
|                                                                       | Copper (Cu)-Total (mg/L)        |                                                 | 0.00628                                         |                                                 | 0.00081                                             |                                                      |
|                                                                       | Iron (Fe)-Total (mg/L)          |                                                 | 2.98                                            |                                                 | 0.018                                               |                                                      |
|                                                                       | Lead (Pb)-Total (mg/L)          |                                                 | 0.00108                                         |                                                 | <0.000050                                           |                                                      |
|                                                                       | Lithium (Li)-Total (mg/L)       |                                                 | 0.0039                                          |                                                 | 0.0102                                              |                                                      |
|                                                                       | Magnesium (Mg)-Total (mg/L)     |                                                 | 6.88                                            |                                                 | 60.1                                                |                                                      |
|                                                                       | Manganese (Mn)-Total (mg/L)     |                                                 | 0.108                                           |                                                 | 0.00130                                             |                                                      |
|                                                                       | Mercury (Hg)-Total (mg/L)       |                                                 | <0.000025 <sup>DLM</sup>                        |                                                 | <0.0000050                                          |                                                      |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    |                                                 | 0.000402                                        |                                                 | 0.00210                                             |                                                      |
|                                                                       | Nickel (Ni)-Total (mg/L)        |                                                 | 0.00549                                         |                                                 | 0.0195                                              |                                                      |
|                                                                       | Phosphorus (P)-Total (mg/L)     |                                                 | 0.067                                           |                                                 | <0.050                                              |                                                      |
|                                                                       | Potassium (K)-Total (mg/L)      |                                                 | 0.95                                            |                                                 | 0.88                                                |                                                      |
|                                                                       | Selenium (Se)-Total (mg/L)      |                                                 | 0.000323                                        |                                                 | 0.0122                                              |                                                      |
|                                                                       | Silicon (Si)-Total (mg/L)       |                                                 | 9.52                                            |                                                 | 4.46                                                |                                                      |
|                                                                       | Silver (Ag)-Total (mg/L)        |                                                 | 0.000020                                        |                                                 | <0.000010                                           |                                                      |
|                                                                       | Sodium (Na)-Total (mg/L)        |                                                 | 2.98                                            |                                                 | 3.99                                                |                                                      |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1816799-11<br>Water<br>19-AUG-16<br>14:50<br>R1 | L1816799-12<br>Water<br>19-AUG-16<br>16:35<br>R2 | L1816799-13<br>Water<br>20-AUG-16<br>10:10<br>DUP-2 | L1816799-14<br>Water<br>22-AUG-16<br>TRAVEL BLANK | L1816799-15<br>Water<br>19-AUG-16<br>17:45<br>R8 |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                  |                                                  |                                                     |                                                   |                                                  |
| <b>WATER</b>                                                          |                                 |                                                  |                                                  |                                                     |                                                   |                                                  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 539                                              | 401                                              | 442                                                 | <2.0                                              | 235                                              |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 315                                              | 231                                              | 250                                                 | <0.50 <sup>HTC</sup>                              | 123                                              |
|                                                                       | pH (pH)                         | 8.00                                             | 7.96                                             | 7.91                                                | 5.17                                              | 7.79                                             |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0516                                           | 0.0162                                           | 0.0206                                              | <0.0050                                           | 0.0056                                           |
|                                                                       | Nitrate (as N) (mg/L)           | 0.159                                            | 0.0477                                           | 0.113                                               | <0.0050                                           | <0.0050                                          |
|                                                                       | Nitrite (as N) (mg/L)           | 0.0025                                           | <0.0010                                          | 0.0026                                              | <0.0010                                           | <0.0010                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0188                                           | 0.0166                                           | 0.0051                                              | <0.0020                                           | <0.0020                                          |
|                                                                       | Sulfate (SO4) (mg/L)            | 170                                              | 107                                              | 130                                                 | <0.30                                             | 60.1                                             |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 16.7                                             | 20.5                                             | 18.8                                                |                                                   | 14.6                                             |
|                                                                       | Total Organic Carbon (mg/L)     |                                                  |                                                  |                                                     | <0.50                                             |                                                  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 1.79                                             | 1.16                                             | 0.119                                               | <0.0030                                           | 0.0653                                           |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00040                                          | 0.00057                                          | 0.00035                                             | <0.00010                                          | 0.00074                                          |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00205                                          | 0.00208                                          | 0.00095                                             | <0.00010                                          | 0.00041                                          |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.107                                            | 0.0761                                           | 0.0659                                              | <0.000050                                         | 0.0440                                           |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000085                                         | 0.000055                                         | <0.000020                                           | <0.000020                                         | <0.000020                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                        | <0.000050                                        | <0.000050                                           | <0.000050                                         | <0.000050                                        |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                           | <0.010                                           | <0.010                                              | <0.010                                            | <0.010                                           |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.000220                                         | 0.0000585                                        | 0.0000429                                           | <0.0000050                                        | 0.0000218                                        |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 72.3                                             | 41.3                                             | 57.1                                                | <0.050                                            | 29.8                                             |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00490                                          | 0.00390                                          | 0.00088                                             | <0.00010                                          | 0.00101                                          |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00202                                          | 0.00119                                          | 0.00050                                             | <0.00010                                          | <0.00010                                         |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00740                                          | 0.00424                                          | 0.00327                                             | <0.00050                                          | 0.00210                                          |
|                                                                       | Iron (Fe)-Total (mg/L)          | 3.00                                             | 2.23                                             | 0.439                                               | <0.010                                            | 0.140                                            |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.00321                                          | 0.000915                                         | 0.000236                                            | <0.000050                                         | <0.000050                                        |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0035                                           | 0.0046                                           | 0.0026                                              | <0.0010                                           | 0.0010                                           |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 26.9                                             | 26.4                                             | 24.3                                                | <0.10                                             | 10.8                                             |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.339                                            | 0.129                                            | 0.163                                               | <0.00010                                          | 0.00903                                          |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.000025 <sup>DLM</sup>                         | <0.000025 <sup>DLM</sup>                         | <0.000025 <sup>DLM</sup>                            | <0.0000050                                        | <0.000025 <sup>DLM</sup>                         |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00147                                          | 0.000601                                         | 0.00114                                             | <0.000050                                         | 0.000858                                         |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00853                                          | 0.00778                                          | 0.00410                                             | <0.00050                                          | 0.00308                                          |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.067                                            | 0.058                                            | <0.050                                              | <0.050                                            | <0.050                                           |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.74                                             | 0.60                                             | 0.47                                                | <0.10                                             | 0.10                                             |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00246                                          | 0.000773                                         | 0.00177                                             | <0.000050                                         | 0.00338                                          |
|                                                                       | Silicon (Si)-Total (mg/L)       | 6.98                                             | 7.56                                             | 5.03                                                | <0.050                                            | 6.54                                             |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000078                                         | 0.000018                                         | <0.000010                                           | <0.000010                                         | <0.000010                                        |
|                                                                       | Sodium (Na)-Total (mg/L)        | 2.82                                             | 2.30                                             | 2.34                                                | <0.050                                            | 4.24                                             |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1816799-16<br>Water<br>20-AUG-16<br>08:50<br>R9 | L1816799-17<br>Water<br>20-AUG-16<br>13:05<br>SL | L1816799-18<br>Water<br>18-AUG-16<br>11:35<br>E7 | L1816799-19<br>Water<br>20-AUG-16<br>14:45<br>E7 | L1816799-20<br>Water<br>20-AUG-16<br>10:10<br>E1(H) |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                  |                                                  |                                                  |                                                  |                                                     |
| <b>WATER</b>                                                          |                                 |                                                  |                                                  |                                                  |                                                  |                                                     |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 470                                              | 1110                                             |                                                  | 509                                              | 434                                                 |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 267                                              | 711                                              | 296                                              |                                                  | 246                                                 |
|                                                                       | pH (pH)                         | 7.79                                             | 8.13                                             |                                                  | 7.94                                             | 7.91                                                |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.118                                            | <0.0050                                          | 0.0494                                           |                                                  | 0.0215                                              |
|                                                                       | Nitrate (as N) (mg/L)           | 0.182                                            | 0.122                                            |                                                  | 0.126                                            | 0.111                                               |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                          | <0.0020 <sup>DLDS</sup>                          |                                                  | <0.0010                                          | <0.0010                                             |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0285                                           | <0.0020                                          | 0.0055 <sup>RRV</sup>                            |                                                  | 0.0041                                              |
|                                                                       | Sulfate (SO4) (mg/L)            | 154                                              | 502                                              |                                                  | 154                                              | 130                                                 |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 25.8                                             | 11.3                                             | 17.3                                             |                                                  | 16.9                                                |
|                                                                       | Total Organic Carbon (mg/L)     |                                                  |                                                  |                                                  |                                                  |                                                     |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 2.38                                             | 0.0319                                           | 2.76                                             |                                                  | 0.122                                               |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00042                                          | 0.00293                                          | 0.00096                                          |                                                  | 0.00040                                             |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00274                                          | 0.0152                                           | 0.00472                                          |                                                  | 0.00098                                             |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.163                                            | 0.0221                                           | 0.148                                            |                                                  | 0.0681                                              |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000097                                         | <0.000020                                        | 0.000121                                         |                                                  | 0.000020                                            |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                        | <0.000050                                        | <0.000050                                        |                                                  | <0.000050                                           |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                           | 0.036                                            | 0.024                                            |                                                  | <0.010                                              |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.000191                                         | 0.0000309                                        | 0.000251                                         |                                                  | 0.0000421                                           |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 62.1                                             | 168                                              | 61.9                                             |                                                  | 57.2                                                |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00627                                          | 0.00123                                          | 0.0108                                           |                                                  | 0.00090                                             |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00286                                          | 0.00016                                          | 0.00329                                          |                                                  | 0.00051                                             |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.0108                                           | 0.00202                                          | 0.0113                                           |                                                  | 0.00314                                             |
|                                                                       | Iron (Fe)-Total (mg/L)          | 4.55                                             | 0.074                                            | 5.40                                             |                                                  | 0.436                                               |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.00175                                          | <0.000050                                        | 0.00365                                          |                                                  | 0.000248                                            |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0027                                           | 0.0081                                           | 0.0085                                           |                                                  | 0.0027                                              |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 26.1                                             | 67.5                                             | 34.9                                             |                                                  | 24.3                                                |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.611                                            | 0.0134                                           | 0.329                                            |                                                  | 0.169                                               |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.000050 <sup>DLM</sup>                         | 0.0000068                                        | <0.000050 <sup>DLM</sup>                         |                                                  | <0.0000050                                          |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00151                                          | 0.00192                                          | 0.00224                                          |                                                  | 0.00130                                             |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00964                                          | 0.0157                                           | 0.0239                                           |                                                  | 0.00411                                             |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.106                                            | <0.050                                           | 0.168                                            |                                                  | <0.050                                              |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.72                                             | 1.17                                             | 1.01                                             |                                                  | 0.50                                                |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00248                                          | 0.0137                                           | 0.00231                                          |                                                  | 0.00174                                             |
|                                                                       | Silicon (Si)-Total (mg/L)       | 8.80                                             | 5.07                                             | 9.95                                             |                                                  | 5.10                                                |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000050                                         | <0.000010                                        | 0.000125                                         |                                                  | <0.000010                                           |
|                                                                       | Sodium (Na)-Total (mg/L)        | 3.04                                             | 2.14                                             | 3.12                                             |                                                  | 2.38                                                |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1816799-1<br>Water<br>18-AUG-16<br>15:10<br>E4 | L1816799-2<br>Water<br>20-AUG-16<br>14:25<br>E4 | L1816799-3<br>Water<br>18-AUG-16<br>13:15<br>E8 | L1816799-4<br>Water<br>20-AUG-16<br>14:50<br>E8 | L1816799-5<br>Water<br>18-AUG-16<br>13:55<br>R4 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>            |                                       |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Total Metals</b>     | Strontium (Sr)-Total (mg/L)           | 0.328                                                                 |                                                 |                                                 | 0.122                                           |                                                 | 0.320                                           |
|                         | Sulfur (S)-Total (mg/L)               | 58.0                                                                  |                                                 |                                                 | 10.6                                            |                                                 | 31.2                                            |
|                         | Thallium (Tl)-Total (mg/L)            | 0.000027                                                              |                                                 |                                                 | 0.000022                                        |                                                 | 0.000156                                        |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |                                                 |                                                 | <0.00010                                        |                                                 | 0.00012                                         |
|                         | Titanium (Ti)-Total (mg/L)            | 0.0322                                                                |                                                 |                                                 | 0.0879                                          |                                                 | 0.142                                           |
|                         | Uranium (U)-Total (mg/L)              | 0.00183                                                               |                                                 |                                                 | 0.000974                                        |                                                 | 0.00285                                         |
|                         | Vanadium (V)-Total (mg/L)             | 0.00454                                                               |                                                 |                                                 | 0.00779                                         |                                                 | 0.0245                                          |
|                         | Zinc (Zn)-Total (mg/L)                | 0.0120                                                                |                                                 |                                                 | 0.0126                                          |                                                 | 0.0637                                          |
|                         | Zirconium (Zr)-Total (mg/L)           | 0.00103                                                               |                                                 |                                                 | 0.00115                                         |                                                 | 0.00190                                         |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 | FIELD                                           |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 | FIELD                                           |
|                         | Aluminum (Al)-Dissolved (mg/L)        | 0.0482                                                                |                                                 |                                                 | 0.126                                           |                                                 | 0.0513                                          |
|                         | Antimony (Sb)-Dissolved (mg/L)        | 0.00045                                                               |                                                 |                                                 | 0.00012                                         |                                                 | 0.00039                                         |
|                         | Arsenic (As)-Dissolved (mg/L)         | 0.00107                                                               |                                                 |                                                 | 0.00072                                         |                                                 | 0.00152                                         |
|                         | Barium (Ba)-Dissolved (mg/L)          | 0.0692                                                                |                                                 |                                                 | 0.0428                                          |                                                 | 0.0844                                          |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             |                                                 |                                                 | 0.000028                                        |                                                 | <0.000020                                       |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |                                                 |                                                 | <0.000050                                       |                                                 | <0.000050                                       |
|                         | Boron (B)-Dissolved (mg/L)            | 0.024                                                                 |                                                 |                                                 | <0.010                                          |                                                 | <0.010                                          |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000297                                                             |                                                 |                                                 | 0.0000094                                       |                                                 | 0.0000411                                       |
|                         | Calcium (Ca)-Dissolved (mg/L)         | 63.7                                                                  |                                                 |                                                 | 21.4                                            |                                                 | 52.5                                            |
|                         | Chromium (Cr)-Dissolved (mg/L)        | 0.00087                                                               |                                                 |                                                 | 0.00066                                         |                                                 | 0.00063                                         |
|                         | Cobalt (Co)-Dissolved (mg/L)          | 0.00056                                                               |                                                 |                                                 | 0.00045                                         |                                                 | 0.00060                                         |
|                         | Copper (Cu)-Dissolved (mg/L)          | 0.00273                                                               |                                                 |                                                 | 0.00358                                         |                                                 | 0.00282                                         |
|                         | Iron (Fe)-Dissolved (mg/L)            | 0.286                                                                 |                                                 |                                                 | 0.400                                           |                                                 | 0.249                                           |
|                         | Lead (Pb)-Dissolved (mg/L)            | 0.000069                                                              |                                                 |                                                 | 0.000067                                        |                                                 | 0.000058                                        |
|                         | Lithium (Li)-Dissolved (mg/L)         | 0.0057                                                                |                                                 |                                                 | 0.0026                                          |                                                 | 0.0015                                          |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | 35.9                                                                  |                                                 |                                                 | 6.84                                            |                                                 | 18.5                                            |
|                         | Manganese (Mn)-Dissolved (mg/L)       | 0.153                                                                 |                                                 |                                                 | 0.0462                                          |                                                 | 0.172                                           |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            |                                                 |                                                 | <0.0000050                                      |                                                 | 0.0000053                                       |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00131                                                               |                                                 |                                                 | 0.000367                                        |                                                 | 0.00116                                         |
|                         | Nickel (Ni)-Dissolved (mg/L)          | 0.00907                                                               |                                                 |                                                 | 0.00311                                         |                                                 | 0.00637                                         |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |                                                 |                                                 | <0.050                                          |                                                 | <0.050                                          |
|                         | Potassium (K)-Dissolved (mg/L)        | 0.59                                                                  |                                                 |                                                 | 0.73                                            |                                                 | 0.36                                            |
|                         | Selenium (Se)-Dissolved (mg/L)        | 0.00196                                                               |                                                 |                                                 | 0.000289                                        |                                                 | 0.00414                                         |
|                         | Silicon (Si)-Dissolved (mg/L)         | 5.20                                                                  |                                                 |                                                 | 6.46                                            |                                                 | 5.44                                            |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |                                                 |                                                 | <0.000010                                       |                                                 | <0.000010                                       |
|                         | Sodium (Na)-Dissolved (mg/L)          | 3.43                                                                  |                                                 |                                                 | 2.98                                            |                                                 | 2.85                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1816799-6<br>Water<br>20-AUG-16<br>14:30<br>R4 | L1816799-7<br>Water<br>18-AUG-16<br>18:10<br>R6 | L1816799-8<br>Water<br>20-AUG-16<br>15:05<br>R6 | L1816799-9<br>Water<br>18-AUG-16<br>16:50<br>GWCC-5 | L1816799-10<br>Water<br>20-AUG-16<br>14:10<br>GWCC-5 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                 |                                                 |                                                 |                                                     |                                                      |
| <b>WATER</b>            |                                       |                                                                       |                                                 |                                                 |                                                 |                                                     |                                                      |
| <b>Total Metals</b>     | Strontium (Sr)-Total (mg/L)           |                                                                       |                                                 | 0.120                                           |                                                 | 0.843                                               |                                                      |
|                         | Sulfur (S)-Total (mg/L)               |                                                                       |                                                 | 9.49                                            |                                                 | 112                                                 |                                                      |
|                         | Thallium (Tl)-Total (mg/L)            |                                                                       |                                                 | 0.000018                                        |                                                 | 0.000014                                            |                                                      |
|                         | Tin (Sn)-Total (mg/L)                 |                                                                       |                                                 | <0.00010                                        |                                                 | <0.00010                                            |                                                      |
|                         | Titanium (Ti)-Total (mg/L)            |                                                                       |                                                 | 0.0682                                          |                                                 | <0.00030                                            |                                                      |
|                         | Uranium (U)-Total (mg/L)              |                                                                       |                                                 | 0.000929                                        |                                                 | 0.00322                                             |                                                      |
|                         | Vanadium (V)-Total (mg/L)             |                                                                       |                                                 | 0.00621                                         |                                                 | <0.00050                                            |                                                      |
|                         | Zinc (Zn)-Total (mg/L)                |                                                                       |                                                 | 0.0101                                          |                                                 | <0.0030                                             |                                                      |
|                         | Zirconium (Zr)-Total (mg/L)           |                                                                       |                                                 | 0.00121                                         |                                                 | <0.00030                                            |                                                      |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location |                                                                       |                                                 | FIELD                                           |                                                 | FIELD                                               |                                                      |
|                         | Dissolved Metals Filtration Location  |                                                                       |                                                 | FIELD                                           |                                                 | FIELD                                               |                                                      |
|                         | Aluminum (Al)-Dissolved (mg/L)        |                                                                       |                                                 | 0.126                                           |                                                 | 0.0014                                              |                                                      |
|                         | Antimony (Sb)-Dissolved (mg/L)        |                                                                       |                                                 | 0.00013                                         |                                                 | 0.00083                                             |                                                      |
|                         | Arsenic (As)-Dissolved (mg/L)         |                                                                       |                                                 | 0.00072                                         |                                                 | 0.00060                                             |                                                      |
|                         | Barium (Ba)-Dissolved (mg/L)          |                                                                       |                                                 | 0.0405                                          |                                                 | 0.0486                                              |                                                      |
|                         | Beryllium (Be)-Dissolved (mg/L)       |                                                                       |                                                 | 0.000032                                        |                                                 | <0.000020                                           |                                                      |
|                         | Bismuth (Bi)-Dissolved (mg/L)         |                                                                       |                                                 | <0.000050                                       |                                                 | <0.000050                                           |                                                      |
|                         | Boron (B)-Dissolved (mg/L)            |                                                                       |                                                 | <0.010                                          |                                                 | 0.058                                               |                                                      |
|                         | Cadmium (Cd)-Dissolved (mg/L)         |                                                                       |                                                 | 0.0000291                                       |                                                 | 0.000107                                            |                                                      |
|                         | Calcium (Ca)-Dissolved (mg/L)         |                                                                       |                                                 | 21.0                                            |                                                 | 137                                                 |                                                      |
|                         | Chromium (Cr)-Dissolved (mg/L)        |                                                                       |                                                 | 0.00062                                         |                                                 | 0.00065                                             |                                                      |
|                         | Cobalt (Co)-Dissolved (mg/L)          |                                                                       |                                                 | 0.00045                                         |                                                 | <0.00010                                            |                                                      |
|                         | Copper (Cu)-Dissolved (mg/L)          |                                                                       |                                                 | 0.00360                                         |                                                 | 0.00073                                             |                                                      |
|                         | Iron (Fe)-Dissolved (mg/L)            |                                                                       |                                                 | 0.420                                           |                                                 | 0.017                                               |                                                      |
|                         | Lead (Pb)-Dissolved (mg/L)            |                                                                       |                                                 | 0.000079                                        |                                                 | <0.000050                                           |                                                      |
|                         | Lithium (Li)-Dissolved (mg/L)         |                                                                       |                                                 | 0.0028                                          |                                                 | 0.0108                                              |                                                      |
|                         | Magnesium (Mg)-Dissolved (mg/L)       |                                                                       |                                                 | 6.41                                            |                                                 | 62.7                                                |                                                      |
|                         | Manganese (Mn)-Dissolved (mg/L)       |                                                                       |                                                 | 0.0424                                          |                                                 | 0.00133                                             |                                                      |
|                         | Mercury (Hg)-Dissolved (mg/L)         |                                                                       |                                                 | <0.0000050                                      |                                                 | <0.0000050                                          |                                                      |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      |                                                                       |                                                 | 0.000352                                        |                                                 | 0.00202                                             |                                                      |
|                         | Nickel (Ni)-Dissolved (mg/L)          |                                                                       |                                                 | 0.00300                                         |                                                 | 0.0195                                              |                                                      |
|                         | Phosphorus (P)-Dissolved (mg/L)       |                                                                       |                                                 | <0.050                                          |                                                 | <0.050                                              |                                                      |
|                         | Potassium (K)-Dissolved (mg/L)        |                                                                       |                                                 | 0.76                                            |                                                 | 0.95                                                |                                                      |
|                         | Selenium (Se)-Dissolved (mg/L)        |                                                                       |                                                 | 0.000207                                        |                                                 | 0.0117                                              |                                                      |
|                         | Silicon (Si)-Dissolved (mg/L)         |                                                                       |                                                 | 6.57                                            |                                                 | 4.69                                                |                                                      |
|                         | Silver (Ag)-Dissolved (mg/L)          |                                                                       |                                                 | <0.000010                                       |                                                 | <0.000010                                           |                                                      |
|                         | Sodium (Na)-Dissolved (mg/L)          |                                                                       |                                                 | 2.94                                            |                                                 | 3.99                                                |                                                      |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1816799-11<br>Water<br>19-AUG-16<br>14:50<br>R1 | L1816799-12<br>Water<br>19-AUG-16<br>16:35<br>R2 | L1816799-13<br>Water<br>20-AUG-16<br>10:10<br>DUP-2 | L1816799-14<br>Water<br>22-AUG-16<br>TRAVEL BLANK | L1816799-15<br>Water<br>19-AUG-16<br>17:45<br>R8 |
|-----------------------------------------------------------------------|---------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                  |                                                  |                                                     |                                                   |                                                  |
| <b>WATER</b>                                                          |                                       |                                                  |                                                  |                                                     |                                                   |                                                  |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.325                                            | 0.235                                            | 0.252                                               | <0.00020                                          | 0.130                                            |
|                                                                       | Sulfur (S)-Total (mg/L)               | 57.7                                             | 34.6                                             | 45.3                                                | <0.50                                             | 21.1                                             |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000037                                         | 0.000015                                         | <0.000010                                           | <0.000010                                         | <0.000010                                        |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                         | <0.00010                                         | <0.00010                                            | <0.00010                                          | 0.00017                                          |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.0374                                           | 0.0345                                           | 0.00290                                             | <0.00030                                          | 0.00138                                          |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00200                                          | 0.00215                                          | 0.00148                                             | <0.000010                                         | 0.000096                                         |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00504                                          | 0.00419                                          | 0.00102                                             | <0.00050                                          | <0.00050                                         |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0154                                           | 0.0070                                           | <0.0030                                             | <0.0030                                           | <0.0030                                          |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00119                                          | 0.00106                                          | 0.00098                                             | <0.00030                                          | 0.00067                                          |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                            | FIELD                                            | FIELD                                               |                                                   | FIELD                                            |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                            | FIELD                                            | FIELD                                               |                                                   | FIELD                                            |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0485                                           | 0.112                                            | 0.0617                                              |                                                   | 0.0346                                           |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00023                                          | 0.00038                                          | 0.00032                                             |                                                   | 0.00074                                          |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00064                                          | 0.00097                                          | 0.00081                                             |                                                   | 0.00030                                          |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0594                                           | 0.0568                                           | 0.0694                                              |                                                   | 0.0415                                           |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                        | <0.000020                                        | <0.000020                                           |                                                   | <0.000020                                        |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                        | <0.000050                                        | <0.000050                                           |                                                   | <0.000050                                        |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                           | <0.010                                           | <0.010                                              |                                                   | <0.010                                           |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000590                                        | 0.0000264                                        | 0.0000437                                           |                                                   | 0.0000183                                        |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 77.2                                             | 44.2                                             | 59.2                                                |                                                   | 30.9                                             |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00041                                          | 0.00122                                          | 0.00071                                             |                                                   | 0.00083                                          |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00062                                          | 0.00044                                          | 0.00050                                             |                                                   | <0.00010                                         |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00254                                          | 0.00261                                          | 0.00318                                             |                                                   | 0.00183                                          |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.299                                            | 0.597                                            | 0.288                                               |                                                   | 0.074                                            |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | 0.000116                                         | 0.000053                                         | 0.000107                                            |                                                   | <0.000050                                        |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0024                                           | 0.0038                                           | 0.0023                                              |                                                   | 0.0011                                           |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 29.7                                             | 29.2                                             | 24.7                                                |                                                   | 11.0                                             |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.242                                            | 0.0993                                           | 0.170                                               |                                                   | 0.00667                                          |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                       | <0.0000050                                       | <0.0000050                                          |                                                   | <0.0000050                                       |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00110                                          | 0.000492                                         | 0.000958                                            |                                                   | 0.000803                                         |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00363                                          | 0.00525                                          | 0.00418                                             |                                                   | 0.00290                                          |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                           | <0.050                                           | <0.050                                              |                                                   | <0.050                                           |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.48                                             | 0.52                                             | 0.46                                                |                                                   | <0.10                                            |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00238                                          | 0.000733                                         | 0.00170                                             |                                                   | 0.00272                                          |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 4.95                                             | 6.30                                             | 5.03                                                |                                                   | 6.60                                             |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                        | <0.000010                                        | <0.000010                                           |                                                   | <0.000010                                        |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 2.46                                             | 2.49                                             | 2.50                                                |                                                   | 3.97                                             |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1816799-16<br>Water<br>20-AUG-16<br>08:50<br>R9 | L1816799-17<br>Water<br>20-AUG-16<br>13:05<br>SL | L1816799-18<br>Water<br>18-AUG-16<br>11:35<br>E7 | L1816799-19<br>Water<br>20-AUG-16<br>14:45<br>E7 | L1816799-20<br>Water<br>20-AUG-16<br>10:10<br>E1(H) |
|-----------------------------------------------------------------------|---------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                  |                                                  |                                                  |                                                  |                                                     |
| <b>WATER</b>                                                          |                                       |                                                  |                                                  |                                                  |                                                  |                                                     |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.274                                            | 0.804                                            | 0.369                                            |                                                  | 0.296                                               |
|                                                                       | Sulfur (S)-Total (mg/L)               | 52.7                                             | 174                                              | 53.6                                             |                                                  | 45.8                                                |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000024                                         | 0.000017                                         | 0.000052                                         |                                                  | <0.000010                                           |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                         | <0.00010                                         | <0.00010                                         |                                                  | <0.00010                                            |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.0769                                           | 0.00061                                          | 0.0755                                           |                                                  | 0.00292                                             |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00148                                          | 0.00209                                          | 0.00224                                          |                                                  | 0.00179                                             |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00835                                          | <0.00050                                         | 0.00874                                          |                                                  | 0.00099                                             |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0165                                           | 0.0030                                           | 0.0227                                           |                                                  | <0.0030                                             |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00125                                          | <0.00030                                         | 0.00128                                          |                                                  | 0.00114                                             |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                            | FIELD                                            | FIELD                                            |                                                  | FIELD                                               |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                            | FIELD                                            | FIELD                                            |                                                  | FIELD                                               |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.100                                            | 0.0131                                           | 0.0479                                           |                                                  | 0.0556                                              |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00023                                          | 0.00272                                          | 0.00036                                          |                                                  | 0.00040                                             |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00115                                          | 0.0133                                           | 0.00103                                          |                                                  | 0.00083                                             |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.102                                            | 0.0184                                           | 0.0746                                           |                                                  | 0.0681                                              |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | 0.000023                                         | <0.000020                                        | <0.000020                                        |                                                  | <0.000020                                           |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                        | <0.000050                                        | <0.000050                                        |                                                  | <0.000050                                           |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                           | 0.033                                            | 0.016                                            |                                                  | <0.010                                              |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000538                                        | 0.0000268                                        | 0.0000275                                        |                                                  | 0.0000320                                           |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 64.1                                             | 172                                              | 62.2                                             |                                                  | 58.2                                                |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00115                                          | 0.00087                                          | 0.00082                                          |                                                  | 0.00064                                             |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00112                                          | 0.00012                                          | 0.00063                                          |                                                  | 0.00046                                             |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00462                                          | 0.00182                                          | 0.00281                                          |                                                  | 0.00299                                             |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 1.06                                             | 0.037                                            | 0.320                                            |                                                  | 0.277                                               |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | 0.000081                                         | <0.000050                                        | 0.000086                                         |                                                  | 0.000110                                            |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | <0.0010                                          | 0.0078                                           | 0.0046                                           |                                                  | 0.0029                                              |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 26.0                                             | 68.5                                             | 34.3                                             |                                                  | 24.4                                                |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.506                                            | 0.0108                                           | 0.185                                            |                                                  | 0.164                                               |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                       | <0.0000050                                       | <0.0000050                                       |                                                  | <0.0000050                                          |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00109                                          | 0.00175                                          | 0.00103                                          |                                                  | 0.00128                                             |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00461                                          | 0.0130                                           | 0.00856                                          |                                                  | 0.00391                                             |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                           | <0.050                                           | <0.050                                           |                                                  | <0.050                                              |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.51                                             | 1.13                                             | 0.61                                             |                                                  | 0.47                                                |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00203                                          | 0.0127                                           | 0.00198                                          |                                                  | 0.00166                                             |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.34                                             | 5.03                                             | 5.28                                             |                                                  | 4.98                                                |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                        | <0.000010                                        | <0.000010                                        |                                                  | <0.000010                                           |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 2.82                                             | 1.82                                             | 3.04                                             |                                                  | 2.42                                                |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1816799-1<br>Water<br>18-AUG-16<br>15:10<br>E4 | L1816799-2<br>Water<br>20-AUG-16<br>14:25<br>E4 | L1816799-3<br>Water<br>18-AUG-16<br>13:15<br>E8 | L1816799-4<br>Water<br>20-AUG-16<br>14:50<br>E8 | L1816799-5<br>Water<br>18-AUG-16<br>13:55<br>R4 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L)      | 0.329                                           |                                                 | 0.115                                           |                                                 | 0.229                                           |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 55.9                                            |                                                 | 9.85                                            |                                                 | 29.2                                            |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       |                                                 | <0.000010                                       |                                                 | <0.000010                                       |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        |                                                 | <0.00010                                        |                                                 | <0.00010                                        |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00114                                         |                                                 | 0.00209                                         |                                                 | 0.00146                                         |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00164                                         |                                                 | 0.000682                                        |                                                 | 0.00164                                         |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00063                                         |                                                 | 0.00124                                         |                                                 | 0.00069                                         |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0019                                          |                                                 | 0.0015                                          |                                                 | 0.0023                                          |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00100                                         |                                                 | 0.00127                                         |                                                 | 0.00086                                         |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 |                                                 |                                                 |                                                 |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00500                                         |                                                 | 0.00461                                         |                                                 | 0.0220                                          |
|                                                                       | Hexavalent Chromium (mg/L)           | <0.0010                                         |                                                 | <0.0010                                         |                                                 | <0.0010                                         |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 |                                                 |                                                 |                                                 |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                      | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1816799-6<br>Water<br>20-AUG-16<br>14:30<br>R4 | L1816799-7<br>Water<br>18-AUG-16<br>18:10<br>R6 | L1816799-8<br>Water<br>20-AUG-16<br>15:05<br>R6 | L1816799-9<br>Water<br>18-AUG-16<br>16:50<br>GWCC-5 | L1816799-10<br>Water<br>20-AUG-16<br>14:10<br>GWCC-5 |
|-------------------------|--------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| Grouping                | Analyte                              |                                                                       |                                                 |                                                 |                                                 |                                                     |                                                      |
| <b>WATER</b>            |                                      |                                                                       |                                                 |                                                 |                                                 |                                                     |                                                      |
| <b>Dissolved Metals</b> | Strontium (Sr)-Dissolved (mg/L)      |                                                                       |                                                 | 0.111                                           |                                                 | 0.864                                               |                                                      |
|                         | Sulfur (S)-Dissolved (mg/L)          |                                                                       |                                                 | 9.19                                            |                                                 | 110                                                 |                                                      |
|                         | Thallium (Tl)-Dissolved (mg/L)       |                                                                       |                                                 | <0.000010                                       |                                                 | 0.000013                                            |                                                      |
|                         | Tin (Sn)-Dissolved (mg/L)            |                                                                       |                                                 | <0.00010                                        |                                                 | <0.00010                                            |                                                      |
|                         | Titanium (Ti)-Dissolved (mg/L)       |                                                                       |                                                 | 0.00214                                         |                                                 | <0.00030                                            |                                                      |
|                         | Uranium (U)-Dissolved (mg/L)         |                                                                       |                                                 | 0.000672                                        |                                                 | 0.00320                                             |                                                      |
|                         | Vanadium (V)-Dissolved (mg/L)        |                                                                       |                                                 | 0.00127                                         |                                                 | <0.00050                                            |                                                      |
|                         | Zinc (Zn)-Dissolved (mg/L)           |                                                                       |                                                 | 0.0018                                          |                                                 | <0.0010                                             |                                                      |
|                         | Zirconium (Zr)-Dissolved (mg/L)      |                                                                       |                                                 | 0.00127                                         |                                                 | <0.00030                                            |                                                      |
| <b>Speciated Metals</b> | Chromium (III)-Dissolved (mg/L)      |                                                                       |                                                 |                                                 |                                                 |                                                     |                                                      |
|                         | Chromium (III)-Total (mg/L)          |                                                                       |                                                 | 0.00365                                         |                                                 |                                                     |                                                      |
|                         | Hexavalent Chromium (mg/L)           |                                                                       |                                                 | <0.0010                                         |                                                 |                                                     |                                                      |
|                         | Hexavalent Chromium-Dissolved (mg/L) |                                                                       |                                                 |                                                 |                                                 |                                                     |                                                      |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1816799-11<br>Water<br>19-AUG-16<br>14:50<br>R1 | L1816799-12<br>Water<br>19-AUG-16<br>16:35<br>R2 | L1816799-13<br>Water<br>20-AUG-16<br>10:10<br>DUP-2 | L1816799-14<br>Water<br>22-AUG-16<br>TRAVEL BLANK | L1816799-15<br>Water<br>19-AUG-16<br>17:45<br>R8 |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                  |                                                  |                                                     |                                                   |                                                  |
| WATER                                                                 |                                      |                                                  |                                                  |                                                     |                                                   |                                                  |
| Dissolved Metals                                                      | Strontium (Sr)-Dissolved (mg/L)      | 0.333                                            | 0.217                                            | 0.238                                               |                                                   | 0.137                                            |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 57.3                                             | 35.6                                             | 43.4                                                |                                                   | 20.1                                             |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                        | <0.000010                                        | <0.000010                                           |                                                   | <0.000010                                        |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                         | <0.00010                                         | <0.00010                                            |                                                   | <0.00010                                         |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00090                                          | 0.00178                                          | 0.00134                                             |                                                   | 0.00064                                          |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00183                                          | 0.00186                                          | 0.00140                                             |                                                   | 0.000089                                         |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                         | 0.00097                                          | 0.00063                                             |                                                   | <0.00050                                         |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0018                                           | 0.0042                                           | 0.0011                                              |                                                   | 0.0012                                           |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00104                                          | 0.00101                                          | 0.00093                                             |                                                   | 0.00072                                          |
| Speciated Metals                                                      | Chromium (III)-Dissolved (mg/L)      |                                                  | 0.00122                                          |                                                     |                                                   |                                                  |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00490                                          | 0.00390                                          |                                                     |                                                   | 0.00101                                          |
|                                                                       | Hexavalent Chromium (mg/L)           | <0.0010                                          | <0.0010                                          |                                                     |                                                   | <0.0010                                          |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                  | <0.0010                                          |                                                     |                                                   |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1816799-16<br>Water<br>20-AUG-16<br>08:50<br>R9 | L1816799-17<br>Water<br>20-AUG-16<br>13:05<br>SL | L1816799-18<br>Water<br>18-AUG-16<br>11:35<br>E7 | L1816799-19<br>Water<br>20-AUG-16<br>14:45<br>E7 | L1816799-20<br>Water<br>20-AUG-16<br>10:10<br>E1(H) |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                  |                                                  |                                                  |                                                  |                                                     |
| <b>WATER</b>                                                          |                                      |                                                  |                                                  |                                                  |                                                  |                                                     |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L)      | 0.235                                            | 0.747                                            | 0.266                                            |                                                  | 0.314                                               |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 51.3                                             | 166                                              | 51.4                                             |                                                  | 43.2                                                |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                        | 0.000015                                         | <0.000010                                        |                                                  | <0.000010                                           |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                         | <0.00010                                         | <0.00010                                         |                                                  | <0.00010                                            |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00273                                          | 0.00032                                          | 0.00137                                          |                                                  | 0.00123                                             |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00115                                          | 0.00185                                          | 0.00134                                          |                                                  | 0.00185                                             |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00119                                          | <0.00050                                         | 0.00069                                          |                                                  | 0.00059                                             |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0014                                           | <0.0010                                          | 0.0066                                           |                                                  | 0.0011                                              |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00131                                          | <0.00030                                         | 0.00096                                          |                                                  | 0.00121                                             |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      | 0.00115                                          |                                                  |                                                  |                                                  |                                                     |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00627                                          | 0.00123                                          | 0.0108                                           |                                                  |                                                     |
|                                                                       | Hexavalent Chromium (mg/L)           | <0.0010                                          | <0.0010                                          | <0.0010                                          |                                                  |                                                     |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) | <0.0010                                          |                                                  |                                                  |                                                  |                                                     |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



## Reference Information

## QC Samples with Qualifiers &amp; Comments:

| QC Type Description | Parameter                 | Qualifier | Applies to Sample Number(s)                                              |
|---------------------|---------------------------|-----------|--------------------------------------------------------------------------|
| Matrix Spike        | Dissolved Organic Carbon  | MS-B      | L1816799-1, -11, -12, -13, -3, -5, -7                                    |
| Matrix Spike        | Dissolved Organic Carbon  | MS-B      | L1816799-1, -11, -12, -13, -3, -5, -7                                    |
| Matrix Spike        | Dissolved Organic Carbon  | MS-B      | L1816799-15, -16, -18, -20                                               |
| Matrix Spike        | Antimony (Sb)-Dissolved   | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Barium (Ba)-Dissolved     | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Barium (Ba)-Dissolved     | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Barium (Ba)-Dissolved     | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Copper (Cu)-Dissolved     | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Copper (Cu)-Dissolved     | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Molybdenum (Mo)-Dissolved | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Molybdenum (Mo)-Dissolved | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Sodium (Na)-Dissolved     | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Sodium (Na)-Dissolved     | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Strontium (Sr)-Dissolved  | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Silicon (Si)-Dissolved    | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Copper (Cu)-Total         | MS-B      | L1816799-1, -11, -12, -13, -14, -15, -16, -17, -18, -20, -3, -5, -7, -9  |
| Matrix Spike        | Manganese (Mn)-Total      | MS-B      | L1816799-1, -11, -12, -13, -14, -15, -16, -17, -18, -20, -3, -5, -7, -9  |
| Matrix Spike        | Nitrate (as N)            | MS-B      | L1816799-10, -11, -12, -13, -14, -15, -16, -17, -19, -2, -20, -4, -6, -8 |
| Matrix Spike        | Phosphorus (P)-Total      | MS-B      | L1816799-1, -11, -3, -5, -7, -9                                          |
| Matrix Spike        | Phosphorus (P)-Total      | MS-B      | L1816799-12, -13, -14, -15, -16, -17, -20                                |
| Matrix Spike        | Sulfur (S)-Dissolved      | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Sulfur (S)-Dissolved      | MS-B      | L1816799-1, -11, -12, -13, -15, -16, -17, -18, -20, -3, -5, -7, -9       |
| Matrix Spike        | Sulfate (SO4)             | MS-B      | L1816799-10, -11, -12, -13, -14, -15, -16, -17, -19, -2, -20, -4, -6, -8 |

## Qualifiers for Individual Parameters Listed:

| Qualifier | Description                                                                                                                  |
|-----------|------------------------------------------------------------------------------------------------------------------------------|
| DLDS      | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.                            |
| DLM       | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).                       |
| HTC       | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.                           |
| RRV       | Reported Result Verified By Repeat Analysis                                                                                  |

## Test Method References:

| ALS Test Code                                                                                            | Matrix | Test Description                     | Method Reference**     |
|----------------------------------------------------------------------------------------------------------|--------|--------------------------------------|------------------------|
| <b>BE-D-L-CCMS-VA</b>                                                                                    | Water  | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.             |        |                                      |                        |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. |        |                                      |                        |

## Reference Information

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                          |                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------|---------------------------------------|
| <b>BE-T-L-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Total Be (Low) in Water by CRC ICPMS     | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Dissolved organic carbon by combustion   | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.                                                                                                                                                                                                                                                      |       |                                          |                                       |
| <b>CARBONS-TOC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Water | Total organic carbon by combustion       | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                       |
| <b>CR-CR3-DIS-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Dissolved Trivalent Chromium in Water    | CALCULATION                           |
| Chromium (III)-Dissolved is calculated as the difference between the dissolved chromium and the dissolved hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                                                 |       |                                          |                                       |
| <b>CR-CR3-TOT-CALC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Total Trivalent Chromium in Water        | CALCULATION                           |
| Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.                                                                                                                                                                                                                                                                                                                                                                   |       |                                          |                                       |
| <b>CR-CR6-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Chromium, Hexavalent (Cr +6)             | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazine in a sulphuric acid solution.                                             |       |                                          |                                       |
| Results are based on an un-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                       |
| <b>CR6-D-IC-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | Chromium, Dissolved Hexavalent (Cr +6)   | APHA 3500-Cr C (Ion Chromatography)   |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazine in a sulphuric acid solution.                                             |       |                                          |                                       |
| Results are based on a field-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                          |                                       |
| <b>EC-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Conductivity (Automated)                 | APHA 2510 Auto. Conduc.               |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                       |
| <b>HARDNESS-CALC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Water | Hardness                                 | APHA 2340B                            |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                                                    |       |                                          |                                       |
| <b>HG-D-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod)            |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                     |       |                                          |                                       |
| <b>HG-T-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod)                       |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                       |
| <b>MET-D-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Water | Dissolved Metals in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |
| <b>MET-DIS-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Dissolved Metals in Water by ICPOES      | EPA 3005A/6010B                       |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). |       |                                          |                                       |
| <b>MET-T-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Water | Total Metals in Water by CRC ICPMS       | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                          |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                       |
| <b>MET-TOT-LOW-ICP-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Water | Total Metals in Water by ICPOES          | EPA 3005A/6010B                       |

## Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**NH3-F-VA** Water Ammonia in Water by Fluorescence APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NH3-F-VA** Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NO2-L-IC-N-WR** Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**NO3-L-IC-N-WR** Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**P-T-PRES-COL-VA** Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**S-DIS-ICP-VA** Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**S-TOT-ICP-VA** Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**SO4-IC-N-WR** Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

| Laboratory Definition Code | Laboratory Location                           |
|----------------------------|-----------------------------------------------|
| ED                         | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |

## Reference Information

|    |                                                         |
|----|---------------------------------------------------------|
| WR | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA           |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

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### Chain of Custody Numbers:

---

|   |   |
|---|---|
| 1 | 2 |
|---|---|

### GLOSSARY OF REPORT TERMS

*Surrogate* - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

*mg/kg* - milligrams per kilogram based on dry weight of sample.

*mg/kg ww* - milligrams per kilogram based on wet weight of sample.

*mg/kg lw* - milligrams per kilogram based on lipid-adjusted weight of sample.

*mg/L* - milligrams per litre.

*<* - Less than.

*D.L.* - The reported Detection Limit, also known as the Limit of Reporting (LOR).

*N/A* - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Contact: Brent Mack  
Company: ALS Environmental  
Address: 8081 Lougheed HWY, Suite 100  
Burnaby, BC V5A1W9

## REFERENCE DATA

---

Project / Location: L1816799

PO Number: L1816799

ALS Work Order: 1608846

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

NELAC accredited through New York ELAP, LAB #11371

## TEM ANALYSIS DATA

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EDXA Resolution (eV): <175

Accelerating Voltage (keV): 100

Prep Start Date: 8/25/2016

Calibration Constant (µm/cm): 0.74

Camera Constant (mm-Å): 129.25

Analysis Start Date: 8/26/2016

*Pamela Johnson*

Pamela Johnson  
ALS TEM Analyst

*Shawn Smythe*

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*

## IDENTIFICATION

---

Client Sample ID: L1816799-11  
ALS Sample ID: R1  
Method: 1608846-06  
Date of Collection: EPA 100.2  
Time of Collection: 8/19/2016  
Not Provided

## FILTRATION & ANALYSIS

---

Date of Filtration: 8/24/2016  
Time of Filtration: 16:35  
Volume Filtered (L): 0.003  
Openings Analyzed: 10  
Avg. Opening Area (mm<sup>2</sup>): 0.0108  
AS (MFL): 3.32

## ASBESTOS COUNT

---

Chrysotile: 0  
Amosite: 0  
Crocidolite: 0  
Act-Tremolite<sup>†</sup>: 0  
Anthophyllite: 0  
Total Asbestos: 0

## ASBESTOS CONCENTRATION (MFL)

---

Chrysotile: <AS  
Amosite: <AS  
Crocidolite: <AS  
Act-Tremolite<sup>†</sup>: <AS  
Anthophyllite: <AS  
Total Asbestos: <AS

## NOTES

---

Sample L1816799-11 R1 contained excessive suspended solids prohibiting filtration of sufficient sample volume required to reach the recommended method AS of <0.20 MFL. Analysis terminated upon completion of the maximum 10 openings analyzed.

## EDXA SPECTRA

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*NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.*

NONE: No asbestos detected.

## PHOTOMICROGRAPHS

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*Collected using Gatan Digital Micrograph.*

NONE: No asbestos detected.



31-Aug-2016

Brent Mack  
ALS Environmental  
8081 Lougheed HWY  
Suite 100  
Burnaby, BC V5A1W9

Tel: (604) 253-4188  
Fax:

Re: L1816799

Work Order: **1608846**

Dear Brent,

ALS Environmental received 14 samples on 24-Aug-2016 10:01 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 21.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Shawn Smythe

Shawn Smythe  
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, Ohio 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental

**www.alsglobal.com**

RIGHT SOLUTIONS RIGHT PARTNER

**Client:** ALS Environmental  
**Project:** L1816799  
**Work Order:** 1608846

**Work Order Sample Summary**

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1608846-01         | L1816799-1              | Water         |                   | 8/18/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-02         | L1816799-3              | Water         |                   | 8/18/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-03         | L1816799-5              | Water         |                   | 8/18/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-04         | L1816799-7              | Water         |                   | 8/18/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-05         | L1816799-9              | Water         |                   | 8/18/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-06         | L1816799-11             | Water         |                   | 8/19/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-07         | L1816799-12             | Water         |                   | 8/19/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-08         | L1816799-13             | Water         |                   | 8/20/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-09         | L1816799-14             | Water         |                   | 8/22/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-10         | L1816799-15             | Water         |                   | 8/19/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-11         | L1816799-16             | Water         |                   | 8/20/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-12         | L1816799-17             | Water         |                   | 8/20/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-13         | L1816799-18             | Water         |                   | 8/18/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |
| 1608846-14         | L1816799-20             | Water         |                   | 8/20/2016              | 8/24/2016 10:01      | <input type="checkbox"/> |



---

**Client:** ALS Environmental**Project:** L1816799**Work Order:** 1608846**Case Narrative**

---

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-1

Lab ID: 1608846-01

Collection Date: 8/18/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 51     |      | 2.0             | mg/L  | 1                  | 8/24/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Sample ID: L1816799-3

Collection Date: 8/18/2016

Work Order: 1608846

Lab ID: 1608846-02

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 77     |      | 2.0             | mg/L  | 1                  | 8/24/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-5

Lab ID: 1608846-03

Collection Date: 8/18/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 550    |      | 2.0             | mg/L  | 1                  | 8/24/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-7

Lab ID: 1608846-04

Collection Date: 8/18/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 56     |      | 2.0             | mg/L  | 1                  | 8/24/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Sample ID: L1816799-9

Collection Date: 8/18/2016

Work Order: 1608846

Lab ID: 1608846-05

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 8/24/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-11

Lab ID: 1608846-06

Collection Date: 8/19/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 88     |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-12

Lab ID: 1608846-07

Collection Date: 8/19/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 21     |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:



## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-13

Lab ID: 1608846-08

Collection Date: 8/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-14

Lab ID: 1608846-09

Collection Date: 8/22/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-15

Lab ID: 1608846-10

Collection Date: 8/19/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 2.3    |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-16

Lab ID: 1608846-11

Collection Date: 8/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 93     |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Sample ID: L1816799-17

Collection Date: 8/20/2016

Work Order: 1608846

Lab ID: 1608846-12

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 4.9    |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-18

Lab ID: 1608846-13

Collection Date: 8/18/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 120    |      | 2.0             | mg/L  | 1                  | 8/24/2016           |

Note:

## ALS Environmental

Date: 31-Aug-16

Client: ALS Environmental

Project: L1816799

Work Order: 1608846

Sample ID: L1816799-20

Lab ID: 1608846-14

Collection Date: 8/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 2.9    |      | 2.0             | mg/L  | 1                  | 8/25/2016           |

Note:

# ALS Environmental

Date: 31-Aug-16

**Client:** ALS Environmental  
**Work Order:** 1608846  
**Project:** L1816799

## QC BATCH REPORT

Batch ID: **R132323** Instrument ID: **WETCHEM** Method: **E160.2**

|             |                                      |     |         |               |      |                       |                                 |      |              |      |
|-------------|--------------------------------------|-----|---------|---------------|------|-----------------------|---------------------------------|------|--------------|------|
| <b>MBLK</b> | Sample ID: <b>MB-R132323-R132323</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>8/24/2016</b> |      |              |      |
| Client ID:  | Run ID: <b>WETCHEM_160824D</b>       |     |         |               |      | SeqNo: <b>1344804</b> | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte     | Result                               | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids ND 2.0

|            |                                       |     |         |               |      |                       |                                 |      |              |      |
|------------|---------------------------------------|-----|---------|---------------|------|-----------------------|---------------------------------|------|--------------|------|
| <b>LCS</b> | Sample ID: <b>LCS-R132323-R132323</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>8/24/2016</b> |      |              |      |
| Client ID: | Run ID: <b>WETCHEM_160824D</b>        |     |         |               |      | SeqNo: <b>1344805</b> | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte    | Result                                | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids 913.7 2.0 1000 0 91.4 70-130 0

|                              |                                   |     |         |               |      |                       |                                 |      |              |      |
|------------------------------|-----------------------------------|-----|---------|---------------|------|-----------------------|---------------------------------|------|--------------|------|
| <b>DUP</b>                   | Sample ID: <b>1608846-05A Dup</b> |     |         |               |      | Units: <b>mg/L</b>    | Analysis Date: <b>8/24/2016</b> |      |              |      |
| Client ID: <b>L1816799-9</b> | Run ID: <b>WETCHEM_160824D</b>    |     |         |               |      | SeqNo: <b>1344815</b> | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte                      | Result                            | PQL | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids ND 2.0 0 0 0 1.17 0

The following samples were analyzed in this batch:

|             |             |             |
|-------------|-------------|-------------|
| 1608846-01A | 1608846-02A | 1608846-03A |
| 1608846-04A | 1608846-05A | 1608846-13A |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



**Client:** ALS Environmental  
**Work Order:** 1608846  
**Project:** L1816799

## QC BATCH REPORT

Batch ID: **R132325** Instrument ID: **WETCHEM** Method: **E160.2**

|             |                                      |     |         |               |                       |               |                                 |      |              |      |
|-------------|--------------------------------------|-----|---------|---------------|-----------------------|---------------|---------------------------------|------|--------------|------|
| <b>MBLK</b> | Sample ID: <b>MB-R132325-R132325</b> |     |         |               | Units: <b>mg/L</b>    |               | Analysis Date: <b>8/25/2016</b> |      |              |      |
| Client ID:  | Run ID: <b>WETCHEM_160825B</b>       |     |         |               | SeqNo: <b>1344826</b> |               | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte     | Result                               | PQL | SPK Val | SPK Ref Value | %REC                  | Control Limit | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids ND 2.0

|            |                                       |     |         |               |                       |               |                                 |      |              |      |
|------------|---------------------------------------|-----|---------|---------------|-----------------------|---------------|---------------------------------|------|--------------|------|
| <b>LCS</b> | Sample ID: <b>LCS-R132325-R132325</b> |     |         |               | Units: <b>mg/L</b>    |               | Analysis Date: <b>8/25/2016</b> |      |              |      |
| Client ID: | Run ID: <b>WETCHEM_160825B</b>        |     |         |               | SeqNo: <b>1344827</b> |               | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte    | Result                                | PQL | SPK Val | SPK Ref Value | %REC                  | Control Limit | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids 860.8 2.0 1000 0 86.1 70-130 0

|                               |                                   |     |         |               |                       |               |                                 |      |              |      |
|-------------------------------|-----------------------------------|-----|---------|---------------|-----------------------|---------------|---------------------------------|------|--------------|------|
| <b>DUP</b>                    | Sample ID: <b>1608846-14A Dup</b> |     |         |               | Units: <b>mg/L</b>    |               | Analysis Date: <b>8/25/2016</b> |      |              |      |
| Client ID: <b>L1816799-20</b> | Run ID: <b>WETCHEM_160825B</b>    |     |         |               | SeqNo: <b>1344836</b> |               | Prep Date:                      |      | DF: <b>1</b> |      |
| Analyte                       | Result                            | PQL | SPK Val | SPK Ref Value | %REC                  | Control Limit | RPD Ref Value                   | %RPD | RPD Limit    | Qual |

Total suspended solids 3.3 2.0 0 0 0 2.87 13.9

The following samples were analyzed in this batch:

|             |             |             |
|-------------|-------------|-------------|
| 1608846-06A | 1608846-07A | 1608846-08A |
| 1608846-09A | 1608846-10A | 1608846-11A |
| 1608846-12A | 1608846-14A |             |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

## ALS Environmental

Date: 31-Aug-16

**Client:** ALS Environmental  
**Project:** L1816799  
**WorkOrder:** 1608846

## QUALIFIERS, ACRONYMS, UNITS

| <u>Qualifier</u> | <u>Description</u>                                                        |
|------------------|---------------------------------------------------------------------------|
| *                | Value exceeds Regulatory Limit                                            |
| a                | Not accredited                                                            |
| B                | Analyte detected in the associated Method Blank above the Reporting Limit |
| E                | Value above quantitation range                                            |
| H                | Analyzed outside of Holding Time                                          |
| J                | Analyte detected below quantitation limit                                 |
| n                | Not offered for accreditation                                             |
| ND               | Not Detected at the Reporting Limit                                       |
| O                | Sample amount is > 4 times amount spiked                                  |
| P                | Dual Column results percent difference > 40%                              |
| R                | RPD above laboratory control limit                                        |
| S                | Spike Recovery outside laboratory control limits                          |
| U                | Analyzed but not detected above the MDL                                   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| E              | EPA Method                          |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MQL            | Method Quantitation Limit           |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PDS            | Post Digestion Spike                |
| PQL            | Practical Quantitation Limit        |
| SDL            | Sample Detection Limit              |
| SW             | SW-846 Method                       |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| %                     |                    |
| mg/L                  |                    |

## Sample Receipt Checklist

Client Name: **ALS-VANCOUVER**

Date/Time Received: **24-Aug-16 10:01**

Work Order: **1608846**

Received by: **SNH**

Checklist completed by: **Stephanie Harrington**

24-Aug-16

Reviewed by: **Shawn Smythe**

25-Aug-16

eSignature

Date

eSignature

Date

Matrices:

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

2.7

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

pH adjusted?

Yes ☐

No ☐

N/A ☒

pH adjusted by:

-

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:


**ALS Environmental**
[www.alsglobal.com](http://www.alsglobal.com)

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1816799-COFC

COC Number: 1

Page 1 of 2

|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------|--------------------------------|--------------|-------------|------------------|----------|------------------|-----------------|------------------------|----------------------|--|
| <b>Report To</b>                                                                                                     |                                                                                       | <b>Report Format / Distribution</b>                                                                         |  |                                                                                                                                                     |              | <b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b> |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       | Select Report Format:                                                                                       |  |                                                                                                                                                     |              | <b>R</b><br><b>P</b><br><b>E</b><br><b>E2</b>                                                 |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Contact: Natasha Sandys                                                                                              |                                                                                       | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                       | Select Distribution:                                                                                        |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Phone: 867-456-4865                                                                                                  |                                                                                       | Email 1 or Fax nsandys@hemmera.com                                                                          |  |                                                                                                                                                     |              | Specify Date Required for E2, E or P:                                                         |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Email 2 chris@elr.ca                                                                                                 |                                                                                       | <b>Analysis Request</b>                                                                                     |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                     |                                                                                       | Invoice Distribution                                                                                        |  |                                                                                                                                                     |              | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                    |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                       | Select Invoice Distribution:                                                                                |  |                                                                                                                                                     |              | F/P                                                                                           | P                                          | P                                                                                                                                                          | F/P                                      | P           | F/P                            |              |             |                  |          |                  |                 |                        |                      |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       | Email 1 or Fax nsandys@hemmera.com                                                                          |  |                                                                                                                                                     |              | Low Level Diss. Met (incl. Hg) and Hardness                                                   | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total                                                                                                                       | Chromium Speciation (III/VI) - Dissolved | Ammonia - N | Dissolved Organic Carbon (DOC) | Nitrate-N    | Nitrite - N | Total Phosphorus | Sulphate | pH, Conductivity | Asbestos-TEM-AD | Total Suspended Solids | Number of Containers |  |
| Contact: Natasha Sandys                                                                                              |                                                                                       | Email 2 chris@elr.ca                                                                                        |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| <b>Project Information</b>                                                                                           |                                                                                       | <b>Oil and Gas Required Fields (client use)</b>                                                             |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| ALS Quote #: Q56044                                                                                                  |                                                                                       | Approver ID:                                                                                                |  | Cost Center:                                                                                                                                        |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Job #: 1343-005.19                                                                                                   |                                                                                       | GL Account:                                                                                                 |  | Routing Code:                                                                                                                                       |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| PO / AFE:                                                                                                            |                                                                                       | Activity Code:                                                                                              |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| LSD:                                                                                                                 |                                                                                       | Location:                                                                                                   |  |                                                                                                                                                     |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                       | ALS Contact:                                                                                                |  | Sampler: GR / NB                                                                                                                                    |              |                                                                                               |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| ALS Sample # (lab use only)                                                                                          | Sample Identification and/or Coordinates (This description will appear on the report) |                                                                                                             |  | Date (dd-mm-yy)                                                                                                                                     | Time (hh:mm) | Sample Type                                                                                   |                                            |                                                                                                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| 1                                                                                                                    | E4                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                           | 15:10        | Water                                                                                         | R                                          | R                                                                                                                                                          |                                          |             | R                              | R            |             |                  |          |                  |                 | R                      | 9                    |  |
| 2                                                                                                                    | E4                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                           | 14:25        | Water                                                                                         |                                            |                                                                                                                                                            |                                          |             |                                | R            | R           | R                | R        | R                |                 |                        | 1                    |  |
| 3                                                                                                                    | E8                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                           | 13:15        | Water                                                                                         | R                                          | R                                                                                                                                                          |                                          |             | R                              | R            |             |                  |          |                  |                 | R                      | 9                    |  |
| 4                                                                                                                    | E8                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                           | 14:50        | Water                                                                                         |                                            |                                                                                                                                                            |                                          |             |                                | R            | R           | R                | R        | R                |                 |                        | 1                    |  |
| 5                                                                                                                    | R4                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                           | 13:55        | Water                                                                                         | R                                          | R                                                                                                                                                          |                                          |             | R                              | R            |             |                  |          |                  |                 | R                      | 9                    |  |
| 6                                                                                                                    | R4                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                           | 14:30        | Water                                                                                         |                                            |                                                                                                                                                            |                                          |             |                                | R            | R           | R                | R        | R                |                 |                        | 1                    |  |
| 7                                                                                                                    | R6                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                           | 18:10        | Water                                                                                         | R                                          | R                                                                                                                                                          |                                          |             | R                              | R            |             |                  |          |                  |                 | R                      | 9                    |  |
| 8                                                                                                                    | R6                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                           | 15:05        | Water                                                                                         |                                            |                                                                                                                                                            |                                          |             |                                | R            | R           | R                | R        | R                |                 |                        | 1                    |  |
| 9                                                                                                                    | GWCC-5                                                                                |                                                                                                             |  | 18-Aug-16                                                                                                                                           | 16:50        | Water                                                                                         | R                                          | R                                                                                                                                                          |                                          |             | R                              | R            |             |                  |          |                  |                 | R                      | 9                    |  |
| 10                                                                                                                   | GWCC-5                                                                                |                                                                                                             |  | 20-Aug-16                                                                                                                                           | 14:10        | Water                                                                                         |                                            |                                                                                                                                                            |                                          |             |                                | R            | R           | R                | R        | R                |                 |                        | 1                    |  |
| 11                                                                                                                   | R1                                                                                    |                                                                                                             |  | 19-Aug-16                                                                                                                                           | 14:50        | Water                                                                                         | R                                          | R                                                                                                                                                          |                                          |             | R                              | R            | R           | R                | R        | R                | R               | R                      | 11                   |  |
| 12                                                                                                                   | R2                                                                                    |                                                                                                             |  | 19-Aug-16                                                                                                                                           | 16:35        | Water                                                                                         | R                                          | R                                                                                                                                                          |                                          |             | R                              | R            | R           | R                | R        | R                | R               | R                      | 10                   |  |
| <b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>                                                          |                                                                                       |                                                                                                             |  | <b>Special Instructions / Specify Criteria to add on report (client use)</b>                                                                        |              |                                                                                               |                                            | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                         |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                       |                                                                                                             |  | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results. |              |                                                                                               |                                            | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                                  |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                       |                                                                                                             |  |                                                                                                                                                     |              |                                                                                               |                                            | Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |              |                                                                                               |                                            | Cooling Initiated <input checked="" type="checkbox"/>                                                                                                      |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |              |                                                                                               |                                            | INITIAL COOLER TEMPERATURES °C: 0.9 0.8 0.5 FINAL COOLER TEMPERATURES °C: 4 6 7                                                                            |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                       |                                                                                                             |  | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                    |              |                                                                                               |                                            | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                             |                                          |             |                                |              |             |                  |          |                  |                 |                        |                      |  |
| Released by:                                                                                                         |                                                                                       | Date:                                                                                                       |  | Time:                                                                                                                                               |              | Received by:                                                                                  |                                            | Date:                                                                                                                                                      |                                          | Time:       |                                | Received by: |             | Date:            |          | Time:            |                 |                        |                      |  |
|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |              | JC                                                                                            |                                            | AUG 23 2016                                                                                                                                                |                                          | 12:15       |                                |              |             |                  |          |                  |                 |                        |                      |  |

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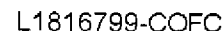
NA Form 0275a-099 Form04 January 2014

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



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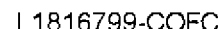
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NA-EM-0026a v09 Ecopl04 Inc. max 20



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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

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# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1816799-COFC

COC Number: 1

Page 1 of 2

|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------|-------------|--------------------------------|-----------|-------------|------------------|----------|------------------|-----------------|------------------------|----------------------|---|---|---|---|---|---|----|
| <b>Report To</b>                                                                                                     |                                                                                       | <b>Report Format / Distribution</b>                                                                         |  |                                                                                                                                                            | <b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b> |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       | Select Report Format:                                                                                       |  |                                                                                                                                                            | <b>R</b><br><b>P</b><br><b>E</b><br><b>E2</b>                                                 |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Contact: Natasha Sandys                                                                                              |                                                                                       | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                       | Select Distribution:                                                                                        |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Phone: 867-456-4865                                                                                                  |                                                                                       | Email 1 or Fax nsandys@hemmera.com                                                                          |  |                                                                                                                                                            | Specify Date Required for E2, E or P:                                                         |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Email 2 chris@elr.ca                                                                                                 |                                                                                       |                                                                                                             |  |                                                                                                                                                            | <b>Analysis Request</b>                                                                       |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                     |                                                                                       | Invoice Distribution                                                                                        |  |                                                                                                                                                            | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                    |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                       | Select Invoice Distribution:                                                                                |  |                                                                                                                                                            | F/P                                                                                           | P                                          | P                                    | F/P                                      | P           | F/P                            |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       | Email 1 or Fax nsandys@hemmera.com                                                                          |  |                                                                                                                                                            | Low Level Diss. Met (incl. Hg) and Hardness                                                   | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total | Chromium Speciation (III/VI) - Dissolved | Ammonia - N | Dissolved Organic Carbon (DOC) | Nitrate-N | Nitrite - N | Total Phosphorus | Sulphate | pH, Conductivity | Asbestos-TEM-AD | Total Suspended Solids | Number of Containers |   |   |   |   |   |   |    |
| Contact: Natasha Sandys                                                                                              |                                                                                       | Email 2 chris@elr.ca                                                                                        |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| <b>Project Information</b>                                                                                           |                                                                                       | <b>Oil and Gas Required Fields (client use)</b>                                                             |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| ALS Quote #: Q58044                                                                                                  |                                                                                       | Approver ID:                                                                                                |  |                                                                                                                                                            | Cost Center:                                                                                  |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Job #: 1343-005.19                                                                                                   |                                                                                       | GL Account:                                                                                                 |  |                                                                                                                                                            | Routing Code:                                                                                 |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| PO / AFE:                                                                                                            |                                                                                       | Activity Code:                                                                                              |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| LSD:                                                                                                                 |                                                                                       | Location:                                                                                                   |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                       | ALS Contact:                                                                                                |  |                                                                                                                                                            | Sampler:                                                                                      |                                            |                                      | GR / NB                                  |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| ALS Sample # (lab use only)                                                                                          | Sample Identification and/or Coordinates (This description will appear on the report) |                                                                                                             |  | Date (dd-mm-yy)                                                                                                                                            | Time (hh:mm)                                                                                  | Sample Type                                |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| 1                                                                                                                    | E4                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                                  | 15:10                                                                                         | Water                                      | R                                    | R                                        |             |                                | R         | R           |                  |          |                  |                 |                        |                      |   |   |   |   |   |   | 9  |
| 2                                                                                                                    | E4                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                                  | 14:25                                                                                         | Water                                      |                                      |                                          |             |                                |           | R           | R                | R        | R                | R               |                        |                      |   |   |   |   |   |   | 1  |
| 3                                                                                                                    | E8                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                                  | 13:15                                                                                         | Water                                      | R                                    | R                                        |             |                                | R         | R           |                  |          |                  |                 |                        |                      |   |   |   |   |   |   | 9  |
| 4                                                                                                                    | E8                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                                  | 14:50                                                                                         | Water                                      |                                      |                                          |             |                                |           | R           | R                | R        | R                | R               |                        |                      |   |   |   |   |   |   | 1  |
| 5                                                                                                                    | R4                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                                  | 13:55                                                                                         | Water                                      | R                                    | R                                        |             |                                | R         | R           |                  |          |                  |                 |                        |                      |   |   |   |   |   |   | 9  |
| 6                                                                                                                    | R4                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                                  | 14:30                                                                                         | Water                                      |                                      |                                          |             |                                |           | R           | R                | R        | R                | R               |                        |                      |   |   |   |   |   |   | 1  |
| 7                                                                                                                    | R8                                                                                    |                                                                                                             |  | 18-Aug-16                                                                                                                                                  | 18:10                                                                                         | Water                                      | R                                    | R                                        |             |                                | R         | R           |                  |          |                  |                 |                        |                      |   |   |   |   |   |   | 9  |
| 8                                                                                                                    | R6                                                                                    |                                                                                                             |  | 20-Aug-16                                                                                                                                                  | 15:05                                                                                         | Water                                      |                                      |                                          |             |                                |           | R           | R                | R        | R                | R               |                        |                      |   |   |   |   |   |   | 1  |
| 9                                                                                                                    | GWCC-5                                                                                |                                                                                                             |  | 18-Aug-16                                                                                                                                                  | 16:50                                                                                         | Water                                      | R                                    | R                                        |             |                                | R         | R           |                  |          |                  |                 |                        |                      |   |   |   |   |   |   | 9  |
| 10                                                                                                                   | GWCC-5                                                                                |                                                                                                             |  | 20-Aug-16                                                                                                                                                  | 14:10                                                                                         | Water                                      |                                      |                                          |             |                                |           | R           | R                | R        | R                | R               |                        |                      |   |   |   |   |   |   | 1  |
| 11                                                                                                                   | R1                                                                                    |                                                                                                             |  | 19-Aug-16                                                                                                                                                  | 14:50                                                                                         | Water                                      | R                                    | R                                        |             |                                | R         | R           | R                | R        | R                | R               | R                      | R                    | R | R | R | R | R | R | 11 |
| 12                                                                                                                   | R2                                                                                    |                                                                                                             |  | 19-Aug-16                                                                                                                                                  | 16:35                                                                                         | Water                                      | R                                    | R                                        |             |                                | R         | R           | R                | R        | R                | R               | R                      | R                    | R | R | R | R | R | R | 10 |
| <b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>                                                          |                                                                                       |                                                                                                             |  | <b>Special Instructions / Specify Criteria to add on report (client use)</b>                                                                               |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                       |                                                                                                             |  | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results.        |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                       |                                                                                                             |  |                                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                       |                                                                                                             |  | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                         |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Released by:                                                                                                         |                                                                                       |                                                                                                             |  | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                                  |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Date:                                                                                                                |                                                                                       |                                                                                                             |  | Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Time:                                                                                                                |                                                                                       |                                                                                                             |  | Cooling Initiated <input checked="" type="checkbox"/>                                                                                                      |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Received by:                                                                                                         |                                                                                       |                                                                                                             |  | INITIAL COOLER TEMPERATURES °C                                                                                                                             |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Date:                                                                                                                |                                                                                       |                                                                                                             |  | FINAL COOLER TEMPERATURES °C                                                                                                                               |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Time:                                                                                                                |                                                                                       |                                                                                                             |  | 0.9 0.8 0.5 4 6 7                                                                                                                                          |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                     |                                                                                       |                                                                                                             |  | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                             |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Received by:                                                                                                         |                                                                                       |                                                                                                             |  | Received by: JC                                                                                                                                            |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Date:                                                                                                                |                                                                                       |                                                                                                             |  | Date: AUG 23 2016                                                                                                                                          |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |
| Time:                                                                                                                |                                                                                       |                                                                                                             |  | Time: 12:15                                                                                                                                                |                                                                                               |                                            |                                      |                                          |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |   |   |   |   |    |

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NA-FM-0326a-v08 (Rev 04/04/2014)

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 23-SEP-16  
Report Date: 21-OCT-16 11:45 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1833355  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.20  
C of C Numbers: 1, 2  
Legal Site Desc:

Comments: 21-OCT-2016 This version of the report includes total and dissolved chromium data for select samples.

Brent Mack, B.Sc.  
Account Manager

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1833355-1<br>Water<br>20-SEP-16<br>17:50<br>E1 | L1833355-2<br>Water<br>20-SEP-16<br>16:20<br>E2 | L1833355-3<br>Water<br>20-SEP-16<br>16:20<br>DUP1 | L1833355-4<br>Water<br>20-SEP-16<br>15:55<br>E3 | L1833355-5<br>Water<br>20-SEP-16<br>14:10<br>R3 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|---------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                   |                                                 |                                                 |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                   |                                                 |                                                 |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 602                                             | 750                                             | 760                                               | 665                                             | 675                                             |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 290                                             | 382                                             | 385                                               | 322                                             | 341                                             |
|                                                                       | pH (pH)                         | 8.26                                            | 8.26                                            | 8.27                                              | 8.25                                            | 8.24                                            |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0164                                          | 0.0147                                          | 0.0145                                            | 0.0289                                          | 0.0389                                          |
|                                                                       | Nitrate (as N) (mg/L)           | 0.119                                           | 0.125                                           | 0.125                                             | 0.188                                           | 0.105                                           |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                         | <0.0010                                         | <0.0010                                           | <0.0010                                         | <0.0010                                         |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0047                                          | 0.0056                                          | 0.0054                                            | 0.0395                                          | 0.051                                           |
|                                                                       | Sulfate (SO4) (mg/L)            | 176                                             | 247                                             | 247                                               | 209                                             | 231                                             |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 14.5                                            | 13.8                                            | 13.6                                              | 12.5                                            | 12.7                                            |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                   |                                                 |                                                 |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.0473                                          | 0.123                                           | 0.118                                             | 1.18                                            | 0.705                                           |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00032                                         | 0.00056                                         | 0.00052                                           | 0.00068                                         | 0.00020                                         |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00082                                         | 0.00159                                         | 0.00161                                           | 0.00227                                         | 0.00124                                         |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0629                                          | 0.0643                                          | 0.0643                                            | 0.108                                           | 0.0817                                          |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                       | <0.000020                                       | <0.000020                                         | 0.000053                                        | 0.000034                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       | <0.000050                                       | <0.000050                                         | <0.000050                                       | <0.000050                                       |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                          | 0.027                                           | 0.027                                             | 0.038                                           | <0.010                                          |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000499                                       | 0.0000722                                       | 0.0000763                                         | 0.000145                                        | 0.0000640                                       |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 65.3                                            | 72.8                                            | 71.6                                              | 58.5                                            | 54.4                                            |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00064                                         | 0.00568                                         | 0.00560                                           | 0.00631                                         | 0.00190                                         |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00052                                         | 0.00128                                         | 0.00129                                           | 0.00184                                         | 0.00110                                         |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00290                                         | 0.00302                                         | 0.00306                                           | 0.00630                                         | 0.00370                                         |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.313                                           | 0.755                                           | 0.761                                             | 2.81                                            | 1.74                                            |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000101                                        | 0.000277                                        | 0.000278                                          | 0.00157                                         | 0.000615                                        |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0033                                          | 0.0082                                          | 0.0083                                            | 0.0042                                          | 0.0035                                          |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 33.0                                            | 49.1                                            | 50.3                                              | 46.5                                            | 47.2                                            |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.223                                           | 0.214                                           | 0.221                                             | 0.241                                           | 0.283                                           |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                      | 0.0000063                                       | 0.0000062                                         | 0.0000147                                       | 0.0000087                                       |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00129                                         | 0.00159                                         | 0.00160                                           | 0.00175                                         | 0.00111                                         |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00489                                         | 0.0211                                          | 0.0212                                            | 0.0143                                          | 0.00529                                         |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          | <0.050                                          | <0.050                                            | 0.105                                           | 0.055                                           |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.57                                            | 0.77                                            | 0.78                                              | 0.81                                            | 0.72                                            |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00182                                         | 0.00195                                         | 0.00202                                           | 0.00170                                         | 0.00100                                         |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.08                                            | 5.63                                            | 5.69                                              | 8.22                                            | 7.36                                            |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                       | 0.000012                                        | 0.000010                                          | 0.000058                                        | 0.000018                                        |
|                                                                       | Sodium (Na)-Total (mg/L)        | 3.00                                            | 3.82                                            | 3.85                                              | 4.68                                            | 4.14                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1833355-6<br>Water<br>21-SEP-16<br>08:50<br>R7 | L1833355-7<br>Water<br>21-SEP-16<br>10:35<br>FB1 | L1833355-8<br>Water<br>20-SEP-16<br>12:25<br>R11 | L1833355-9<br>Water<br>21-SEP-16<br>12:40<br>GWCC-1 | L1833355-10<br>Water<br>21-SEP-16<br>12:25<br>GWCC-2 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                  |                                                  |                                                     |                                                      |
| <b>WATER</b>                                                          |                                 |                                                 |                                                  |                                                  |                                                     |                                                      |
| Physical Tests                                                        | Conductivity (uS/cm)            | 280                                             | <2.0                                             | 460                                              | 2610                                                | 2130                                                 |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 128                                             | <0.50                                            | 219                                              | 1700                                                | 1350                                                 |
|                                                                       | pH (pH)                         | 7.96                                            | 5.75                                             | 8.14                                             | 8.12                                                | 8.20                                                 |
| Anions and Nutrients                                                  | Ammonia, Total (as N) (mg/L)    | 0.0795                                          | <0.0050                                          | 0.0320                                           | <0.0050                                             | <0.0050                                              |
|                                                                       | Nitrate (as N) (mg/L)           | 0.198                                           | <0.0050                                          | 0.177                                            | 0.528 <sup>DLDS</sup>                               | 0.530 <sup>DLDS</sup>                                |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                         | <0.0010                                          | <0.0010                                          | <0.0050                                             | <0.0050                                              |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.177                                           | <0.0020                                          | 0.0475                                           | <0.0020                                             | <0.0020                                              |
|                                                                       | Sulfate (SO4) (mg/L)            | 66.3                                            | <0.30                                            | 134                                              | 1360                                                | 1070                                                 |
| Organic / Inorganic Carbon                                            | Dissolved Organic Carbon (mg/L) | 29.4                                            | <0.50                                            | 13.1                                             | 4.90                                                | 6.55                                                 |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                  |                                                  |                                                     |                                                      |
| Total Metals                                                          | Aluminum (Al)-Total (mg/L)      | 1.75                                            | <0.0030                                          | 1.43                                             | 0.0035                                              | 0.0108                                               |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00033                                         | <0.00010                                         | 0.00031                                          | 0.00133                                             | 0.00120                                              |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00232                                         | <0.00010                                         | 0.00170                                          | 0.00271                                             | 0.00210                                              |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.117                                           | <0.000050                                        | 0.113                                            | 0.0243                                              | 0.0227                                               |
|                                                                       | Beryllium (Be)-Total (mg/L)     | 0.000076                                        | <0.000020                                        | 0.000050                                         | <0.000020                                           | 0.000038                                             |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       | <0.000050                                        | <0.000050                                        | <0.000050                                           | <0.000050                                            |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                          | <0.010                                           | <0.010                                           | 0.339                                               | 0.154                                                |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000598                                       | <0.0000050                                       | 0.000180                                         | 0.000207                                            | 0.000251                                             |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 27.9                                            | <0.050                                           | 53.0                                             | 205                                                 | 187                                                  |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00463                                         | <0.00010                                         | 0.00373                                          | 0.00429                                             | 0.00363                                              |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00214                                         | <0.00010                                         | 0.00174                                          | <0.00010                                            | 0.00027                                              |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00836                                         | <0.00050                                         | 0.00723                                          | 0.00138                                             | 0.00190                                              |
|                                                                       | Iron (Fe)-Total (mg/L)          | 3.67                                            | <0.010                                           | 2.91                                             | <0.010                                              | 2.59                                                 |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.00116                                         | <0.000050                                        | 0.00154                                          | <0.000050                                           | 0.000161                                             |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0016                                          | <0.0010                                          | 0.0020                                           | 0.0983                                              | 0.0227                                               |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 16.6                                            | <0.10                                            | 23.9                                             | 309                                                 | 243                                                  |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.363                                           | <0.00010                                         | 0.190                                            | 0.00059                                             | 0.0384                                               |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.0000074                                       | <0.0000050                                       | 0.0000190                                        | <0.0000050                                          | 0.0000054                                            |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.000915                                        | <0.000050                                        | 0.00147                                          | 0.00248                                             | 0.00286                                              |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00769                                         | <0.00050                                         | 0.00716                                          | 0.0877                                              | 0.0606                                               |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.119                                           | <0.050                                           | 0.077                                            | <0.050                                              | <0.050                                               |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.37                                            | <0.10                                            | 0.60                                             | 3.59                                                | 2.24                                                 |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.000744                                        | <0.000050                                        | 0.00195                                          | 0.00500                                             | 0.00441                                              |
|                                                                       | Silicon (Si)-Total (mg/L)       | 8.38                                            | <0.050                                           | 8.27                                             | 7.24                                                | 5.71                                                 |
|                                                                       | Silver (Ag)-Total (mg/L)        | 0.000027                                        | <0.000010                                        | 0.000059                                         | <0.000010                                           | <0.000010                                            |
|                                                                       | Sodium (Na)-Total (mg/L)        | 2.34                                            | <0.050                                           | 5.42                                             | 23.2                                                | 9.01                                                 |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1833355-11<br>Water<br>21-SEP-16<br>12:05<br>GWCC-3 | L1833355-12<br>Water<br>21-SEP-16<br>11:50<br>GWCC-4 | L1833355-13<br>Water<br>21-SEP-16<br>15:25<br>GWCC-5 | L1833355-14<br>Water<br>21-SEP-16<br>14:05<br>SL | L1833355-15<br>Water<br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------------------------|--------------------------------------|
| Grouping                                                              | Analyte                         |                                                      |                                                      |                                                      |                                                  |                                      |
| <b>WATER</b>                                                          |                                 |                                                      |                                                      |                                                      |                                                  |                                      |
| Physical Tests                                                        | Conductivity (uS/cm)            | 1310                                                 | 910                                                  | 975                                                  | 1530                                             | <2.0                                 |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 773                                                  | 507                                                  | 541                                                  | 937                                              |                                      |
|                                                                       | pH (pH)                         | 8.20                                                 | 8.23                                                 | 8.26                                                 | 8.34                                             | 6.01                                 |
| Anions and Nutrients                                                  | Ammonia, Total (as N) (mg/L)    | <0.0050                                              | <0.0050                                              | <0.0050                                              | 0.0059                                           | <0.0050                              |
|                                                                       | Nitrate (as N) (mg/L)           | 0.203                                                | 0.108                                                | 0.0155                                               | 0.123                                            | <0.0050                              |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0020 <sup>DLDS</sup>                              | <0.0010                                              | <0.0010                                              | <0.0020 <sup>DLDS</sup>                          | <0.0010                              |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.0020                                              | <0.0020                                              | <0.0020                                              | 0.0045                                           | <0.0020                              |
|                                                                       | Sulfate (SO4) (mg/L)            | 541                                                  | 310                                                  | 308                                                  | 694                                              | <0.30                                |
| Organic / Inorganic Carbon                                            | Dissolved Organic Carbon (mg/L) | 8.49                                                 | 9.23                                                 | 7.66                                                 | 7.42                                             |                                      |
|                                                                       | Total Organic Carbon (mg/L)     |                                                      |                                                      |                                                      |                                                  | <0.50                                |
| Total Metals                                                          | Aluminum (Al)-Total (mg/L)      | <0.0030                                              | 0.0050                                               | <0.0030                                              | 0.0367                                           | <0.0030                              |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00089                                              | 0.00094                                              | 0.00057                                              | 0.00316                                          | <0.00010                             |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00089                                              | 0.00127                                              | 0.00058                                              | 0.0152                                           | <0.00010                             |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0262                                               | 0.0152                                               | 0.0513                                               | 0.0275                                           | <0.000050                            |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                            | <0.000020                                            | <0.000020                                            | <0.000020                                        | <0.000020                            |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                        | <0.000050                            |
|                                                                       | Boron (B)-Total (mg/L)          | 0.069                                                | 0.048                                                | 0.034                                                | 0.043                                            | <0.010                               |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.000102                                             | 0.0000534                                            | 0.000144                                             | 0.0000322                                        | <0.0000050                           |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 125                                                  | 36.3                                                 | 129                                                  | 221                                              | <0.050                               |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00061                                              | 0.00078                                              | 0.00056                                              | 0.00253                                          | <0.00010                             |
|                                                                       | Cobalt (Co)-Total (mg/L)        | <0.00010                                             | <0.00010                                             | <0.00010                                             | 0.00025                                          | <0.00010                             |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00132                                              | 0.00199                                              | 0.00157                                              | 0.00138                                          | <0.00050                             |
|                                                                       | Iron (Fe)-Total (mg/L)          | <0.010                                               | 0.011                                                | 0.026                                                | 0.103                                            | <0.010                               |
|                                                                       | Lead (Pb)-Total (mg/L)          | <0.000050                                            | <0.000050                                            | <0.000050                                            | 0.000090                                         | <0.000050                            |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0088                                               | 0.0069                                               | 0.0090                                               | 0.0104                                           | <0.0010                              |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 119                                                  | 76.7                                                 | 60.5                                                 | 95.5                                             | <0.10                                |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.00016                                              | 0.00030                                              | 0.00270                                              | 0.0169                                           | <0.00010                             |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.0000063                                            | <0.0000050                                           | <0.0000050                                           | <0.0000050                                       | <0.0000050                           |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00286                                              | 0.00266                                              | 0.00184                                              | 0.00209                                          | <0.000050                            |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0340                                               | 0.0351                                               | 0.0226                                               | 0.0189                                           | <0.00050                             |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                               | <0.050                                               | <0.050                                               | <0.050                                           | <0.050                               |
|                                                                       | Potassium (K)-Total (mg/L)      | 1.32                                                 | 1.18                                                 | 0.95                                                 | 1.41                                             | <0.10                                |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00182                                              | 0.000994                                             | 0.00434                                              | 0.0109                                           | <0.000050                            |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.29                                                 | 6.12                                                 | 5.11                                                 | 5.80                                             | <0.050                               |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                            | <0.000010                                            | <0.000010                                            | <0.000010                                        | <0.000010                            |
|                                                                       | Sodium (Na)-Total (mg/L)        | 4.67                                                 | 651                                                  | 4.36                                                 | 2.64                                             | <0.050                               |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1833355-1<br>Water<br>20-SEP-16<br>17:50<br>E1 | L1833355-2<br>Water<br>20-SEP-16<br>16:20<br>E2 | L1833355-3<br>Water<br>20-SEP-16<br>16:20<br>DUP1 | L1833355-4<br>Water<br>20-SEP-16<br>15:55<br>E3 | L1833355-5<br>Water<br>20-SEP-16<br>14:10<br>R3 |
|-----------------------------------------------------------------------|---------------------------------------|-------------------------------------------------|-------------------------------------------------|---------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                 |                                                 |                                                   |                                                 |                                                 |
| <b>WATER</b>                                                          |                                       |                                                 |                                                 |                                                   |                                                 |                                                 |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.323                                           | 0.417                                           | 0.416                                             | 0.314                                           | 0.289                                           |
|                                                                       | Sulfur (S)-Total (mg/L)               | 63.8                                            | 90.9                                            | 92.9                                              | 77.4                                            | 85.5                                            |
|                                                                       | Thallium (Tl)-Total (mg/L)            | <0.000010                                       | 0.000019                                        | 0.000020                                          | 0.000023                                        | <0.000010                                       |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                        | <0.00010                                        | <0.00010                                          | <0.00010                                        | <0.00010                                        |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.00097                                         | 0.00215                                         | 0.00165                                           | 0.0284                                          | 0.0225                                          |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00221                                         | 0.00245                                         | 0.00241                                           | 0.00283                                         | 0.00305                                         |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00060                                         | 0.00084                                         | 0.00082                                           | 0.00417                                         | 0.00276                                         |
|                                                                       | Zinc (Zn)-Total (mg/L)                | <0.0030                                         | 0.0055                                          | 0.0058                                            | 0.0131                                          | 0.0085                                          |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00089                                         | 0.00098                                         | 0.00095                                           | 0.00073                                         | 0.00050                                         |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                           | FIELD                                           | FIELD                                             | FIELD                                           | FIELD                                           |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                           | FIELD                                           | FIELD                                             | FIELD                                           | FIELD                                           |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0329                                          | 0.0236                                          | 0.0246                                            | 0.0593                                          | 0.0450                                          |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00029                                         | 0.00037                                         | 0.00037                                           | 0.00046                                         | 0.00016                                         |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00077                                         | 0.00103                                         | 0.00101                                           | 0.00083                                         | 0.00056                                         |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0635                                          | 0.0591                                          | 0.0587                                            | 0.0658                                          | 0.0592                                          |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                       | <0.000020                                       | <0.000020                                         | <0.000020                                       | <0.000020                                       |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                       | <0.000050                                       | <0.000050                                         | <0.000050                                       | <0.000050                                       |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                          | 0.025                                           | 0.026                                             | 0.034                                           | <0.010                                          |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000491                                       | 0.0000537                                       | 0.0000532                                         | 0.0000285                                       | 0.0000204                                       |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 63.0                                            | 71.4                                            | 72.2                                              | 55.3                                            | 59.0                                            |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00046                                         | 0.00064                                         | 0.00069                                           | 0.00079                                         | 0.00052                                         |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00046                                         | 0.00071                                         | 0.00070                                           | 0.00049                                         | 0.00058                                         |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00236                                         | 0.00208                                         | 0.00210                                           | 0.00179                                         | 0.00172                                         |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.236                                           | 0.232                                           | 0.233                                             | 0.279                                           | 0.303                                           |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | 0.000078                                        | <0.000050                                       | <0.000050                                         | <0.000050                                       | <0.000050                                       |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0033                                          | 0.0081                                          | 0.0080                                            | 0.0032                                          | 0.0033                                          |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 32.2                                            | 49.6                                            | 49.6                                              | 44.7                                            | 47.0                                            |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.211                                           | 0.204                                           | 0.203                                             | 0.180                                           | 0.259                                           |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                      | <0.0000050                                      | <0.0000050                                        | <0.0000050                                      | <0.0000050                                      |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00110                                         | 0.00130                                         | 0.00137                                           | 0.00107                                         | 0.000988                                        |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00447                                         | 0.0114                                          | 0.0115                                            | 0.00501                                         | 0.00360                                         |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                          | <0.050                                          | <0.050                                            | <0.050                                          | <0.050                                          |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.56                                            | 0.78                                            | 0.78                                              | 0.63                                            | 0.62                                            |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00195                                         | 0.00205                                         | 0.00192                                           | 0.00135                                         | 0.000872                                        |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.03                                            | 5.03                                            | 5.03                                              | 6.03                                            | 5.94                                            |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                       | <0.000010                                       | <0.000010                                         | <0.000010                                       | <0.000010                                       |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 2.88                                            | 3.86                                            | 3.86                                              | 4.59                                            | 4.06                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1833355-6<br>Water<br>21-SEP-16<br>08:50<br>R7 | L1833355-7<br>Water<br>21-SEP-16<br>10:35<br>FB1 | L1833355-8<br>Water<br>20-SEP-16<br>12:25<br>R11 | L1833355-9<br>Water<br>21-SEP-16<br>12:40<br>GWCC-1 | L1833355-10<br>Water<br>21-SEP-16<br>12:25<br>GWCC-2 |
|-----------------------------------------------------------------------|---------------------------------------|-------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                               |                                                 |                                                  |                                                  |                                                     |                                                      |
| <b>WATER</b>                                                          |                                       |                                                 |                                                  |                                                  |                                                     |                                                      |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.100                                           | <0.00020                                         | 0.261                                            | 2.32                                                | 1.14                                                 |
|                                                                       | Sulfur (S)-Total (mg/L)               | 25.0                                            | <0.50                                            | 46.1                                             | 503                                                 | 389                                                  |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000014                                        | <0.000010                                        | 0.000026                                         | 0.000094                                            | 0.000072                                             |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                        | <0.00010                                         | <0.00010                                         | <0.00010                                            | <0.00010                                             |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.0617                                          | <0.00030                                         | 0.0279                                           | <0.00030                                            | <0.00030                                             |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.000453                                        | <0.000010                                        | 0.00148                                          | 0.00773                                             | 0.00385                                              |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00670                                         | <0.00050                                         | 0.00461                                          | <0.00050                                            | 0.00136                                              |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0118                                          | <0.0030                                          | 0.0147                                           | 0.0106                                              | 0.0143                                               |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00124                                         | <0.00030                                         | 0.00082                                          | <0.00030                                            | 0.00034                                              |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                           | FIELD                                            | FIELD                                            | FIELD                                               | FIELD                                                |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                           | FIELD                                            | FIELD                                            | FIELD                                               | FIELD                                                |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.143                                           | <0.0010                                          | 0.0517                                           | 0.0011                                              | 0.0016                                               |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00023                                         | <0.00010                                         | 0.00015                                          | 0.00130                                             | 0.00108                                              |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00134                                         | <0.00010                                         | 0.00050                                          | 0.00253                                             | 0.00157                                              |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0785                                          | <0.000050                                        | 0.0695                                           | 0.0239                                              | 0.0199                                               |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | 0.000030                                        | <0.000020                                        | <0.000020                                        | <0.000020                                           | <0.000020                                            |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                       | <0.000050                                        | <0.000050                                        | <0.000050                                           | <0.000050                                            |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                          | <0.010                                           | <0.010                                           | 0.309                                               | 0.142                                                |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000325                                       | <0.0000050                                       | 0.0000378                                        | 0.000200                                            | 0.000191                                             |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 26.4                                            | <0.050                                           | 49.7                                             | 197                                                 | 173                                                  |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00153                                         | <0.00010                                         | 0.00076                                          | 0.00364                                             | 0.00266                                              |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00100                                         | <0.00010                                         | 0.00048                                          | <0.00010                                            | <0.00010                                             |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00517                                         | <0.00020                                         | 0.00213                                          | 0.00083                                             | 0.00107                                              |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 1.10                                            | <0.010                                           | 0.299                                            | <0.010                                              | <0.010                                               |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | 0.000080                                        | <0.000050                                        | <0.000050                                        | <0.000050                                           | <0.000050                                            |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | <0.0010                                         | <0.0010                                          | <0.0010                                          | 0.0931                                              | 0.0215                                               |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 15.2                                            | <0.10                                            | 22.9                                             | 294                                                 | 223                                                  |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.314                                           | <0.00010                                         | 0.133                                            | 0.00035                                             | 0.00018                                              |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                      | <0.0000050                                       | 0.0000055                                        | <0.0000050                                          | <0.0000050                                           |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.000720                                        | <0.000050                                        | 0.000980                                         | 0.00224                                             | 0.00263                                              |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00490                                         | <0.00050                                         | 0.00272                                          | 0.0799                                              | 0.0520                                               |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                          | <0.050                                           | <0.050                                           | <0.050                                              | <0.050                                               |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.23                                            | <0.10                                            | 0.38                                             | 3.51                                                | 2.09                                                 |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.000653                                        | <0.000050                                        | 0.00173                                          | 0.00467                                             | 0.00410                                              |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.68                                            | <0.050                                           | 6.01                                             | 6.81                                                | 5.20                                                 |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                       | <0.000010                                        | <0.000010                                        | <0.000010                                           | <0.000010                                            |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 2.20                                            | <0.050                                           | 5.14                                             | 21.9                                                | 8.39                                                 |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1833355-11<br>Water<br>21-SEP-16<br>12:05<br>GWCC-3 | L1833355-12<br>Water<br>21-SEP-16<br>11:50<br>GWCC-4 | L1833355-13<br>Water<br>21-SEP-16<br>15:25<br>GWCC-5 | L1833355-14<br>Water<br>21-SEP-16<br>14:05<br>SL | L1833355-15<br>Water<br><br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------------------------|------------------------------------------|
| Grouping                                                              | Analyte                               |                                                      |                                                      |                                                      |                                                  |                                          |
| <b>WATER</b>                                                          |                                       |                                                      |                                                      |                                                      |                                                  |                                          |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.651                                                | 0.214                                                | 0.732                                                | 1.04                                             | <0.00020                                 |
|                                                                       | Sulfur (S)-Total (mg/L)               | 208                                                  | 129                                                  | 118                                                  | 273                                              | <0.50                                    |
|                                                                       | Thallium (Tl)-Total (mg/L)            | 0.000063                                             | 0.000059                                             | 0.000021                                             | 0.000020                                         | <0.000010                                |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                         | <0.00010                                 |
|                                                                       | Titanium (Ti)-Total (mg/L)            | <0.00030                                             | <0.00030                                             | <0.00030                                             | 0.00079                                          | <0.00030                                 |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00209                                              | 0.00122                                              | 0.00256                                              | 0.00322                                          | <0.000010                                |
|                                                                       | Vanadium (V)-Total (mg/L)             | <0.00050                                             | <0.00050                                             | <0.00050                                             | <0.00050                                         | <0.00050                                 |
|                                                                       | Zinc (Zn)-Total (mg/L)                | 0.0033                                               | <0.0030                                              | <0.0030                                              | <0.0030                                          | <0.0030                                  |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | <0.00030                                             | 0.00052                                              | <0.00030                                             | <0.00030                                         | <0.00030                                 |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                                | FIELD                                                | FIELD                                                | FIELD                                            |                                          |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                                | FIELD                                                | FIELD                                                | FIELD                                            |                                          |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0017                                               | 0.0016                                               | 0.0013                                               | 0.0037                                           |                                          |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00088                                              | 0.00089                                              | 0.00058                                              | 0.00307                                          |                                          |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00087                                              | 0.00120                                              | 0.00056                                              | 0.0158                                           |                                          |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0266                                               | 0.0277 <sup>DTC</sup>                                | 0.0507                                               | 0.0283                                           |                                          |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                            | <0.000020                                            | <0.000020                                            | <0.000020                                        |                                          |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                        |                                          |
|                                                                       | Boron (B)-Dissolved (mg/L)            | 0.064                                                | 0.046                                                | 0.030                                                | 0.040                                            |                                          |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.000102                                             | 0.0000579 <sup>DTC</sup>                             | 0.000128                                             | 0.0000299                                        |                                          |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 119                                                  | 83.6                                                 | 123                                                  | 214                                              |                                          |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00059                                              | 0.00045                                              | 0.00049                                              | 0.00120                                          |                                          |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | <0.00010                                             | <0.00010                                             | <0.00010                                             | 0.00012                                          |                                          |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00105                                              | 0.00109                                              | 0.00088                                              | 0.00096                                          |                                          |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | <0.010                                               | <0.010                                               | 0.019                                                | <0.010                                           |                                          |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                            | <0.000050                                            | <0.000050                                            | <0.000050                                        |                                          |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0087                                               | 0.0068                                               | 0.0090                                               | 0.0104                                           |                                          |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 115                                                  | 72.3                                                 | 56.7                                                 | 97.6                                             |                                          |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.00012                                              | 0.00026                                              | 0.00267                                              | 0.0150                                           |                                          |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | 0.0000057                                            | <0.0000050                                           | <0.0000050                                           | <0.0000050                                       |                                          |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00258                                              | 0.00232                                              | 0.00166                                              | 0.00188                                          |                                          |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.0326                                               | 0.0335                                               | 0.0218                                               | 0.0176                                           |                                          |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                               | <0.050                                               | <0.050                                               | <0.050                                           |                                          |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 1.28                                                 | 1.04                                                 | 0.91                                                 | 1.43                                             |                                          |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.00186                                              | 0.00103                                              | 0.00440                                              | 0.0110                                           |                                          |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 4.96                                                 | 5.59                                                 | 4.81                                                 | 5.48                                             |                                          |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                            | <0.000010                                            | <0.000010                                            | <0.000010                                        |                                          |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 4.45                                                 | 3.87                                                 | 3.98                                                 | 2.67                                             |                                          |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1833355-1<br>Water<br>20-SEP-16<br>17:50<br>E1 | L1833355-2<br>Water<br>20-SEP-16<br>16:20<br>E2 | L1833355-3<br>Water<br>20-SEP-16<br>16:20<br>DUP1 | L1833355-4<br>Water<br>20-SEP-16<br>15:55<br>E3 | L1833355-5<br>Water<br>20-SEP-16<br>14:10<br>R3 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------------------------------------------|---------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                 |                                                   |                                                 |                                                 |
| <b>WATER</b>                                                          |                                      |                                                 |                                                 |                                                   |                                                 |                                                 |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L)      | 0.308                                           | 0.410                                           | 0.413                                             | 0.293                                           | 0.315                                           |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 62.2                                            | 88.5                                            | 89.0                                              | 74.7                                            | 80.4                                            |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       | 0.000013                                        | 0.000014                                          | <0.000010                                       | <0.000010                                       |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        | <0.00010                                        | <0.00010                                          | <0.00010                                        | <0.00010                                        |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00061                                         | 0.00046                                         | 0.00048                                           | 0.00133                                         | 0.00118                                         |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00202                                         | 0.00224                                         | 0.00228                                           | 0.00245                                         | 0.00316                                         |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                        | <0.00050                                        | <0.00050                                          | 0.00055                                         | 0.00050                                         |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0019                                          | 0.0044                                          | 0.0022                                            | <0.0010                                         | 0.0069                                          |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00081                                         | 0.00071                                         | 0.00075                                           | 0.00071                                         | 0.00059                                         |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                 |                                                 |                                                   |                                                 |                                                 |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                 | 0.00568                                         | 0.00560                                           | 0.00631                                         | 0.00190                                         |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                 | <0.0010                                         | <0.0010                                           | <0.0010                                         | <0.0010                                         |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                 |                                                 |                                                   |                                                 |                                                 |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1833355-6<br>Water<br>21-SEP-16<br>08:50<br>R7 | L1833355-7<br>Water<br>21-SEP-16<br>10:35<br>FB1 | L1833355-8<br>Water<br>20-SEP-16<br>12:25<br>R11 | L1833355-9<br>Water<br>21-SEP-16<br>12:40<br>GWCC-1 | L1833355-10<br>Water<br>21-SEP-16<br>12:25<br>GWCC-2 |
|-----------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|--------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| Grouping                                                              | Analyte                              |                                                 |                                                  |                                                  |                                                     |                                                      |
| <b>WATER</b>                                                          |                                      |                                                 |                                                  |                                                  |                                                     |                                                      |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L)      | 0.0887                                          | <0.00020                                         | 0.240                                            | 2.19                                                | 1.07                                                 |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 22.9                                            | <0.50                                            | 43.3                                             | 469                                                 | 355                                                  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | <0.000010                                       | <0.000010                                        | <0.000010                                        | 0.000091                                            | 0.000068                                             |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                        | <0.00010                                         | <0.00010                                         | <0.00010                                            | <0.00010                                             |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | 0.00364                                         | <0.00030                                         | 0.00088                                          | <0.00030                                            | <0.00030                                             |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.000257                                        | <0.000010                                        | 0.00125                                          | 0.00728                                             | 0.00361                                              |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | 0.00121                                         | <0.00050                                         | 0.00056                                          | <0.00050                                            | <0.00050                                             |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0018                                          | <0.0010                                          | 0.0012                                           | 0.0074                                              | 0.0061                                               |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | 0.00143                                         | <0.00030                                         | 0.00097                                          | <0.00030                                            | <0.00030                                             |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      | 0.00153                                         |                                                  |                                                  | <0.00080                                            | <0.00075                                             |
|                                                                       | Chromium (III)-Total (mg/L)          | 0.00463                                         |                                                  | 0.00373                                          | <0.00097                                            | 0.00093                                              |
|                                                                       | Hexavalent Chromium (mg/L)           | <0.0010                                         |                                                  | <0.0010                                          | 0.0037                                              | 0.0027                                               |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) | <0.0010                                         |                                                  |                                                  | 0.0034                                              | 0.0024                                               |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                      | L1833355-11<br>Water<br>21-SEP-16<br>12:05<br>GWCC-3 | L1833355-12<br>Water<br>21-SEP-16<br>11:50<br>GWCC-4 | L1833355-13<br>Water<br>21-SEP-16<br>15:25<br>GWCC-5 | L1833355-14<br>Water<br>21-SEP-16<br>14:05<br>SL | L1833355-15<br>Water<br><br>TRAVEL BLANK |
|-----------------------------------------------------------------------|--------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------------------------|------------------------------------------|
| Grouping                                                              | Analyte                              |                                                      |                                                      |                                                      |                                                  |                                          |
| <b>WATER</b>                                                          |                                      |                                                      |                                                      |                                                      |                                                  |                                          |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L)      | 0.618                                                | 0.447 <sup>DTC</sup>                                 | 0.708                                                | 1.01                                             |                                          |
|                                                                       | Sulfur (S)-Dissolved (mg/L)          | 193                                                  | 114                                                  | 109                                                  | 261                                              |                                          |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)       | 0.000057                                             | 0.000054                                             | 0.000017                                             | 0.000019                                         |                                          |
|                                                                       | Tin (Sn)-Dissolved (mg/L)            | <0.00010                                             | <0.00010                                             | <0.00010                                             | <0.00010                                         |                                          |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)       | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                         |                                          |
|                                                                       | Uranium (U)-Dissolved (mg/L)         | 0.00196                                              | 0.00118                                              | 0.00243                                              | 0.00307                                          |                                          |
|                                                                       | Vanadium (V)-Dissolved (mg/L)        | <0.00050                                             | <0.00050                                             | <0.00050                                             | <0.00050                                         |                                          |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)           | 0.0029                                               | 0.0018                                               | <0.0010                                              | 0.0024                                           |                                          |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L)      | <0.00030                                             | <0.00030                                             | <0.00030                                             | <0.00030                                         |                                          |
| <b>Speciated Metals</b>                                               | Chromium (III)-Dissolved (mg/L)      |                                                      |                                                      |                                                      | <0.00071                                         |                                          |
|                                                                       | Chromium (III)-Total (mg/L)          |                                                      |                                                      |                                                      | 0.00143                                          |                                          |
|                                                                       | Hexavalent Chromium (mg/L)           |                                                      |                                                      |                                                      | 0.0011                                           |                                          |
|                                                                       | Hexavalent Chromium-Dissolved (mg/L) |                                                      |                                                      |                                                      | 0.0010                                           |                                          |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## Reference Information

## QC Samples with Qualifiers &amp; Comments:

| QC Type Description | Parameter                | Qualifier | Applies to Sample Number(s)                                         |
|---------------------|--------------------------|-----------|---------------------------------------------------------------------|
| Matrix Spike        | Dissolved Organic Carbon | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -7, -8, -9     |
| Matrix Spike        | Dissolved Organic Carbon | MS-B      | L1833355-6                                                          |
| Matrix Spike        | Aluminum (Al)-Dissolved  | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Barium (Ba)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Barium (Ba)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Barium (Ba)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Barium (Ba)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Barium (Ba)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Cadmium (Cd)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Calcium (Ca)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Cobalt (Co)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Copper (Cu)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Iron (Fe)-Dissolved      | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Magnesium (Mg)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Manganese (Mn)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Manganese (Mn)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Manganese (Mn)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Nickel (Ni)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Potassium (K)-Dissolved  | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Silicon (Si)-Dissolved   | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sodium (Na)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sodium (Na)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sodium (Na)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Sodium (Na)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike        | Strontium (Sr)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9 |

## Reference Information

|              | Parameter                | Qualifier | Applies to Sample Number(s)                                              |
|--------------|--------------------------|-----------|--------------------------------------------------------------------------|
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Uranium (U)-Dissolved    | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Zinc (Zn)-Dissolved      | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Zinc (Zn)-Dissolved      | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9      |
| Matrix Spike | Aluminum (Al)-Total      | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Total        | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Total       | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Magnesium (Mg)-Total     | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Manganese (Mn)-Total     | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Potassium (K)-Total      | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Total        | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Total     | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Sulfur (S)-Total         | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Uranium (U)-Total        | MS-B      | L1833355-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9 |

## Qualifiers for Individual Parameters Listed:

| Qualifier | Description                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------|
| DLDS      | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.  |
| DTC       | Dissolved concentration exceeds total. Results were confirmed by re-analysis.                      |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

## Test Method References:

| ALS Test Code                                                                                                                                                                                                                              | Matrix | Test Description                       | Method Reference**                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------|---------------------------------------|
| <b>BE-D-L-CCMS-VA</b>                                                                                                                                                                                                                      | Water  | Diss. Be (low) in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                               |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                   |        |                                        |                                       |
| <b>BE-T-L-CCMS-VA</b>                                                                                                                                                                                                                      | Water  | Total Be (Low) in Water by CRC ICPMS   | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                  |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                   |        |                                        |                                       |
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                      | Water  | Dissolved organic carbon by combustion | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis. |        |                                        |                                       |
| <b>CARBONS-TOC-VA</b>                                                                                                                                                                                                                      | Water  | Total organic carbon by combustion     | APHA 5310B TOTAL ORGANIC CARBON (TOC) |

## Reference Information

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

**CR-CR3-DIS-CALC-ED**      Water      Dissolved Trivalent Chromium in Water      CALCULATION

Chromium (III)-Dissolved is calculated as the difference between the dissolved chromium and the dissolved hexavalent chromium (Cr(VI)) results.

**CR-CR3-TOT-CALC-ED**      Water      Total Trivalent Chromium in Water      CALCULATION

Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.

**CR-CR6-ED**      Water      Chromium, Hexavalent (Cr +6)      APHA 3500-Cr C (Ion Chromatography)

This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Results are based on an un-filtered, field-preserved sample.

**CR6-D-IC-ED**      Water      Chromium, Dissolved Hexavalent (Cr +6)      APHA 3500-Cr C (Ion Chromatography)

This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Results are based on a field-filtered, field-preserved sample.

**EC-PCT-VA**      Water      Conductivity (Automated)      APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

**HARDNESS-CALC-VA**      Water      Hardness      APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO<sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

**HG-D-CVAA-VA**      Water      Diss. Mercury in Water by CVAAS or CVAFS      APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**HG-T-CVAA-VA**      Water      Total Mercury in Water by CVAAS or CVAFS      EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**MET-D-CCMS-VA**      Water      Dissolved Metals in Water by CRC ICPMS      APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-T-CCMS-VA**      Water      Total Metals in Water by CRC ICPMS      EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**NH3-F-VA**      Water      Ammonia in Water by Fluorescence      APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NH3-F-VA**      Water      Ammonia in Water by Fluorescence      J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NO2-L-IC-N-WR**      Water      Nitrite in Water by IC (Low Level)      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**NO3-L-IC-N-WR**      Water      Nitrate in Water by IC (Low Level)      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**P-T-PRES-COL-VA**      Water      Total P in Water by Colour      APHA 4500-P Phosphorus

## Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**SO4-IC-N-WR** Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

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*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

---

| Laboratory Definition Code | Laboratory Location                                     |
|----------------------------|---------------------------------------------------------|
| ED                         | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA           |
| WR                         | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA           |
| VA                         | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

---

### Chain of Custody Numbers:

---

1 2

### GLOSSARY OF REPORT TERMS

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*

*mg/kg - milligrams per kilogram based on dry weight of sample.*

*mg/kg ww - milligrams per kilogram based on wet weight of sample.*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*

*mg/L - milligrams per litre.*

*< - Less than.*

*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*



Contact: Brent Mack  
Company: ALS Environmental  
Address: 8081 Lougheed HWY, Suite 100  
Burnaby, BC V5A1W9

## REFERENCE DATA

---

Project / Location: L1833355

PO Number: L1833355

ALS Work Order: 1609786

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

## TEM ANALYSIS DATA

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EDXA Resolution (eV): <175

Accelerating Voltage (keV): 100

Prep Start Date: 10/2/2016

Calibration Constant (µm/cm): 0.74

Camera Constant (mm-Å): 129.25

Analysis Start Date: 10/3/2016

*Pamela Johnson*

Pamela Johnson  
ALS TEM Analyst

*Shawn Smythe*

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*

## IDENTIFICATION

|                     |               |               |               |
|---------------------|---------------|---------------|---------------|
| Client Sample ID:   | L1833355-2 E2 | L1833355-4 E3 | L1833355-5 R3 |
| ALS Sample ID:      | 1609786-02B   | 1609786-04B   | 1609786-05B   |
| Method:             | EPA 100.2     | EPA 100.2     | EPA 100.2     |
| Date of Collection: | 9/20/2016     | 9/20/2016     | 9/20/2016     |
| Time of Collection: | Not Provided  | Not Provided  | Not Provided  |

## FILTRATION & ANALYSIS

|                                       |           |           |           |
|---------------------------------------|-----------|-----------|-----------|
| Date of Filtration:                   | 9/28/2016 | 9/28/2016 | 9/28/2016 |
| Time of Filtration:                   | 10:00     | 10:00     | 10:00     |
| Volume Filtered (L):                  | 0.05      | 0.05      | 0.05      |
| Openings Analyzed:                    | 4         | 4         | 10        |
| Avg. Opening Area (mm <sup>2</sup> ): | 0.0108    | 0.0108    | 0.0108    |
| AS (MFL):                             | 0.50      | 0.50      | 0.20      |

## ASBESTOS COUNT

|                              |    |    |   |
|------------------------------|----|----|---|
| Chrysotile:                  | 68 | 24 | 3 |
| Amosite:                     | 0  | 0  | 0 |
| Crocidolite:                 | 0  | 0  | 0 |
| Act-Tremolite <sup>†</sup> : | 0  | 0  | 0 |
| Anthophyllite:               | 0  | 0  | 0 |
| Total Asbestos:              | 68 | 24 | 3 |

## ASBESTOS CONCENTRATION (MFL)

|                              |              |              |             |
|------------------------------|--------------|--------------|-------------|
| Chrysotile:                  | 33.84        | 11.94        | 0.60        |
| Amosite:                     | <AS          | <AS          | <AS         |
| Crocidolite:                 | <AS          | <AS          | <AS         |
| Act-Tremolite <sup>†</sup> : | <AS          | <AS          | <AS         |
| Anthophyllite:               | <AS          | <AS          | <AS         |
| <b>Total Asbestos:</b>       | <b>33.84</b> | <b>11.94</b> | <b>0.60</b> |

## NOTES

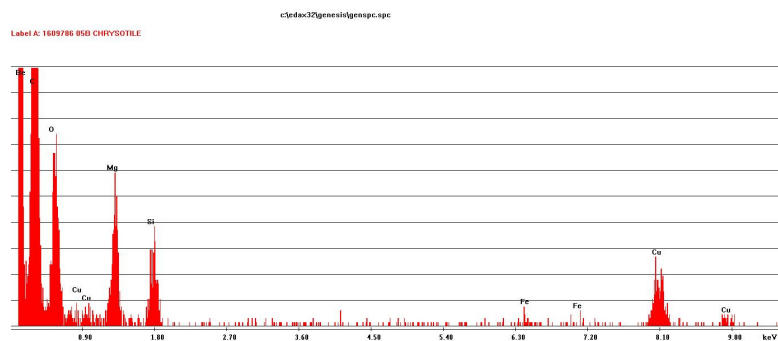
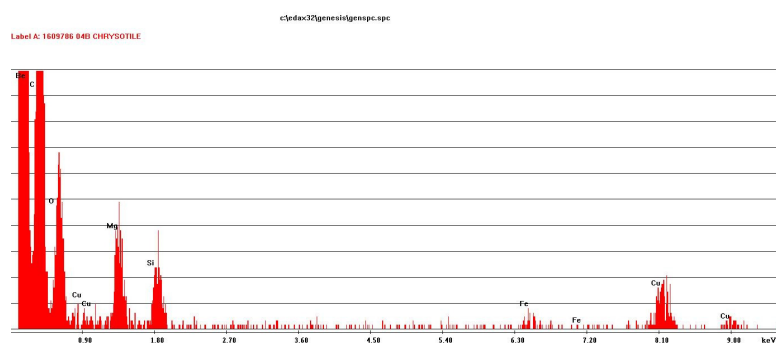
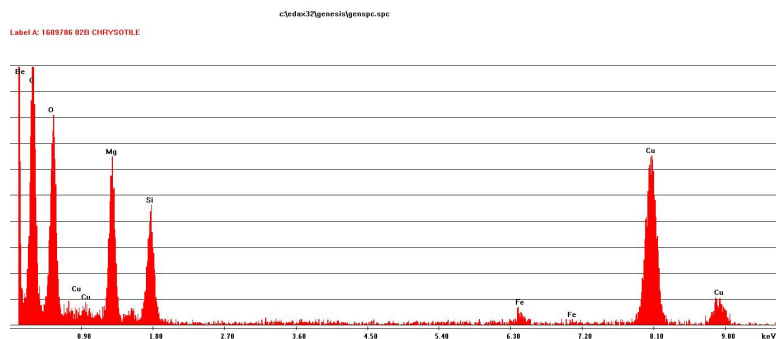
Sample L1833355-2 E2 may have a negative bias due to the heavy concentration of asbestos fibers too small to be counted by this method as well as sediment particulate. Analysis of this sample was terminated upon completion of the minimum 4 openings analyzed.

Sample L1833355-4 E3 may have a negative bias due to the heavy concentration of sediment particulate. Analysis of this sample was terminated upon completion of the minimum 4 openings were analyzed.

Sample L1833355-5 R3 contained many asbestos fibers that were too small to be counted by this method.

## EDXA SPECTRA

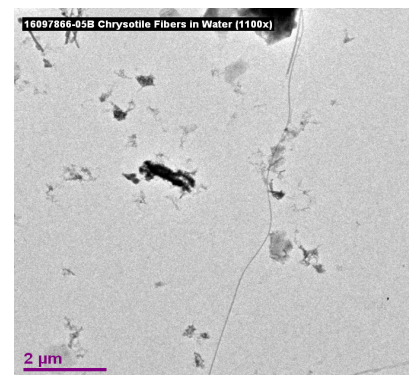
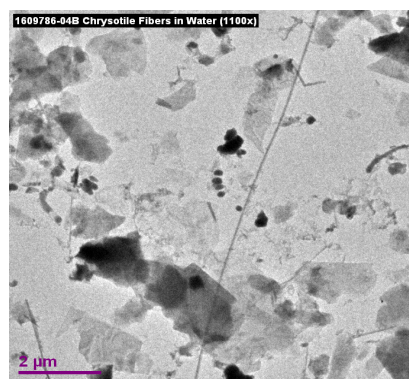
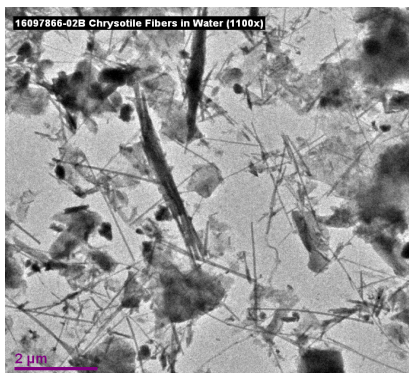
*NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.*





## PHOTOMICROGRAPHS

Collected using Gatan Digital Micrograph.





04-Oct-2016

Brent Mack  
ALS Environmental  
8081 Lougheed HWY  
Suite 100  
Burnaby, BC V5A1W9

Tel: (604) 253-4188  
Fax:

Re: L1833355

Work Order: **1609786**

Dear Brent,

ALS Environmental received 15 samples on 27-Sep-2016 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 20.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Shawn Smythe

Shawn Smythe  
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, Ohio 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

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Environmental 

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## ALS Environmental

Date: 04-Oct-16

**Client:** ALS Environmental  
**Project:** L1833355  
**Work Order:** 1609786

### Work Order Sample Summary

| <u>Lab Samp ID</u> | <u>Client Sample ID</u>  | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|--------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1609786-01         | L1833355-1 E1            | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-02         | L1833355-2 E2            | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-03         | L1833355-3 DUP1          | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-04         | L1833355-4 E3            | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-05         | L1833355-5 R3            | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-05         | L1833355-5 R3            | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-06         | L1833355-6 R7            | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-07         | L1833355-7 FB1           | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-08         | L1833355-8 R11           | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-09         | L1833355-9 GWCC-1        | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-10         | L1833355-10 GWCC-2       | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-11         | L1833355-11 GWCC-3       | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-12         | L1833355-12 GWCC-4       | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-13         | L1833355-13 GWCC-5       | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-14         | L1833355-14 SL           | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |
| 1609786-15         | L1833355-15 TRAVEL BLANK | Water         |                   | 9/20/2016              | 9/27/2016            | <input type="checkbox"/> |

**Client:** ALS Environmental**Project:** L1833355**Work Order:** 1609786**Case Narrative**

---

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-1 E1

Lab ID: 1609786-01

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-2 E2

Lab ID: 1609786-02

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Sample ID: L1833355-3 DUP1

Collection Date: 9/20/2016

Work Order: 1609786

Lab ID: 1609786-03

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 12     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-4 E3

Lab ID: 1609786-04

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 38     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:



## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-5 R3

Lab ID: 1609786-05

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 45     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-6 R7

Lab ID: 1609786-06

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 73     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-7 FB1

Lab ID: 1609786-07

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-8 R11

Lab ID: 1609786-08

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 78     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

**Client:** ALS Environmental  
**Project:** L1833355  
**Sample ID:** L1833355-9 GWCC-1  
**Collection Date:** 9/20/2016

**Work Order:** 1609786  
**Lab ID:** 1609786-09  
**Matrix:** WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 3.8    |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-10 GWCC-2

Lab ID: 1609786-10

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 4.0    |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-11 GWCC-3

Lab ID: 1609786-11

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 2.8    |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-12 GWCC-4

Lab ID: 1609786-12

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:



## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-13 GWCC-5

Lab ID: 1609786-13

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-14 SL

Lab ID: 1609786-14

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 6.4    |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

Client: ALS Environmental

Project: L1833355

Work Order: 1609786

Sample ID: L1833355-15 TRAVEL BLANK

Lab ID: 1609786-15

Collection Date: 9/20/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/27/2016           |

Note:

## ALS Environmental

Date: 04-Oct-16

**Client:** ALS Environmental  
**Project:** L1833355  
**WorkOrder:** 1609786

### QUALIFIERS, ACRONYMS, UNITS

| <u>Qualifier</u> | <u>Description</u>                                                        |
|------------------|---------------------------------------------------------------------------|
| *                | Value exceeds Regulatory Limit                                            |
| a                | Not accredited                                                            |
| B                | Analyte detected in the associated Method Blank above the Reporting Limit |
| E                | Value above quantitation range                                            |
| H                | Analyzed outside of Holding Time                                          |
| J                | Analyte detected below quantitation limit                                 |
| n                | Not offered for accreditation                                             |
| ND               | Not Detected at the Reporting Limit                                       |
| O                | Sample amount is > 4 times amount spiked                                  |
| P                | Dual Column results percent difference > 40%                              |
| R                | RPD above laboratory control limit                                        |
| S                | Spike Recovery outside laboratory control limits                          |
| U                | Analyzed but not detected above the MDL                                   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| E              | EPA Method                          |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MQL            | Method Quantitation Limit           |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PDS            | Post Digestion Spike                |
| PQL            | Practical Quantitation Limit        |
| SDL            | Sample Detection Limit              |
| SW             | SW-846 Method                       |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| %                     |                    |
| mg/L                  |                    |

## Sample Receipt Checklist

Client Name: **ALS-VANCOUVER**

Date/Time Received: **27-Sep-16 10:00**

Work Order: **1609786**

Received by: **SNH**

Checklist completed by: **Shawn Smythe**

27-Sep-16

Reviewed by: **Shawn Smythe**

27-Sep-16

eSignature

Date

eSignature

Date

Matrices:

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

2.6

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☐

pH adjusted by:

-

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



**ALS Environmental**

www.alsglobal.com

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1833355-COFC

COC Number: 1

Page 1 of 2

|                                                                                                                      |                                                                                          |                                                                                                             |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|------------------|----------|------------------|-----------------|------------------------|----------------------|--|--|
| <b>Report To</b>                                                                                                     |                                                                                          | <b>Report Format / Distribution</b>                                                                         |                 | <b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>                            |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          | Select Report Format:                                                                                       |                 | <div style="display: flex; justify-content: space-between;"> <div>R</div> <div>P</div> <div>E</div> <div>E2</div> </div> |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Contact: Natasha Sandys                                                                                              |                                                                                          | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                          | Select Distribution:                                                                                        |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Phone: 867-456-4865                                                                                                  |                                                                                          | Email 1 or Fax nsandys@hemmera.com                                                                          |                 | Specify Date Required for E2, E or P:                                                                                    |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Email 2 chris@elr.ca                                                                                                 |                                                                                          |                                                                                                             |                 | <b>Analysis Request</b>                                                                                                  |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| <b>Invoice To</b>                                                                                                    |                                                                                          | <b>Invoice Distribution</b>                                                                                 |                 | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                               |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |                                                                                          | Select Invoice Distribution:                                                                                |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                          | Email 1 or Fax nsandys@hemmera.com                                                                          |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                          | Email 2 chris@elr.ca                                                                                        |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| <b>Project Information</b>                                                                                           |                                                                                          | <b>Oil and Gas Required Fields (client use)</b>                                                             |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| ALS Quote #: Q56044                                                                                                  |                                                                                          | Approver ID:                                                                                                |                 | Cost Center:                                                                                                             |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| Job #: 1343-005.20                                                                                                   |                                                                                          | GL Account:                                                                                                 |                 | Routing Code:                                                                                                            |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| PO / AFE:                                                                                                            |                                                                                          | Activity Code:                                                                                              |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| LSD:                                                                                                                 |                                                                                          | Location:                                                                                                   |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                          | ALS Contact:                                                                                                |                 | Sampler: AN/CH                                                                                                           |                                                                                                                                                     |                                            |                                      |                                          |             |                                                                                                                                                            |           |              |                  |          |                  |                 |                        |                      |  |  |
| ALS Sample #<br>(lab use only)                                                                                       | Sample Identification and/or Coordinates<br>(This description will appear on the report) | Date<br>(dd-mm-yy)                                                                                          | Time<br>(hh:mm) | Sample Type                                                                                                              | Low Level Diss. Met (incl. Hg) and Hardness                                                                                                         | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total | Chromium Speciation (III/VI) - Dissolved | Ammonia - N | Dissolved Organic Carbon (DOC)                                                                                                                             | Nitrate-N | Nitrite - N  | Total Phosphorus | Sulphate | pH, Conductivity | Asbestos-TEM-AD | Total Suspended Solids | Number of Containers |  |  |
| E1                                                                                                                   |                                                                                          | 20-Sep-16                                                                                                   | 17:50           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| E2                                                                                                                   |                                                                                          | 20-Sep-16                                                                                                   | 16:20           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 11                   |  |  |
| DUP1                                                                                                                 |                                                                                          | 20-Sep-16                                                                                                   | 16:20           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| E3                                                                                                                   |                                                                                          | 20-Sep-16                                                                                                   | 15:55           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 11                   |  |  |
| R3                                                                                                                   |                                                                                          | 20-Sep-16                                                                                                   | 14:10           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 11                   |  |  |
| R7                                                                                                                   |                                                                                          | 21-Sep-16                                                                                                   | 8:50            | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| FB1                                                                                                                  |                                                                                          | 21-Sep-16                                                                                                   | 10:35           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| R11                                                                                                                  |                                                                                          | 20-Sep-16                                                                                                   | 12:25           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| GWCC-1                                                                                                               |                                                                                          | 21-Sep-16                                                                                                   | 12:40           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| GWCC-2                                                                                                               |                                                                                          | 21-Sep-16                                                                                                   | 12:25           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| GWCC-3                                                                                                               |                                                                                          | 21-Sep-16                                                                                                   | 12:05           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| GWCC-4                                                                                                               |                                                                                          | 21-Sep-16                                                                                                   | 11:50           | Water                                                                                                                    | R                                                                                                                                                   | R                                          |                                      |                                          | R           | R                                                                                                                                                          | R         | R            | R                | R        | R                | R               | R                      | 10                   |  |  |
| <b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>                                                          |                                                                                          |                                                                                                             |                 |                                                                                                                          | <b>Special Instructions / Specify Criteria to add on report (client Use)</b>                                                                        |                                            |                                      |                                          |             | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                         |           |              |                  |          |                  |                 |                        |                      |  |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                          |                                                                                                             |                 |                                                                                                                          | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results. |                                            |                                      |                                          |             | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                                  |           |              |                  |          |                  |                 |                        |                      |  |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                          |                                                                                                             |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             | Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> |           |              |                  |          |                  |                 |                        |                      |  |  |
|                                                                                                                      |                                                                                          |                                                                                                             |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             | Cooling Initiated <input checked="" type="checkbox"/>                                                                                                      |           |              |                  |          |                  |                 |                        |                      |  |  |
|                                                                                                                      |                                                                                          |                                                                                                             |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             | INITIAL COOLER TEMPERATURES °C                                                                                                                             |           |              |                  |          |                  |                 |                        |                      |  |  |
|                                                                                                                      |                                                                                          |                                                                                                             |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             | FINAL COOLER TEMPERATURES °C                                                                                                                               |           |              |                  |          |                  |                 |                        |                      |  |  |
|                                                                                                                      |                                                                                          |                                                                                                             |                 |                                                                                                                          |                                                                                                                                                     |                                            |                                      |                                          |             | 3.0 2.0 3.0                                                                                                                                                |           |              |                  |          |                  |                 |                        |                      |  |  |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                          |                                                                                                             |                 |                                                                                                                          | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                    |                                            |                                      |                                          |             | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                             |           |              |                  |          |                  |                 |                        |                      |  |  |
| Released by: <i>nsandys</i>                                                                                          |                                                                                          | Date: 23-Sep-16                                                                                             |                 | Time: 10:08                                                                                                              |                                                                                                                                                     | Received by: <i>LS</i>                     |                                      | Date: 23-Sep-16                          |             | Time: 10:08                                                                                                                                                |           | Received by: |                  |          | Date:            |                 |                        | Time:                |  |  |

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



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NA-FM-0026a v09 FrontM4 January 2014

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 26-SEP-16  
Report Date: 24-OCT-16 17:27 (MT)  
Version: FINAL REV. 2

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1834129  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.20  
C of C Numbers: 1, 2  
Legal Site Desc:

Comments: 24-OCT-2016 This version of the report includes speciated chromium data for samples 1, 3, 7, 11, and 18.

Brent Mack, B.Sc.  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
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# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1834129-1<br>Water<br>22-SEP-16<br>16:25<br>E4 | L1834129-2<br>Water<br>24-SEP-16<br>11:40<br>E4 | L1834129-3<br>Water<br>22-SEP-16<br>12:30<br>E7 | L1834129-4<br>Water<br>24-SEP-16<br>12:10<br>E7 | L1834129-5<br>Water<br>22-SEP-16<br>14:50<br>E8 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            |                                                 | 824                                             |                                                 | 774                                             |                                                 |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 425                                             |                                                 | 406                                             |                                                 | 129                                             |
|                                                                       | pH (pH)                         |                                                 | 8.17                                            |                                                 | 8.22                                            |                                                 |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0105                                          |                                                 | 0.0279                                          |                                                 | 0.00721                                         |
|                                                                       | Nitrate (as N) (mg/L)           |                                                 | 0.137                                           |                                                 | 0.163                                           |                                                 |
|                                                                       | Nitrite (as N) (mg/L)           |                                                 | <0.0010                                         |                                                 | <0.0010                                         |                                                 |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0065                                          |                                                 | 0.0061                                          |                                                 | 0.0048                                          |
|                                                                       | Sulfate (SO4) (mg/L)            |                                                 | 256                                             |                                                 | 241                                             |                                                 |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 14.2                                            |                                                 | 13.5                                            |                                                 | 13.6                                            |
|                                                                       | Total Organic Carbon (mg/L)     |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.0990                                          |                                                 | 0.193                                           |                                                 | 0.180                                           |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00050                                         |                                                 | 0.00044                                         |                                                 | 0.00018                                         |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00124                                         |                                                 | 0.00134                                         |                                                 | 0.00063                                         |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0640                                          |                                                 | 0.0713                                          |                                                 | 0.0444                                          |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                       |                                                 | 0.000020                                        |                                                 | 0.000021                                        |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                       |                                                 | <0.000050                                       |                                                 | <0.000050                                       |
|                                                                       | Boron (B)-Total (mg/L)          | 0.042                                           |                                                 | 0.032                                           |                                                 | <0.010                                          |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000734                                       |                                                 | 0.0000850                                       |                                                 | 0.0000514                                       |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 81.7                                            |                                                 | 79.8                                            |                                                 | 34.2                                            |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00117                                         |                                                 | 0.00117                                         |                                                 | 0.00059                                         |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00095                                         |                                                 | 0.00151                                         |                                                 | 0.00096                                         |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00238                                         |                                                 | 0.00283                                         |                                                 | 0.00295                                         |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.554                                           |                                                 | 0.792                                           |                                                 | 0.546                                           |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000209                                        |                                                 | 0.000355                                        |                                                 | 0.000075                                        |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0105                                          |                                                 | 0.0093                                          |                                                 | 0.0039                                          |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 53.0                                            |                                                 | 49.6                                            |                                                 | 11.7                                            |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.268                                           |                                                 | 0.421                                           |                                                 | 0.0791                                          |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                      |                                                 | 0.0000067                                       |                                                 | <0.0000050                                      |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00146                                         |                                                 | 0.00149                                         |                                                 | 0.000512                                        |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0143                                          |                                                 | 0.0154                                          |                                                 | 0.00526                                         |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                          |                                                 | <0.050                                          |                                                 | <0.050                                          |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.82                                            |                                                 | 0.82                                            |                                                 | 0.87                                            |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00151                                         |                                                 | 0.00160                                         |                                                 | 0.000287                                        |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.22                                            |                                                 | 5.35                                            |                                                 | 5.70                                            |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                       |                                                 | 0.000016                                        |                                                 | <0.000010                                       |
|                                                                       | Sodium (Na)-Total (mg/L)        | 4.59                                            |                                                 | 4.28                                            |                                                 | 4.04                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                                   |                                 | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1834129-6<br>Water<br>24-SEP-16<br>12:05<br>E8 | L1834129-7<br>Water<br>22-SEP-16<br>15:25<br>R4 | L1834129-8<br>Water<br>24-SEP-16<br>11:45<br>R4 | L1834129-9<br>Water<br>22-SEP-16<br>14:15<br>R6 | L1834129-10<br>Water<br>24-SEP-16<br>12:15<br>R6 |
|-----------------------------------|---------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                          | Analyte                         |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>                      |                                 |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Physical Tests</b>             | Conductivity (uS/cm)            |                                                                       | 290                                             |                                                 | 648                                             |                                                 | 313                                              |
|                                   | Hardness (as CaCO3) (mg/L)      |                                                                       |                                                 | 295                                             |                                                 | 132                                             |                                                  |
|                                   | pH (pH)                         |                                                                       | 8.05                                            |                                                 | 8.23                                            |                                                 | 8.02                                             |
| <b>Anions and Nutrients</b>       | Ammonia, Total (as N) (mg/L)    |                                                                       |                                                 | 0.0410                                          |                                                 | 0.0116                                          |                                                  |
|                                   | Nitrate (as N) (mg/L)           |                                                                       | 0.126                                           |                                                 | 0.205                                           |                                                 | 0.0943                                           |
|                                   | Nitrite (as N) (mg/L)           |                                                                       | <0.0010                                         |                                                 | <0.0010                                         |                                                 | <0.0010                                          |
|                                   | Phosphorus (P)-Total (mg/L)     |                                                                       |                                                 | 0.0314                                          |                                                 | 0.0058                                          |                                                  |
|                                   | Sulfate (SO4) (mg/L)            |                                                                       | 59.1                                            |                                                 | 169                                             |                                                 | 62.0                                             |
| <b>Organic / Inorganic Carbon</b> | Dissolved Organic Carbon (mg/L) |                                                                       |                                                 | 12.3                                            |                                                 | 14.5                                            |                                                  |
|                                   | Total Organic Carbon (mg/L)     |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Total Metals</b>               | Aluminum (Al)-Total (mg/L)      |                                                                       |                                                 | 0.834                                           |                                                 | 0.168                                           |                                                  |
|                                   | Antimony (Sb)-Total (mg/L)      |                                                                       |                                                 | 0.00046                                         |                                                 | 0.00014                                         |                                                  |
|                                   | Arsenic (As)-Total (mg/L)       |                                                                       |                                                 | 0.00293                                         |                                                 | 0.00063                                         |                                                  |
|                                   | Barium (Ba)-Total (mg/L)        |                                                                       |                                                 | 0.115                                           |                                                 | 0.0461                                          |                                                  |
|                                   | Beryllium (Be)-Total (mg/L)     |                                                                       |                                                 | 0.000042                                        |                                                 | 0.000023                                        |                                                  |
|                                   | Bismuth (Bi)-Total (mg/L)       |                                                                       |                                                 | <0.000050                                       |                                                 | <0.000050                                       |                                                  |
|                                   | Boron (B)-Total (mg/L)          |                                                                       |                                                 | <0.010                                          |                                                 | <0.010                                          |                                                  |
|                                   | Cadmium (Cd)-Total (mg/L)       |                                                                       |                                                 | 0.000155                                        |                                                 | 0.0000495                                       |                                                  |
|                                   | Calcium (Ca)-Total (mg/L)       |                                                                       |                                                 | 73.7                                            |                                                 | 33.1                                            |                                                  |
|                                   | Chromium (Cr)-Total (mg/L)      |                                                                       |                                                 | 0.00240                                         |                                                 | 0.00055                                         |                                                  |
|                                   | Cobalt (Co)-Total (mg/L)        |                                                                       |                                                 | 0.00205                                         |                                                 | 0.00091                                         |                                                  |
|                                   | Copper (Cu)-Total (mg/L)        |                                                                       |                                                 | 0.00500                                         |                                                 | 0.00298                                         |                                                  |
|                                   | Iron (Fe)-Total (mg/L)          |                                                                       |                                                 | 1.79                                            |                                                 | 0.515                                           |                                                  |
|                                   | Lead (Pb)-Total (mg/L)          |                                                                       |                                                 | 0.00106                                         |                                                 | 0.000064                                        |                                                  |
|                                   | Lithium (Li)-Total (mg/L)       |                                                                       |                                                 | 0.0028                                          |                                                 | 0.0037                                          |                                                  |
|                                   | Magnesium (Mg)-Total (mg/L)     |                                                                       |                                                 | 30.0                                            |                                                 | 11.8                                            |                                                  |
|                                   | Manganese (Mn)-Total (mg/L)     |                                                                       |                                                 | 0.341                                           |                                                 | 0.0744                                          |                                                  |
|                                   | Mercury (Hg)-Total (mg/L)       |                                                                       |                                                 | 0.0000125                                       |                                                 | <0.0000050                                      |                                                  |
|                                   | Molybdenum (Mo)-Total (mg/L)    |                                                                       |                                                 | 0.00137                                         |                                                 | 0.000467                                        |                                                  |
|                                   | Nickel (Ni)-Total (mg/L)        |                                                                       |                                                 | 0.0167                                          |                                                 | 0.00502                                         |                                                  |
|                                   | Phosphorus (P)-Total (mg/L)     |                                                                       |                                                 | 0.066                                           |                                                 | <0.050                                          |                                                  |
|                                   | Potassium (K)-Total (mg/L)      |                                                                       |                                                 | 0.57                                            |                                                 | 0.94                                            |                                                  |
|                                   | Selenium (Se)-Total (mg/L)      |                                                                       |                                                 | 0.00296                                         |                                                 | 0.000256                                        |                                                  |
|                                   | Silicon (Si)-Total (mg/L)       |                                                                       |                                                 | 7.13                                            |                                                 | 5.73                                            |                                                  |
|                                   | Silver (Ag)-Total (mg/L)        |                                                                       |                                                 | 0.000038                                        |                                                 | <0.000010                                       |                                                  |
|                                   | Sodium (Na)-Total (mg/L)        |                                                                       |                                                 | 4.19                                            |                                                 | 4.21                                            |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1834129-11<br>Water<br>22-SEP-16<br>16:25<br>DUP 2 | L1834129-12<br>Water<br>24-SEP-16<br>11:40<br>DUP 2 | L1834129-13<br>Water<br>24-SEP-16<br>08:10<br>E1(H) | L1834129-14<br>Water<br>23-SEP-16<br>13:35<br>R1 | L1834129-15<br>Water<br><br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|------------------------------------------|
| Grouping                                                              | Analyte                         |                                                     |                                                     |                                                     |                                                  |                                          |
| <b>WATER</b>                                                          |                                 |                                                     |                                                     |                                                     |                                                  |                                          |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            |                                                     | 814                                                 | 644                                                 | 813                                              | <2.0 <sup>HTC</sup>                      |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 408                                                 |                                                     | 302                                                 | 416                                              | <0.50                                    |
|                                                                       | pH (pH)                         |                                                     | 8.18                                                | 8.26                                                | 8.36                                             | 5.55                                     |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0103                                              |                                                     | 0.0235                                              | 0.0430                                           | <0.010                                   |
|                                                                       | Nitrate (as N) (mg/L)           |                                                     | 0.138                                               | 0.113                                               | 0.179                                            | <0.0050                                  |
|                                                                       | Nitrite (as N) (mg/L)           |                                                     | <0.0010                                             | <0.0010                                             | <0.0010                                          | <0.0010                                  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0074                                              |                                                     | 0.0036                                              | 0.0054                                           | <0.0020                                  |
|                                                                       | Sulfate (SO4) (mg/L)            |                                                     | 254                                                 | 182                                                 | 260                                              | <0.30                                    |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 13.0                                                |                                                     | 15.0                                                | 12.2                                             |                                          |
|                                                                       | Total Organic Carbon (mg/L)     |                                                     |                                                     |                                                     |                                                  | <0.50                                    |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.102                                               |                                                     | 0.0383                                              | 0.0901                                           | <0.0030                                  |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00043                                             |                                                     | 0.00031                                             | 0.00022                                          | <0.00010                                 |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00124                                             |                                                     | 0.00076                                             | 0.00074                                          | <0.00010                                 |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0658                                              |                                                     | 0.0662                                              | 0.0641                                           | <0.000050                                |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                           |                                                     | <0.000020                                           | <0.000020                                        | <0.000020                                |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                           |                                                     | <0.000050                                           | <0.000050                                        | <0.000050                                |
|                                                                       | Boron (B)-Total (mg/L)          | 0.042                                               |                                                     | <0.010                                              | <0.010                                           | <0.010                                   |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000721                                           |                                                     | 0.0000572                                           | 0.000146                                         | <0.0000050                               |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 83.5                                                |                                                     | 73.6                                                | 99.1                                             | <0.050                                   |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00118                                             |                                                     | 0.00058                                             | 0.00050                                          | <0.00010                                 |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00101                                             |                                                     | 0.00062                                             | 0.00107                                          | <0.00010                                 |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00237                                             |                                                     | 0.00259                                             | 0.00218                                          | <0.00050                                 |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.606                                               |                                                     | 0.324                                               | 0.656                                            | <0.010                                   |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000199                                            |                                                     | 0.000096                                            | 0.000187                                         | <0.000050                                |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0106                                              |                                                     | 0.0035                                              | 0.0031                                           | <0.0010                                  |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 54.2                                                |                                                     | 35.3                                                | 41.0                                             | <0.10                                    |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.282                                               |                                                     | 0.357                                               | 0.475                                            | <0.00010                                 |
|                                                                       | Mercury (Hg)-Total (mg/L)       | 0.0000060                                           |                                                     | <0.0000050                                          | 0.0000061                                        | <0.0000050                               |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.00154                                             |                                                     | 0.00130                                             | 0.00132                                          | <0.000050                                |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.0148                                              |                                                     | 0.00483                                             | 0.00577                                          | <0.00050                                 |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                              |                                                     | <0.050                                              | <0.050                                           | <0.050                                   |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.82                                                |                                                     | 0.59                                                | 0.61                                             | <0.10                                    |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.00167                                             |                                                     | 0.00197                                             | 0.00281                                          | <0.000050                                |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.44                                                |                                                     | 5.10                                                | 4.88                                             | <0.050                                   |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                           |                                                     | <0.000010                                           | <0.000010                                        | <0.000010                                |
|                                                                       | Sodium (Na)-Total (mg/L)        | 4.80                                                |                                                     | 3.21                                                | 3.70                                             | <0.050                                   |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1834129-16<br>Water<br>23-SEP-16<br>15:20<br>R2 | L1834129-17<br>Water<br>23-SEP-16<br>16:35<br>R8 | L1834129-18<br>Water<br>23-SEP-16<br>17:40<br>R9 |  |  |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--|--|
| Grouping                                                              | Analyte                         |                                                  |                                                  |                                                  |  |  |
| <b>WATER</b>                                                          |                                 |                                                  |                                                  |                                                  |  |  |
| <b>Physical Tests</b>                                                 | Conductivity (uS/cm)            | 713                                              | 379                                              | 576                                              |  |  |
|                                                                       | Hardness (as CaCO3) (mg/L)      | 363                                              | 178                                              | 302                                              |  |  |
|                                                                       | pH (pH)                         | 8.41                                             | 8.16                                             | 8.22                                             |  |  |
| <b>Anions and Nutrients</b>                                           | Ammonia, Total (as N) (mg/L)    | 0.0089                                           | 0.0052                                           | 0.105                                            |  |  |
|                                                                       | Nitrate (as N) (mg/L)           | 0.0515                                           | <0.0050                                          | 0.242                                            |  |  |
|                                                                       | Nitrite (as N) (mg/L)           | <0.0010                                          | <0.0010                                          | <0.0010                                          |  |  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | 0.0058                                           | 0.0037                                           | 0.0060                                           |  |  |
|                                                                       | Sulfate (SO4) (mg/L)            | 202                                              | 104                                              | 178                                              |  |  |
| <b>Organic / Inorganic Carbon</b>                                     | Dissolved Organic Carbon (mg/L) | 10.4                                             | 13.9                                             | 25.0                                             |  |  |
|                                                                       | Total Organic Carbon (mg/L)     |                                                  |                                                  |                                                  |  |  |
| <b>Total Metals</b>                                                   | Aluminum (Al)-Total (mg/L)      | 0.0740                                           | 0.0273                                           | 0.252                                            |  |  |
|                                                                       | Antimony (Sb)-Total (mg/L)      | 0.00041                                          | 0.00085                                          | 0.00025                                          |  |  |
|                                                                       | Arsenic (As)-Total (mg/L)       | 0.00099                                          | 0.00038                                          | 0.00124                                          |  |  |
|                                                                       | Barium (Ba)-Total (mg/L)        | 0.0530                                           | 0.0566                                           | 0.118                                            |  |  |
|                                                                       | Beryllium (Be)-Total (mg/L)     | <0.000020                                        | <0.000020                                        | 0.000029                                         |  |  |
|                                                                       | Bismuth (Bi)-Total (mg/L)       | <0.000050                                        | <0.000050                                        | <0.000050                                        |  |  |
|                                                                       | Boron (B)-Total (mg/L)          | <0.010                                           | <0.010                                           | <0.010                                           |  |  |
|                                                                       | Cadmium (Cd)-Total (mg/L)       | 0.0000315                                        | 0.0000188                                        | 0.0000717                                        |  |  |
|                                                                       | Calcium (Ca)-Total (mg/L)       | 64.9                                             | 41.9                                             | 71.1                                             |  |  |
|                                                                       | Chromium (Cr)-Total (mg/L)      | 0.00067                                          | 0.00069                                          | 0.00147                                          |  |  |
|                                                                       | Cobalt (Co)-Total (mg/L)        | 0.00035                                          | 0.00011                                          | 0.00145                                          |  |  |
|                                                                       | Copper (Cu)-Total (mg/L)        | 0.00152                                          | 0.00168                                          | 0.00494                                          |  |  |
|                                                                       | Iron (Fe)-Total (mg/L)          | 0.629                                            | 0.084                                            | 2.06                                             |  |  |
|                                                                       | Lead (Pb)-Total (mg/L)          | 0.000075                                         | <0.000050                                        | 0.000190                                         |  |  |
|                                                                       | Lithium (Li)-Total (mg/L)       | 0.0056                                           | <0.0010                                          | 0.0012                                           |  |  |
|                                                                       | Magnesium (Mg)-Total (mg/L)     | 50.3                                             | 17.6                                             | 31.2                                             |  |  |
|                                                                       | Manganese (Mn)-Total (mg/L)     | 0.141                                            | 0.0177                                           | 0.755                                            |  |  |
|                                                                       | Mercury (Hg)-Total (mg/L)       | <0.0000050                                       | <0.0000050                                       | 0.0000069                                        |  |  |
|                                                                       | Molybdenum (Mo)-Total (mg/L)    | 0.000627                                         | 0.000826                                         | 0.00130                                          |  |  |
|                                                                       | Nickel (Ni)-Total (mg/L)        | 0.00400                                          | 0.00326                                          | 0.00555                                          |  |  |
|                                                                       | Phosphorus (P)-Total (mg/L)     | <0.050                                           | <0.050                                           | <0.050                                           |  |  |
|                                                                       | Potassium (K)-Total (mg/L)      | 0.74                                             | <0.10                                            | 0.48                                             |  |  |
|                                                                       | Selenium (Se)-Total (mg/L)      | 0.000628                                         | 0.00220                                          | 0.00236                                          |  |  |
|                                                                       | Silicon (Si)-Total (mg/L)       | 5.95                                             | 6.03                                             | 5.97                                             |  |  |
|                                                                       | Silver (Ag)-Total (mg/L)        | <0.000010                                        | <0.000010                                        | 0.000011                                         |  |  |
|                                                                       | Sodium (Na)-Total (mg/L)        | 3.37                                             | 5.41                                             | 3.52                                             |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1834129-1<br>Water<br>22-SEP-16<br>16:25<br>E4 | L1834129-2<br>Water<br>24-SEP-16<br>11:40<br>E4 | L1834129-3<br>Water<br>22-SEP-16<br>12:30<br>E7 | L1834129-4<br>Water<br>24-SEP-16<br>12:10<br>E7 | L1834129-5<br>Water<br>22-SEP-16<br>14:50<br>E8 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>WATER</b>            |                                       |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                 |
| <b>Total Metals</b>     | Strontium (Sr)-Total (mg/L)           | 0.492                                                                 |                                                 |                                                 | 0.468                                           |                                                 | 0.189                                           |
|                         | Sulfur (S)-Total (mg/L)               | 88.2                                                                  |                                                 |                                                 | 82.2                                            |                                                 | 19.5                                            |
|                         | Thallium (Tl)-Total (mg/L)            | 0.000013                                                              |                                                 |                                                 | 0.000013                                        |                                                 | <0.000010                                       |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |                                                 |                                                 | <0.00010                                        |                                                 | <0.00010                                        |
|                         | Titanium (Ti)-Total (mg/L)            | 0.00281                                                               |                                                 |                                                 | 0.00603                                         |                                                 | 0.00318                                         |
|                         | Uranium (U)-Total (mg/L)              | 0.00283                                                               |                                                 |                                                 | 0.00289                                         |                                                 | 0.00142                                         |
|                         | Vanadium (V)-Total (mg/L)             | 0.00084                                                               |                                                 |                                                 | 0.00114                                         |                                                 | 0.00102                                         |
|                         | Zinc (Zn)-Total (mg/L)                | 0.0041                                                                |                                                 |                                                 | 0.0077                                          |                                                 | 0.0080                                          |
|                         | Zirconium (Zr)-Total (mg/L)           | 0.00111                                                               |                                                 |                                                 | 0.00123                                         |                                                 | 0.00085                                         |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 | FIELD                                           |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 |                                                 |                                                 | FIELD                                           |                                                 | FIELD                                           |
|                         | Aluminum (Al)-Dissolved (mg/L)        | 0.0195                                                                |                                                 |                                                 | 0.0208                                          |                                                 | 0.0798                                          |
|                         | Antimony (Sb)-Dissolved (mg/L)        | 0.00039                                                               |                                                 |                                                 | 0.00033                                         |                                                 | 0.00011                                         |
|                         | Arsenic (As)-Dissolved (mg/L)         | 0.00098                                                               |                                                 |                                                 | 0.00096                                         |                                                 | 0.00050                                         |
|                         | Barium (Ba)-Dissolved (mg/L)          | 0.0612                                                                |                                                 |                                                 | 0.0673                                          |                                                 | 0.0438                                          |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             |                                                 |                                                 | <0.000020                                       |                                                 | <0.000020                                       |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |                                                 |                                                 | <0.000050                                       |                                                 | <0.000050                                       |
|                         | Boron (B)-Dissolved (mg/L)            | 0.039                                                                 |                                                 |                                                 | 0.030                                           |                                                 | <0.010                                          |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000492                                                             |                                                 |                                                 | 0.0000635                                       |                                                 | 0.0000469                                       |
|                         | Calcium (Ca)-Dissolved (mg/L)         | 82.3                                                                  |                                                 |                                                 | 80.4                                            |                                                 | 32.5                                            |
|                         | Chromium (Cr)-Dissolved (mg/L)        | 0.00060                                                               |                                                 |                                                 | 0.00055                                         |                                                 | 0.00038                                         |
|                         | Cobalt (Co)-Dissolved (mg/L)          | 0.00083                                                               |                                                 |                                                 | 0.00126                                         |                                                 | 0.00090                                         |
|                         | Copper (Cu)-Dissolved (mg/L)          | 0.00182                                                               |                                                 |                                                 | 0.00196                                         |                                                 | 0.00261                                         |
|                         | Iron (Fe)-Dissolved (mg/L)            | 0.258                                                                 |                                                 |                                                 | 0.310                                           |                                                 | 0.324                                           |
|                         | Lead (Pb)-Dissolved (mg/L)            | 0.000051                                                              |                                                 |                                                 | <0.000050                                       |                                                 | <0.000050                                       |
|                         | Lithium (Li)-Dissolved (mg/L)         | 0.0107                                                                |                                                 |                                                 | 0.0091                                          |                                                 | 0.0037                                          |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | 53.3                                                                  |                                                 |                                                 | 49.9                                            |                                                 | 11.7                                            |
|                         | Manganese (Mn)-Dissolved (mg/L)       | 0.262                                                                 |                                                 |                                                 | 0.400                                           |                                                 | 0.0752                                          |
|                         | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                                            |                                                 |                                                 | <0.0000050                                      |                                                 | <0.0000050                                      |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00143                                                               |                                                 |                                                 | 0.00140                                         |                                                 | 0.000442                                        |
|                         | Nickel (Ni)-Dissolved (mg/L)          | 0.0125                                                                |                                                 |                                                 | 0.0136                                          |                                                 | 0.00470                                         |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |                                                 |                                                 | <0.050                                          |                                                 | <0.050                                          |
|                         | Potassium (K)-Dissolved (mg/L)        | 0.80                                                                  |                                                 |                                                 | 0.81                                            |                                                 | 0.90                                            |
|                         | Selenium (Se)-Dissolved (mg/L)        | 0.00160                                                               |                                                 |                                                 | 0.00154                                         |                                                 | 0.000288                                        |
|                         | Silicon (Si)-Dissolved (mg/L)         | 5.02                                                                  |                                                 |                                                 | 5.04                                            |                                                 | 5.55                                            |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |                                                 |                                                 | <0.000010                                       |                                                 | <0.000010                                       |
|                         | Sodium (Na)-Dissolved (mg/L)          | 4.67                                                                  |                                                 |                                                 | 4.30                                            |                                                 | 4.09                                            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1834129-6<br>Water<br>24-SEP-16<br>12:05<br>E8 | L1834129-7<br>Water<br>22-SEP-16<br>15:25<br>R4 | L1834129-8<br>Water<br>24-SEP-16<br>11:45<br>R4 | L1834129-9<br>Water<br>22-SEP-16<br>14:15<br>R6 | L1834129-10<br>Water<br>24-SEP-16<br>12:15<br>R6 |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>            |                                       |                                                                       |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Total Metals</b>     | Strontium (Sr)-Total (mg/L)           |                                                                       |                                                 | 0.401                                           |                                                 | 0.181                                           |                                                  |
|                         | Sulfur (S)-Total (mg/L)               |                                                                       |                                                 | 54.1                                            |                                                 | 19.0                                            |                                                  |
|                         | Thallium (Tl)-Total (mg/L)            |                                                                       |                                                 | 0.000017                                        |                                                 | <0.000010                                       |                                                  |
|                         | Tin (Sn)-Total (mg/L)                 |                                                                       |                                                 | <0.00010                                        |                                                 | <0.00010                                        |                                                  |
|                         | Titanium (Ti)-Total (mg/L)            |                                                                       |                                                 | 0.0218                                          |                                                 | 0.00230                                         |                                                  |
|                         | Uranium (U)-Total (mg/L)              |                                                                       |                                                 | 0.00350                                         |                                                 | 0.00132                                         |                                                  |
|                         | Vanadium (V)-Total (mg/L)             |                                                                       |                                                 | 0.00311                                         |                                                 | 0.00098                                         |                                                  |
|                         | Zinc (Zn)-Total (mg/L)                |                                                                       |                                                 | 0.0093                                          |                                                 | 0.0072                                          |                                                  |
|                         | Zirconium (Zr)-Total (mg/L)           |                                                                       |                                                 | 0.00096                                         |                                                 | 0.00084                                         |                                                  |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location |                                                                       |                                                 | FIELD                                           |                                                 | FIELD                                           |                                                  |
|                         | Dissolved Metals Filtration Location  |                                                                       |                                                 | FIELD                                           |                                                 | FIELD                                           |                                                  |
|                         | Aluminum (Al)-Dissolved (mg/L)        |                                                                       |                                                 | 0.0201                                          |                                                 | 0.0804                                          |                                                  |
|                         | Antimony (Sb)-Dissolved (mg/L)        |                                                                       |                                                 | 0.00032                                         |                                                 | 0.00012                                         |                                                  |
|                         | Arsenic (As)-Dissolved (mg/L)         |                                                                       |                                                 | 0.00179                                         |                                                 | 0.00053                                         |                                                  |
|                         | Barium (Ba)-Dissolved (mg/L)          |                                                                       |                                                 | 0.0848                                          |                                                 | 0.0442                                          |                                                  |
|                         | Beryllium (Be)-Dissolved (mg/L)       |                                                                       |                                                 | <0.000020                                       |                                                 | <0.000020                                       |                                                  |
|                         | Bismuth (Bi)-Dissolved (mg/L)         |                                                                       |                                                 | <0.000050                                       |                                                 | <0.000050                                       |                                                  |
|                         | Boron (B)-Dissolved (mg/L)            |                                                                       |                                                 | <0.010                                          |                                                 | <0.010                                          |                                                  |
|                         | Cadmium (Cd)-Dissolved (mg/L)         |                                                                       |                                                 | 0.0000463                                       |                                                 | 0.0000373                                       |                                                  |
|                         | Calcium (Ca)-Dissolved (mg/L)         |                                                                       |                                                 | 71.1                                            |                                                 | 33.5                                            |                                                  |
|                         | Chromium (Cr)-Dissolved (mg/L)        |                                                                       |                                                 | 0.00038                                         |                                                 | 0.00041                                         |                                                  |
|                         | Cobalt (Co)-Dissolved (mg/L)          |                                                                       |                                                 | 0.00114                                         |                                                 | 0.00083                                         |                                                  |
|                         | Copper (Cu)-Dissolved (mg/L)          |                                                                       |                                                 | 0.00507                                         |                                                 | 0.00267                                         |                                                  |
|                         | Iron (Fe)-Dissolved (mg/L)            |                                                                       |                                                 | 0.220                                           |                                                 | 0.323                                           |                                                  |
|                         | Lead (Pb)-Dissolved (mg/L)            |                                                                       |                                                 | <0.000050                                       |                                                 | <0.000050                                       |                                                  |
|                         | Lithium (Li)-Dissolved (mg/L)         |                                                                       |                                                 | 0.0019                                          |                                                 | 0.0037                                          |                                                  |
|                         | Magnesium (Mg)-Dissolved (mg/L)       |                                                                       |                                                 | 28.5                                            |                                                 | 11.6                                            |                                                  |
|                         | Manganese (Mn)-Dissolved (mg/L)       |                                                                       |                                                 | 0.271                                           |                                                 | 0.0705                                          |                                                  |
|                         | Mercury (Hg)-Dissolved (mg/L)         |                                                                       |                                                 | <0.0000050                                      |                                                 | <0.0000050                                      |                                                  |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      |                                                                       |                                                 | 0.00120                                         |                                                 | 0.000444                                        |                                                  |
|                         | Nickel (Ni)-Dissolved (mg/L)          |                                                                       |                                                 | 0.0113                                          |                                                 | 0.00445                                         |                                                  |
|                         | Phosphorus (P)-Dissolved (mg/L)       |                                                                       |                                                 | <0.050                                          |                                                 | <0.050                                          |                                                  |
|                         | Potassium (K)-Dissolved (mg/L)        |                                                                       |                                                 | 0.42                                            |                                                 | 0.94                                            |                                                  |
|                         | Selenium (Se)-Dissolved (mg/L)        |                                                                       |                                                 | 0.00268                                         |                                                 | 0.000261                                        |                                                  |
|                         | Silicon (Si)-Dissolved (mg/L)         |                                                                       |                                                 | 5.34                                            |                                                 | 5.45                                            |                                                  |
|                         | Silver (Ag)-Dissolved (mg/L)          |                                                                       |                                                 | <0.000010                                       |                                                 | <0.000010                                       |                                                  |
|                         | Sodium (Na)-Dissolved (mg/L)          |                                                                       |                                                 | 3.95                                            |                                                 | 4.17                                            |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                       | Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID | L1834129-11<br>Water<br>22-SEP-16<br>16:25<br>DUP 2 | L1834129-12<br>Water<br>24-SEP-16<br>11:40<br>DUP 2 | L1834129-13<br>Water<br>24-SEP-16<br>08:10<br>E1(H) | L1834129-14<br>Water<br>23-SEP-16<br>13:35<br>R1 | L1834129-15<br>Water<br><br>TRAVEL BLANK |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|------------------------------------------|
| Grouping                | Analyte                               |                                                                       |                                                     |                                                     |                                                     |                                                  |                                          |
| <b>WATER</b>            |                                       |                                                                       |                                                     |                                                     |                                                     |                                                  |                                          |
| <b>Total Metals</b>     | Strontium (Sr)-Total (mg/L)           | 0.504                                                                 |                                                     |                                                     | 0.364                                               | 0.470                                            | <0.00020                                 |
|                         | Sulfur (S)-Total (mg/L)               | 91.4                                                                  |                                                     |                                                     | 63.3                                                | 89.3                                             | <0.50                                    |
|                         | Thallium (Tl)-Total (mg/L)            | 0.000015                                                              |                                                     |                                                     | <0.000010                                           | <0.000010                                        | <0.000010                                |
|                         | Tin (Sn)-Total (mg/L)                 | <0.00010                                                              |                                                     |                                                     | <0.00010                                            | <0.00010                                         | <0.00010                                 |
|                         | Titanium (Ti)-Total (mg/L)            | 0.00275                                                               |                                                     |                                                     | 0.00085                                             | 0.00261                                          | <0.00030                                 |
|                         | Uranium (U)-Total (mg/L)              | 0.00294                                                               |                                                     |                                                     | 0.00259                                             | 0.00308                                          | <0.000010                                |
|                         | Vanadium (V)-Total (mg/L)             | 0.00081                                                               |                                                     |                                                     | 0.00065                                             | 0.00068                                          | <0.00050                                 |
|                         | Zinc (Zn)-Total (mg/L)                | 0.0033                                                                |                                                     |                                                     | <0.0030                                             | 0.0055                                           | <0.0030                                  |
|                         | Zirconium (Zr)-Total (mg/L)           | 0.00115                                                               |                                                     |                                                     | 0.00091                                             | 0.00085                                          | <0.00030                                 |
| <b>Dissolved Metals</b> | Dissolved Mercury Filtration Location | FIELD                                                                 |                                                     |                                                     | FIELD                                               | FIELD                                            |                                          |
|                         | Dissolved Metals Filtration Location  | FIELD                                                                 |                                                     |                                                     | FIELD                                               | FIELD                                            |                                          |
|                         | Aluminum (Al)-Dissolved (mg/L)        | 0.0175                                                                |                                                     |                                                     | 0.0255                                              | 0.0187                                           |                                          |
|                         | Antimony (Sb)-Dissolved (mg/L)        | 0.00038                                                               |                                                     |                                                     | 0.00026                                             | 0.00019                                          |                                          |
|                         | Arsenic (As)-Dissolved (mg/L)         | 0.00094                                                               |                                                     |                                                     | 0.00065                                             | 0.00051                                          |                                          |
|                         | Barium (Ba)-Dissolved (mg/L)          | 0.0598                                                                |                                                     |                                                     | 0.0628                                              | 0.0607                                           |                                          |
|                         | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                                             |                                                     |                                                     | <0.000020                                           | 0.000022                                         |                                          |
|                         | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                                             |                                                     |                                                     | <0.000050                                           | <0.000050                                        |                                          |
|                         | Boron (B)-Dissolved (mg/L)            | 0.039                                                                 |                                                     |                                                     | <0.010                                              | <0.010                                           |                                          |
|                         | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000486                                                             |                                                     |                                                     | 0.0000527                                           | 0.000120                                         |                                          |
|                         | Calcium (Ca)-Dissolved (mg/L)         | 80.3                                                                  |                                                     |                                                     | 68.1                                                | 100                                              |                                          |
|                         | Chromium (Cr)-Dissolved (mg/L)        | 0.00057                                                               |                                                     |                                                     | 0.00043                                             | 0.00026                                          |                                          |
|                         | Cobalt (Co)-Dissolved (mg/L)          | 0.00080                                                               |                                                     |                                                     | 0.00054                                             | 0.00094                                          |                                          |
|                         | Copper (Cu)-Dissolved (mg/L)          | 0.00178                                                               |                                                     |                                                     | 0.00217                                             | 0.00177                                          |                                          |
|                         | Iron (Fe)-Dissolved (mg/L)            | 0.256                                                                 |                                                     |                                                     | 0.223                                               | 0.313                                            |                                          |
|                         | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                                             |                                                     |                                                     | <0.000050                                           | <0.000050                                        |                                          |
|                         | Lithium (Li)-Dissolved (mg/L)         | 0.0101                                                                |                                                     |                                                     | 0.0031                                              | 0.0028                                           |                                          |
|                         | Magnesium (Mg)-Dissolved (mg/L)       | 50.5                                                                  |                                                     |                                                     | 31.9                                                | 40.2                                             |                                          |
|                         | Manganese (Mn)-Dissolved (mg/L)       | 0.256                                                                 |                                                     |                                                     | 0.318                                               | 0.461                                            |                                          |
|                         | Mercury (Hg)-Dissolved (mg/L)         | 0.0000052                                                             |                                                     |                                                     | <0.0000050                                          | <0.0000050                                       |                                          |
|                         | Molybdenum (Mo)-Dissolved (mg/L)      | 0.00146                                                               |                                                     |                                                     | 0.00116                                             | 0.00127                                          |                                          |
|                         | Nickel (Ni)-Dissolved (mg/L)          | 0.0123                                                                |                                                     |                                                     | 0.00394                                             | 0.00503                                          |                                          |
|                         | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                                                |                                                     |                                                     | <0.050                                              | <0.050                                           |                                          |
|                         | Potassium (K)-Dissolved (mg/L)        | 0.77                                                                  |                                                     |                                                     | 0.55                                                | 0.59                                             |                                          |
|                         | Selenium (Se)-Dissolved (mg/L)        | 0.00152                                                               |                                                     |                                                     | 0.00171                                             | 0.00287                                          |                                          |
|                         | Silicon (Si)-Dissolved (mg/L)         | 5.00                                                                  |                                                     |                                                     | 4.58                                                | 4.69                                             |                                          |
|                         | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                                             |                                                     |                                                     | <0.000010                                           | <0.000010                                        |                                          |
|                         | Sodium (Na)-Dissolved (mg/L)          | 4.48                                                                  |                                                     |                                                     | 2.93                                                | 3.61                                             |                                          |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                       | L1834129-16<br>Water<br>23-SEP-16<br>15:20<br>R2 | L1834129-17<br>Water<br>23-SEP-16<br>16:35<br>R8 | L1834129-18<br>Water<br>23-SEP-16<br>17:40<br>R9 |  |  |
|-----------------------------------------------------------------------|---------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--|--|
| Grouping                                                              | Analyte                               |                                                  |                                                  |                                                  |  |  |
| <b>WATER</b>                                                          |                                       |                                                  |                                                  |                                                  |  |  |
| <b>Total Metals</b>                                                   | Strontium (Sr)-Total (mg/L)           | 0.362                                            | 0.174                                            | 0.289                                            |  |  |
|                                                                       | Sulfur (S)-Total (mg/L)               | 71.2                                             | 34.9                                             | 65.8                                             |  |  |
|                                                                       | Thallium (Tl)-Total (mg/L)            | <0.000010                                        | <0.000010                                        | <0.000010                                        |  |  |
|                                                                       | Tin (Sn)-Total (mg/L)                 | <0.00010                                         | <0.00010                                         | <0.00010                                         |  |  |
|                                                                       | Titanium (Ti)-Total (mg/L)            | 0.00240                                          | 0.00069                                          | 0.00854                                          |  |  |
|                                                                       | Uranium (U)-Total (mg/L)              | 0.00440                                          | 0.000207                                         | 0.00125                                          |  |  |
|                                                                       | Vanadium (V)-Total (mg/L)             | 0.00083                                          | <0.00050                                         | 0.00167                                          |  |  |
|                                                                       | Zinc (Zn)-Total (mg/L)                | <0.0030                                          | <0.0030                                          | <0.0030                                          |  |  |
|                                                                       | Zirconium (Zr)-Total (mg/L)           | 0.00054                                          | 0.00056                                          | 0.00126                                          |  |  |
| <b>Dissolved Metals</b>                                               | Dissolved Mercury Filtration Location | FIELD                                            | FIELD                                            | FIELD                                            |  |  |
|                                                                       | Dissolved Metals Filtration Location  | FIELD                                            | FIELD                                            | FIELD                                            |  |  |
|                                                                       | Aluminum (Al)-Dissolved (mg/L)        | 0.0238                                           | 0.0229                                           | 0.0691                                           |  |  |
|                                                                       | Antimony (Sb)-Dissolved (mg/L)        | 0.00036                                          | 0.00082                                          | 0.00021                                          |  |  |
|                                                                       | Arsenic (As)-Dissolved (mg/L)         | 0.00086                                          | 0.00034                                          | 0.00100                                          |  |  |
|                                                                       | Barium (Ba)-Dissolved (mg/L)          | 0.0532                                           | 0.0563                                           | 0.116                                            |  |  |
|                                                                       | Beryllium (Be)-Dissolved (mg/L)       | <0.000020                                        | <0.000020                                        | <0.000020                                        |  |  |
|                                                                       | Bismuth (Bi)-Dissolved (mg/L)         | <0.000050                                        | <0.000050                                        | <0.000050                                        |  |  |
|                                                                       | Boron (B)-Dissolved (mg/L)            | <0.010                                           | <0.010                                           | <0.010                                           |  |  |
|                                                                       | Cadmium (Cd)-Dissolved (mg/L)         | 0.0000255                                        | 0.0000211                                        | 0.0000602                                        |  |  |
|                                                                       | Calcium (Ca)-Dissolved (mg/L)         | 64.1                                             | 42.5                                             | 69.2                                             |  |  |
|                                                                       | Chromium (Cr)-Dissolved (mg/L)        | 0.00050                                          | 0.00061                                          | 0.00097                                          |  |  |
|                                                                       | Cobalt (Co)-Dissolved (mg/L)          | 0.00030                                          | <0.00010                                         | 0.00130                                          |  |  |
|                                                                       | Copper (Cu)-Dissolved (mg/L)          | 0.00135                                          | 0.00148                                          | 0.00419                                          |  |  |
|                                                                       | Iron (Fe)-Dissolved (mg/L)            | 0.424                                            | 0.070                                            | 1.54                                             |  |  |
|                                                                       | Lead (Pb)-Dissolved (mg/L)            | <0.000050                                        | <0.000050                                        | <0.000050                                        |  |  |
|                                                                       | Lithium (Li)-Dissolved (mg/L)         | 0.0054                                           | <0.0010                                          | <0.0010                                          |  |  |
|                                                                       | Magnesium (Mg)-Dissolved (mg/L)       | 49.2                                             | 17.4                                             | 31.4                                             |  |  |
|                                                                       | Manganese (Mn)-Dissolved (mg/L)       | 0.136                                            | 0.0155                                           | 0.752                                            |  |  |
|                                                                       | Mercury (Hg)-Dissolved (mg/L)         | <0.0000050                                       | <0.0000050                                       | 0.0000072                                        |  |  |
|                                                                       | Molybdenum (Mo)-Dissolved (mg/L)      | 0.000599                                         | 0.000767                                         | 0.00117                                          |  |  |
|                                                                       | Nickel (Ni)-Dissolved (mg/L)          | 0.00353                                          | 0.00278                                          | 0.00487                                          |  |  |
|                                                                       | Phosphorus (P)-Dissolved (mg/L)       | <0.050                                           | <0.050                                           | <0.050                                           |  |  |
|                                                                       | Potassium (K)-Dissolved (mg/L)        | 0.73                                             | <0.10                                            | 0.49                                             |  |  |
|                                                                       | Selenium (Se)-Dissolved (mg/L)        | 0.000609                                         | 0.00220                                          | 0.00229                                          |  |  |
|                                                                       | Silicon (Si)-Dissolved (mg/L)         | 5.78                                             | 6.43                                             | 5.70                                             |  |  |
|                                                                       | Silver (Ag)-Dissolved (mg/L)          | <0.000010                                        | <0.000010                                        | <0.000010                                        |  |  |
|                                                                       | Sodium (Na)-Dissolved (mg/L)          | 3.33                                             | 5.29                                             | 3.50                                             |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

|                         |                                 | Sample ID    | L1834129-1 | L1834129-2 | L1834129-3 | L1834129-4 | L1834129-5 |
|-------------------------|---------------------------------|--------------|------------|------------|------------|------------|------------|
|                         |                                 | Description  | Water      | Water      | Water      | Water      | Water      |
|                         |                                 | Sampled Date | 22-SEP-16  | 24-SEP-16  | 22-SEP-16  | 24-SEP-16  | 22-SEP-16  |
|                         |                                 | Sampled Time | 16:25      | 11:40      | 12:30      | 12:10      | 14:50      |
|                         |                                 | Client ID    | E4         | E4         | E7         | E7         | E8         |
| Grouping                | Analyte                         |              |            |            |            |            |            |
| <b>WATER</b>            |                                 |              |            |            |            |            |            |
| <b>Dissolved Metals</b> | Strontium (Sr)-Dissolved (mg/L) | 0.477        |            |            | 0.462      |            | 0.174      |
|                         | Sulfur (S)-Dissolved (mg/L)     | 86.0         |            |            | 82.0       |            | 18.9       |
|                         | Thallium (Tl)-Dissolved (mg/L)  | 0.000012     |            |            | <0.000010  |            | <0.000010  |
|                         | Tin (Sn)-Dissolved (mg/L)       | <0.00010     |            |            | <0.00010   |            | <0.00010   |
|                         | Titanium (Ti)-Dissolved (mg/L)  | 0.00043      |            |            | 0.00047    |            | 0.00093    |
|                         | Uranium (U)-Dissolved (mg/L)    | 0.00276      |            |            | 0.00275    |            | 0.00124    |
|                         | Vanadium (V)-Dissolved (mg/L)   | <0.00050     |            |            | <0.00050   |            | 0.00061    |
|                         | Zinc (Zn)-Dissolved (mg/L)      | 0.0027       |            |            | 0.0066     |            | 0.0063     |
|                         | Zirconium (Zr)-Dissolved (mg/L) | 0.00105      |            |            | 0.00122    |            | 0.00080    |
| <b>Speciated Metals</b> | Chromium (III)-Total (mg/L)     | 0.00117      |            |            | 0.00117    |            |            |
|                         | Hexavalent Chromium (mg/L)      | <0.0010      |            |            | <0.0010    |            |            |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1834129-6<br>Water<br>24-SEP-16<br>12:05<br>E8 | L1834129-7<br>Water<br>22-SEP-16<br>15:25<br>R4 | L1834129-8<br>Water<br>24-SEP-16<br>11:45<br>R4 | L1834129-9<br>Water<br>22-SEP-16<br>14:15<br>R6 | L1834129-10<br>Water<br>24-SEP-16<br>12:15<br>R6 |
|-----------------------------------------------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
| Grouping                                                              | Analyte                         |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>WATER</b>                                                          |                                 |                                                 |                                                 |                                                 |                                                 |                                                  |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L) |                                                 | 0.376                                           |                                                 | 0.181                                           |                                                  |
|                                                                       | Sulfur (S)-Dissolved (mg/L)     |                                                 | 50.4                                            |                                                 | 18.5                                            |                                                  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)  |                                                 | <0.000010                                       |                                                 | <0.000010                                       |                                                  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)       |                                                 | <0.00010                                        |                                                 | <0.00010                                        |                                                  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)  |                                                 | 0.00054                                         |                                                 | 0.00112                                         |                                                  |
|                                                                       | Uranium (U)-Dissolved (mg/L)    |                                                 | 0.00319                                         |                                                 | 0.00129                                         |                                                  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)   |                                                 | <0.00050                                        |                                                 | 0.00063                                         |                                                  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)      |                                                 | 0.0042                                          |                                                 | 0.0062                                          |                                                  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L) |                                                 | 0.00083                                         |                                                 | 0.00085                                         |                                                  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Total (mg/L)     |                                                 | 0.00240                                         |                                                 |                                                 |                                                  |
|                                                                       | Hexavalent Chromium (mg/L)      |                                                 | <0.0010                                         |                                                 |                                                 |                                                  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1834129-11<br>Water<br>22-SEP-16<br>16:25<br>DUP 2 | L1834129-12<br>Water<br>24-SEP-16<br>11:40<br>DUP 2 | L1834129-13<br>Water<br>24-SEP-16<br>08:10<br>E1(H) | L1834129-14<br>Water<br>23-SEP-16<br>13:35<br>R1 | L1834129-15<br>Water<br><br>TRAVEL BLANK |
|-----------------------------------------------------------------------|---------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|------------------------------------------|
| Grouping                                                              | Analyte                         |                                                     |                                                     |                                                     |                                                  |                                          |
| <b>WATER</b>                                                          |                                 |                                                     |                                                     |                                                     |                                                  |                                          |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L) | 0.481                                               |                                                     | 0.329                                               | 0.464                                            |                                          |
|                                                                       | Sulfur (S)-Dissolved (mg/L)     | 86.2                                                |                                                     | 57.3                                                | 88.7                                             |                                          |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)  | 0.000011                                            |                                                     | <0.000010                                           | <0.000010                                        |                                          |
|                                                                       | Tin (Sn)-Dissolved (mg/L)       | <0.00010                                            |                                                     | <0.00010                                            | <0.00010                                         |                                          |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)  | 0.00039                                             |                                                     | 0.00050                                             | 0.00036                                          |                                          |
|                                                                       | Uranium (U)-Dissolved (mg/L)    | 0.00275                                             |                                                     | 0.00228                                             | 0.00298                                          |                                          |
|                                                                       | Vanadium (V)-Dissolved (mg/L)   | <0.00050                                            |                                                     | <0.00050                                            | <0.00050                                         |                                          |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)      | 0.0026                                              |                                                     | 0.0017                                              | 0.0088                                           |                                          |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L) | 0.00105                                             |                                                     | 0.00082                                             | 0.00080                                          |                                          |
| <b>Speciated Metals</b>                                               | Chromium (III)-Total (mg/L)     | 0.00118                                             |                                                     |                                                     |                                                  |                                          |
|                                                                       | Hexavalent Chromium (mg/L)      | <0.0010                                             |                                                     |                                                     |                                                  |                                          |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID<br>Description<br>Sampled Date<br>Sampled Time<br>Client ID |                                 | L1834129-16<br>Water<br>23-SEP-16<br>15:20<br>R2 | L1834129-17<br>Water<br>23-SEP-16<br>16:35<br>R8 | L1834129-18<br>Water<br>23-SEP-16<br>17:40<br>R9 |  |  |
|-----------------------------------------------------------------------|---------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--|--|
| Grouping                                                              | Analyte                         |                                                  |                                                  |                                                  |  |  |
| <b>WATER</b>                                                          |                                 |                                                  |                                                  |                                                  |  |  |
| <b>Dissolved Metals</b>                                               | Strontium (Sr)-Dissolved (mg/L) | 0.353                                            | 0.177                                            | 0.279                                            |  |  |
|                                                                       | Sulfur (S)-Dissolved (mg/L)     | 69.5                                             | 37.7                                             | 64.8                                             |  |  |
|                                                                       | Thallium (Tl)-Dissolved (mg/L)  | <0.000010                                        | <0.000010                                        | <0.000010                                        |  |  |
|                                                                       | Tin (Sn)-Dissolved (mg/L)       | <0.00010                                         | <0.00010                                         | <0.00010                                         |  |  |
|                                                                       | Titanium (Ti)-Dissolved (mg/L)  | 0.00055                                          | 0.00057                                          | 0.00202                                          |  |  |
|                                                                       | Uranium (U)-Dissolved (mg/L)    | 0.00427                                          | 0.000183                                         | 0.00119                                          |  |  |
|                                                                       | Vanadium (V)-Dissolved (mg/L)   | <0.00050                                         | <0.00050                                         | 0.00083                                          |  |  |
|                                                                       | Zinc (Zn)-Dissolved (mg/L)      | 0.0022                                           | 0.0020                                           | 0.0055                                           |  |  |
|                                                                       | Zirconium (Zr)-Dissolved (mg/L) | 0.00055                                          | 0.00055                                          | 0.00128                                          |  |  |
| <b>Speciated Metals</b>                                               | Chromium (III)-Total (mg/L)     |                                                  |                                                  | 0.00147                                          |  |  |
|                                                                       | Hexavalent Chromium (mg/L)      |                                                  |                                                  | <0.0010                                          |  |  |

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

**QC Samples with Qualifiers & Comments:**

[illegible]

## Reference Information

|              | Parameter                | Qualifier | Applies to Sample Number(s)                                   |
|--------------|--------------------------|-----------|---------------------------------------------------------------|
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Sulfur (S)-Dissolved     | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Uranium (U)-Dissolved    | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Uranium (U)-Dissolved    | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Uranium (U)-Dissolved    | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Zinc (Zn)-Dissolved      | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Zinc (Zn)-Dissolved      | MS-B      | L1834129-1, -11, -13, -14, -16, -17, -18, -3, -5, -7, -9      |
| Matrix Spike | Barium (Ba)-Total        | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |
| Matrix Spike | Calcium (Ca)-Total       | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |
| Matrix Spike | Magnesium (Mg)-Total     | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |
| Matrix Spike | Manganese (Mn)-Total     | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |
| Matrix Spike | Sodium (Na)-Total        | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |
| Matrix Spike | Strontium (Sr)-Total     | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |
| Matrix Spike | Sulfur (S)-Total         | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |
| Matrix Spike | Phosphorus (P)-Total     | MS-B      | L1834129-1, -11, -13, -14, -15, -16, -17, -18, -3, -5, -7, -9 |

## Qualifiers for Individual Parameters Listed:

| Qualifier | Description                                                                                                                  |
|-----------|------------------------------------------------------------------------------------------------------------------------------|
| HTC       | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |
| MB-LOR    | Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.    |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.                           |

## Test Method References:

| ALS Test Code                                                                                                                                                                                                                              | Matrix | Test Description                       | Method Reference**                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------|---------------------------------------|
| <b>BE-D-L-CCMS-VA</b>                                                                                                                                                                                                                      | Water  | Diss. Be (low) in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                               |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                   |        |                                        |                                       |
| <b>BE-T-L-CCMS-VA</b>                                                                                                                                                                                                                      | Water  | Total Be (Low) in Water by CRC ICPMS   | EPA 200.2/6020A (mod)                 |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                  |        |                                        |                                       |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                   |        |                                        |                                       |
| <b>CARBONS-DOC-VA</b>                                                                                                                                                                                                                      | Water  | Dissolved organic carbon by combustion | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis. |        |                                        |                                       |
| <b>CARBONS-TOC-VA</b>                                                                                                                                                                                                                      | Water  | Total organic carbon by combustion     | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".                                                                                                                                  |        |                                        |                                       |
| <b>CR-CR3-TOT-CALC-ED</b>                                                                                                                                                                                                                  | Water  | Total Trivalent Chromium in Water      | CALCULATION                           |
| Chromium (III)-Total is calculated as the difference between the total chromium and the hexavalent chromium (Cr(VI)) results.                                                                                                              |        |                                        |                                       |

## Reference Information

|                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                          |                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------|-----------------------------------------------|
| <b>CR-CR6-ED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water | Chromium, Hexavalent (Cr +6)             | APHA 3500-Cr C (Ion Chromatography)           |
| This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. |       |                                          |                                               |
| Results are based on an un-filtered, field-preserved sample.                                                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                               |
| <b>EC-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water | Conductivity (Automated)                 | APHA 2510 Auto. Conduc.                       |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                              |       |                                          |                                               |
| <b>HARDNESS-CALC-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                             | Water | Hardness                                 | APHA 2340B                                    |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                        |       |                                          |                                               |
| <b>HG-D-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 | Water | Diss. Mercury in Water by CVAAS or CVAFS | APHA 3030B/EPA 1631E (mod)                    |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                         |       |                                          |                                               |
| <b>HG-T-CVAA-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 | Water | Total Mercury in Water by CVAAS or CVAFS | EPA 1631E (mod)                               |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.                                                                                                                                                                                                                                                                                                        |       |                                          |                                               |
| <b>MET-D-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Dissolved Metals in Water by CRC ICPMS   | APHA 3030B/6020A (mod)                        |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                        |       |                                          |                                               |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                            |       |                                          |                                               |
| <b>MET-T-CCMS-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Total Metals in Water by CRC ICPMS       | EPA 200.2/6020A (mod)                         |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.                                                                                                                                                                                                                                                                                                                                                           |       |                                          |                                               |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.                                                                                                                                                                                                                                                                                                                                            |       |                                          |                                               |
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water | Ammonia in Water by Fluorescence         | APHA 4500 NH <sub>3</sub> -NITROGEN (AMMONIA) |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                 |       |                                          |                                               |
| <b>NH3-F-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     | Water | Ammonia in Water by Fluorescence         | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC       |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.                                                                                                                                 |       |                                          |                                               |
| <b>NO2-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Nitrite in Water by IC (Low Level)       | EPA 300.1 (mod)                               |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                               |
| <b>NO3-L-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                | Water | Nitrate in Water by IC (Low Level)       | EPA 300.1 (mod)                               |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                               |
| <b>P-T-PRES-COL-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                              | Water | Total P in Water by Colour               | APHA 4500-P Phosphorus                        |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.                                                                                                                                                                                                                                                             |       |                                          |                                               |
| <b>PH-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water | pH by Meter (Automated)                  | APHA 4500-H "pH Value"                        |
| This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode                                                                                                                                                                                                                                                                                               |       |                                          |                                               |
| It is recommended that this analysis be conducted in the field.                                                                                                                                                                                                                                                                                                                                                                                     |       |                                          |                                               |
| <b>PH-PCT-VA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | Water | pH by Meter (Automated)                  | APHA 4500-H pH Value                          |
| This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode                                                                                                                                                                                                                                                                                               |       |                                          |                                               |
| It is recommended that this analysis be conducted in the field.                                                                                                                                                                                                                                                                                                                                                                                     |       |                                          |                                               |
| <b>SO4-IC-N-WR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  | Water | Sulfate in Water by IC                   | EPA 300.1 (mod)                               |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.                                                                                                                                                                                                                                                                                                                                                          |       |                                          |                                               |

## Reference Information

\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location                                     |
|----------------------------|---------------------------------------------------------|
| ED                         | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA           |
| WR                         | ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA           |
| VA                         | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

### Chain of Custody Numbers:

|   |   |
|---|---|
| 1 | 2 |
|---|---|

### GLOSSARY OF REPORT TERMS

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*

*mg/kg - milligrams per kilogram based on dry weight of sample.*

*mg/kg ww - milligrams per kilogram based on wet weight of sample.*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*

*mg/L - milligrams per litre.*

*< - Less than.*

*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*





07-Oct-2016

Brent Mack  
ALS Environmental  
8081 Lougheed HWY  
Suite 100  
Burnaby, BC V5A1W9

Tel: (604) 253-4188  
Fax:

Re: L1834129

Work Order: **1609874**

Dear Brent,

ALS Environmental received 12 samples on 29-Sep-2016 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 17.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

**Shawn Smythe**

Electronically approved by: Shawn Smythe

Shawn Smythe  
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, Ohio 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

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**Client:** ALS Environmental  
**Project:** L1834129  
**Work Order:** 1609874

**Work Order Sample Summary**

---

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1609874-01         | L1834129-1              | Water         |                   | 9/22/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-02         | L1834129-3              | Water         |                   | 9/22/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-03         | L1834129-5              | Water         |                   | 9/22/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-04         | L1834129-7              | Water         |                   | 9/22/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-05         | L1834129-9              | Water         |                   | 9/22/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-06         | L1834129-11             | Water         |                   | 9/22/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-07         | L1834129-13             | Water         |                   | 9/24/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-08         | L1834129-14             | Water         |                   | 9/23/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-09         | L1834129-15             | Water         |                   | 9/23/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-10         | L1834129-16             | Water         |                   | 9/23/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-11         | L1834129-17             | Water         |                   | 9/23/2016              | 9/29/2016            | <input type="checkbox"/> |
| 1609874-12         | L1834129-18             | Water         |                   | 9/23/2016              | 9/29/2016            | <input type="checkbox"/> |

---

**Client:** ALS Environmental**Project:** L1834129**Work Order:** 1609874**Case Narrative**

---

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-1

Lab ID: 1609874-01

Collection Date: 9/22/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 7.3    |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Sample ID: L1834129-3

Collection Date: 9/22/2016

Work Order: 1609874

Lab ID: 1609874-02

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 13     |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-5

Lab ID: 1609874-03

Collection Date: 9/22/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-7

Lab ID: 1609874-04

Collection Date: 9/22/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 61     |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-9

Lab ID: 1609874-05

Collection Date: 9/22/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 27     |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:



## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-11

Lab ID: 1609874-06

Collection Date: 9/22/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 6.0    |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-13

Lab ID: 1609874-07

Collection Date: 9/24/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 4.0    |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-14

Lab ID: 1609874-08

Collection Date: 9/23/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 7.4    |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-15

Lab ID: 1609874-09

Collection Date: 9/23/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-16

Lab ID: 1609874-10

Collection Date: 9/23/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 4.9    |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Sample ID: L1834129-17

Collection Date: 9/23/2016

Work Order: 1609874

Lab ID: 1609874-11

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | ND     |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

Client: ALS Environmental

Project: L1834129

Work Order: 1609874

Sample ID: L1834129-18

Lab ID: 1609874-12

Collection Date: 9/23/2016

Matrix: WATER

| Analyses                      | Result | Qual | Report<br>Limit | Units | Dilution<br>Factor | Date Analyzed       |
|-------------------------------|--------|------|-----------------|-------|--------------------|---------------------|
| <b>TOTAL SUSPENDED SOLIDS</b> |        |      | <b>E160.2</b>   |       |                    | Analyst: <b>rmb</b> |
| Total suspended solids        | 16     |      | 2.0             | mg/L  | 1                  | 9/30/2016           |

Note:

## ALS Environmental

Date: 07-Oct-16

**Client:** ALS Environmental  
**Project:** L1834129  
**WorkOrder:** 1609874

### QUALIFIERS, ACRONYMS, UNITS

| <u>Qualifier</u> | <u>Description</u>                                                        |
|------------------|---------------------------------------------------------------------------|
| *                | Value exceeds Regulatory Limit                                            |
| a                | Not accredited                                                            |
| B                | Analyte detected in the associated Method Blank above the Reporting Limit |
| E                | Value above quantitation range                                            |
| H                | Analyzed outside of Holding Time                                          |
| J                | Analyte detected below quantitation limit                                 |
| n                | Not offered for accreditation                                             |
| ND               | Not Detected at the Reporting Limit                                       |
| O                | Sample amount is > 4 times amount spiked                                  |
| P                | Dual Column results percent difference > 40%                              |
| R                | RPD above laboratory control limit                                        |
| S                | Spike Recovery outside laboratory control limits                          |
| U                | Analyzed but not detected above the MDL                                   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| E              | EPA Method                          |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MQL            | Method Quantitation Limit           |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PDS            | Post Digestion Spike                |
| PQL            | Practical Quantitation Limit        |
| SDL            | Sample Detection Limit              |
| SW             | SW-846 Method                       |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| %                     |                    |
| mg/L                  |                    |



## Sample Receipt Checklist

Client Name: **ALS-VANCOUVER**

Date/Time Received: **29-Sep-16 00:00**

Work Order: **1609874**

Received by: **RDN**

Checklist completed by: **Chris Gibson**

29-Sep-16

Reviewed by: **Shawn Smythe**

30-Sep-16

eSignature

Date

eSignature

Date

Matrices:

Carrier name: **FedEx**

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☐

pH adjusted by:

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Contact: Brent Mack  
Company: ALS Environmental  
Address: 8081 Lougheed HWY, Suite 100  
Burnaby, BC V5A1W9

## REFERENCE DATA

---

Project / Location: L1834129

PO Number: L1834129

ALS Work Order: 1609874

TEM Water Narrative: Analysis performed on FEI Tecnai TEM with integrated EDXA capabilities. Morphology, EDXA, and SAED measurements used to determine fiber species. Representative EDXA spectra of each asbestos type detected included. Compliance samples must be received and filtered within 48 hours of collection. Collection is performed outside ALS and is the responsibility of the client. Samples disposed after 60 days. TEM grids archived 3 years. Results apply only to portions analyzed.

TEM Water Methods: "EPA 100.2" refers to drinking water samples filtered on 47mm, 0.22µm pore MCE filters. "EPA 100.1" refers to drinking water samples filtered on 47mm, 0.1µm pore Polycarbonate filters. No standard method for asbestos in nonpotable water exists. All TEM waters (potable and nonpotable) analyzed at >10,000x magnification for asbestos fibers >10µm long. Whenever possible, sufficient volume is analyzed to yield an AS of <0.20 MFL based on the detection of 1 confirmed asbestos fiber in the total area analyzed. However, the volume analyzed is dependent upon a filter loading of <25% particulate. Samples containing excessive suspended solids may not reach the recommended AS of <0.20 MFL. In any case, a minimum of 4 and a maximum of 10 openings are analyzed regardless of the AS reached or asbestos concentration detected. ALS will report results directly to state of origin only when;

- a) the Chain of Custody clearly states "drinking water for state compliance",
- b) the appropriate state drinking water form is submitted with the samples,
- c) the state form is completely filled out by the client prior to submittal, and
- d) the address to which the form is to be sent is provided.

NOTES: NA=Not Applicable, ND=None Detected, AS=Analytical Sensitivity, MFL=Millions of Fibers per Liter. <sup>†</sup> Act-Tremolite concentrations include Actinolite as well as the Libby Amphiboles; Tremolite, Winchite, & Richterite.

OH Lab ID: #4077, Ohio Analysts; P. Johnson #2268, A. Sohn #3431

PA Lab ID: #68-01320, Cert. #003

## TEM ANALYSIS DATA

---

EDXA Resolution (eV): <175

Accelerating Voltage (keV): 100

Prep Start Date: 9/30/2016

Calibration Constant (µm/cm): 0.74

Camera Constant (mm-Å): 129.25

Analysis Start Date: 10/3/2016

*Pamela Johnson*

Pamela Johnson  
ALS TEM Analyst

*Shawn Smythe*

Shawn Smythe  
ALS Project Manager

*This report shall not be reproduced except in full without written approval of ALS.*

---

**IDENTIFICATION**

Client Sample ID: L1834129-14  
ALS Sample ID: R1  
ALS Sample ID: 1609874-08B  
Method: EPA 100.2  
Date of Collection: 9/23/2016  
Time of Collection: Not Provided

---

**FILTRATION & ANALYSIS**

Date of Filtration: 9/30/2016  
Time of Filtration: 10:30  
Volume Filtered (L): 0.05  
Openings Analyzed: 10  
Avg. Opening Area (mm<sup>2</sup>): 0.0108  
AS (MFL): 0.20

---

**ASBESTOS COUNT**

Chrysotile: 0  
Amosite: 0  
Crocidolite: 0  
Act-Tremolite<sup>†</sup>: 0  
Anthophyllite: 0  
Total Asbestos: 0

---

**ASBESTOS CONCENTRATION (MFL)**

Chrysotile: <AS  
Amosite: <AS  
Crocidolite: <AS  
Act-Tremolite<sup>†</sup>: <AS  
Anthophyllite: <AS  
**Total Asbestos: <AS**

---

**NOTES**

NONE.

---

**EDXA SPECTRA**

*NOTE: Spurious peaks may originate from low background sample holder, column pole pieces, TEM grids, prep solutions or matrix materials.*

NONE.

---

**PHOTOMICROGRAPHS**

*Collected using Gatan Digital Micrograph.*

NONE.



**ALS Environmental**

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# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1834129-COFC

COC Number: 1

Page 1 of 2

|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |                                                                                               |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------|-----------|-------------|------------------|----------|------------------|-----------------|------------------------|----------------------|---|---|--|--|--|--|--|--|--|
| <b>Report To</b>                                                                                                     |                                                                                       | <b>Report Format / Distribution</b>                                                                         |  |                                                                                                                                                     | <b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b> |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       | Select Report Format:                                                                                       |  |                                                                                                                                                     | <b>R</b><br><b>P</b><br><b>E</b><br><b>E2</b>                                                 |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Contact: Natasha Sandys                                                                                              |                                                                                       | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |                                                                                                                                                     |                                                                                               |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Address: 230 - 2237 2nd Avenue<br>Whitehorse, YT                                                                     |                                                                                       | Select Distribution:                                                                                        |  |                                                                                                                                                     |                                                                                               |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Phone: 867-456-4865                                                                                                  |                                                                                       | Email 1 or Fax nsandys@hemmera.com                                                                          |  |                                                                                                                                                     | Specify Date Required for E2,E or P:                                                          |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Email 2 chris@elr.ca                                                                                                 |                                                                                       |                                                                                                             |  |                                                                                                                                                     | <b>Analysis Request</b>                                                                       |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| <b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No              |                                                                                       | <b>Invoice Distribution</b>                                                                                 |  |                                                                                                                                                     | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                    |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                      |                                                                                       | Select Invoice Distribution:                                                                                |  |                                                                                                                                                     | F/P                                                                                           | P                                          | P                                    | F/P                                                                                                                                                        | P           | F/P                            |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Company: Hemmera Environchem Inc.                                                                                    |                                                                                       | Email 1 or Fax nsandys@hemmera.com                                                                          |  |                                                                                                                                                     | Low Level Diss. Met (incl. Hg) and Hardness                                                   | Low Level Tot. Met (incl. Hg) and Hardness | Chromium Speciation (III/VI) - Total | Chromium Speciation (III/VI) - Dissolved                                                                                                                   | Ammonia - N | Dissolved Organic Carbon (DOC) | Nitrate-N | Nitrite - N | Total Phosphorus | Sulphate | pH, Conductivity | Asbestos-TEM-AD | Total Suspended Solids | Number of Containers |   |   |  |  |  |  |  |  |  |
| Contact: Natasha Sandys                                                                                              |                                                                                       | Email 2 chris@elr.ca                                                                                        |  |                                                                                                                                                     |                                                                                               |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| <b>Project Information</b>                                                                                           |                                                                                       | <b>Oil and Gas Required Fields (client use)</b>                                                             |  |                                                                                                                                                     |                                                                                               |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| ALS Quote #: Q56044                                                                                                  |                                                                                       | Approver ID:                                                                                                |  |                                                                                                                                                     | Cost Center:                                                                                  |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Job #: 1343-005.20                                                                                                   |                                                                                       | GL Account:                                                                                                 |  |                                                                                                                                                     | Routing Code:                                                                                 |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| PO / AFE:                                                                                                            |                                                                                       | Activity Code:                                                                                              |  |                                                                                                                                                     |                                                                                               |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| LSD:                                                                                                                 |                                                                                       | Location:                                                                                                   |  |                                                                                                                                                     |                                                                                               |                                            |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                       | ALS Contact:                                                                                                |  |                                                                                                                                                     | Sampler:                                                                                      |                                            |                                      | GR/NB                                                                                                                                                      |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| ALS Sample # (lab use only)                                                                                          | Sample Identification and/or Coordinates (This description will appear on the report) |                                                                                                             |  | Date (dd-mm-yy)                                                                                                                                     | Time (hh:mm)                                                                                  | Sample Type                                |                                      |                                                                                                                                                            |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| E4                                                                                                                   |                                                                                       |                                                                                                             |  | 22-Sep-16                                                                                                                                           | 16:25                                                                                         | Water                                      | R                                    | R                                                                                                                                                          |             |                                | R         | R           |                  |          |                  |                 |                        |                      | R | 9 |  |  |  |  |  |  |  |
| E4                                                                                                                   |                                                                                       |                                                                                                             |  | 24-Sep-16                                                                                                                                           | 11:40                                                                                         | Water                                      |                                      |                                                                                                                                                            |             |                                |           | R           | R                | R        | R                | R               |                        |                      | 1 |   |  |  |  |  |  |  |  |
| E7                                                                                                                   |                                                                                       |                                                                                                             |  | 22-Sep-16                                                                                                                                           | 12:30                                                                                         | Water                                      | R                                    | R                                                                                                                                                          |             |                                | R         | R           |                  |          |                  |                 |                        | R                    | 9 |   |  |  |  |  |  |  |  |
| E7                                                                                                                   |                                                                                       |                                                                                                             |  | 24-Sep-16                                                                                                                                           | 12:10                                                                                         | Water                                      |                                      |                                                                                                                                                            |             |                                |           | R           | R                | R        | R                | R               |                        |                      | 1 |   |  |  |  |  |  |  |  |
| E8                                                                                                                   |                                                                                       |                                                                                                             |  | 22-Sep-16                                                                                                                                           | 14:50                                                                                         | Water                                      | R                                    | R                                                                                                                                                          |             |                                | R         | R           |                  |          |                  |                 |                        | R                    | 9 |   |  |  |  |  |  |  |  |
| E8                                                                                                                   |                                                                                       |                                                                                                             |  | 24-Sep-16                                                                                                                                           | 12:05                                                                                         | Water                                      |                                      |                                                                                                                                                            |             |                                |           | R           | R                | R        | R                | R               |                        |                      | 1 |   |  |  |  |  |  |  |  |
| R4                                                                                                                   |                                                                                       |                                                                                                             |  | 22-Sep-16                                                                                                                                           | 15:25                                                                                         | Water                                      | R                                    | R                                                                                                                                                          |             |                                | R         | R           |                  |          |                  |                 |                        | R                    | 9 |   |  |  |  |  |  |  |  |
| R4                                                                                                                   |                                                                                       |                                                                                                             |  | 24-Sep-16                                                                                                                                           | 11:45                                                                                         | Water                                      |                                      |                                                                                                                                                            |             |                                |           | R           | R                | R        | R                | R               |                        |                      | 1 |   |  |  |  |  |  |  |  |
| R6                                                                                                                   |                                                                                       |                                                                                                             |  | 22-Sep-16                                                                                                                                           | 14:15                                                                                         | Water                                      | R                                    | R                                                                                                                                                          |             |                                | R         | R           |                  |          |                  |                 |                        | R                    | 9 |   |  |  |  |  |  |  |  |
| R6                                                                                                                   |                                                                                       |                                                                                                             |  | 24-Sep-16                                                                                                                                           | 12:15                                                                                         | Water                                      |                                      |                                                                                                                                                            |             |                                |           | R           | R                | R        | R                | R               |                        |                      | 1 |   |  |  |  |  |  |  |  |
| Dup 2                                                                                                                |                                                                                       |                                                                                                             |  | 22-Sep-16                                                                                                                                           | 16:25                                                                                         | Water                                      | R                                    | R                                                                                                                                                          |             |                                | R         | R           |                  |          |                  |                 |                        | R                    | 9 |   |  |  |  |  |  |  |  |
| Dup 2                                                                                                                |                                                                                       |                                                                                                             |  | 24-Sep-16                                                                                                                                           | 11:40                                                                                         | Water                                      |                                      |                                                                                                                                                            |             |                                |           | R           | R                | R        | R                | R               |                        |                      | 1 |   |  |  |  |  |  |  |  |
| <b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>                                                          |                                                                                       |                                                                                                             |  | <b>Special Instructions / Specify Criteria to add on report (client Use)</b>                                                                        |                                                                                               |                                            |                                      | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                         |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                       |                                                                                                             |  | Please hold samples for total and dissolved Chromium III/VI pending regular metals analysis results. Please supply ELR EQWIN EDD file with results. |                                                                                               |                                            |                                      | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                                  |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                       |                                                                                                             |  |                                                                                                                                                     |                                                                                               |                                            |                                      | Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |                                                                                               |                                            |                                      | Cooling initiated <input checked="" type="checkbox"/>                                                                                                      |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |                                                                                               |                                            |                                      | INITIAL COOLER TEMPERATURES °C: 3.3 1.5                                                                                                                    |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |                                                                                                             |  |                                                                                                                                                     |                                                                                               |                                            |                                      | FINAL COOLER TEMPERATURES °C:                                                                                                                              |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                       |                                                                                                             |  | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                    |                                                                                               |                                            |                                      | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                             |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |
| Released by: G. RUDMAN                                                                                               |                                                                                       |                                                                                                             |  | Date: SEPT 26 '16 Time: 9:20                                                                                                                        |                                                                                               |                                            |                                      | Received by: Date: Time:                                                                                                                                   |             |                                |           |             |                  |          |                  |                 |                        |                      |   |   |  |  |  |  |  |  |  |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0226a v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

[illegible]

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NA-6M-2326a V02 Filed 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white-report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

# **APPENDIX 3**

## **Water Sampling Field Forms**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                        |                             |                                                                                       |                      |                                |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------|----------------------|--------------------------------|
| <b>Sample Site:</b>                                                             | E1                                                                                                     | <b>Project Number:</b>      | 16-240.2                                                                              | <b>Date:</b>         | Jun. 17/2db                    |
| <b>UTM Coordinates</b>                                                          | Z <u>  E  </u> N <u>  </u>                                                                             | <b>Client:</b>              | Yukon Government (AAM)                                                                | <b>Samplers:</b>     | AN, CH.                        |
| <b>Waypoint</b>                                                                 | GPS <u>  </u> Name <u>  </u>                                                                           | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                        | <b>Weather/Temp:</b> | Light rain<br>overcast<br>~8°C |
| <b>Photos</b>                                                                   | Cam <u>FLR</u> Nos. <u>623-626</u>                                                                     |                             |                                                                                       |                      |                                |
| <b>Sample Time (24h)</b>                                                        | 14:45                                                                                                  |                             |                                                                                       |                      |                                |
| <b>Field Blank Collected:</b>                                                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>FBI</u>                    | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>DUP01</u> |                      |                                |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                                        |                             | <b>Site Sketch</b>                                                                    |                      |                                |
| Station Status                                                                  | GOOD                                                                                                   |                             |                                                                                       |                      |                                |
| Sample Depth (m)                                                                | 0.1                                                                                                    |                             |                                                                                       |                      |                                |
| Temperature (°C)                                                                | 14.9                                                                                                   |                             |                                                                                       |                      |                                |
| pH (pH Units)                                                                   | 8.26                                                                                                   |                             |                                                                                       |                      |                                |
| Cond. (µs/cm)                                                                   | 370.0                                                                                                  |                             |                                                                                       |                      |                                |
| Specific Cond. (µs/cm)                                                          | 458.8                                                                                                  |                             |                                                                                       |                      |                                |
| Redox (mV)                                                                      | 101.8                                                                                                  |                             |                                                                                       |                      |                                |
| DO (mg/L)                                                                       | 9.67                                                                                                   |                             |                                                                                       |                      |                                |
| DO (%)                                                                          | 95.8                                                                                                   |                             |                                                                                       |                      |                                |
| Turbidity (NTU)                                                                 | <u>          </u>                                                                                      |                             |                                                                                       |                      |                                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | clear                                                                                                  |                             |                                                                                       |                      |                                |
| <b>Field Measurements Log</b>                                                   |                                                                                                        |                             |                                                                                       |                      |                                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                    |                             |                                                                                       |                      |                                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>15:12</u>                                                                                   |                             |                                                                                       |                      |                                |
| <b>Sample Time</b>                                                              | (hh:mm) <u>14:45</u>                                                                                   |                             |                                                                                       |                      |                                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>          </u> |                             |                                                                                       |                      |                                |

Sample Site (Con't): E1

Sample Date (Con't): Jun. 13/2016

Sample Time (Con't): 14:45

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>Jun. 13/2016</u>                    |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>14:45</u>                           |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

Light rain during FBI preparation. Potential to effect results.  
Also, DI water provided by ALS did not have label (ie. provided in clear plastic 1. L bottles with no label or batch #. and no preparation date.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                    |                             |                                                                                        |                      |                                |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------|----------------------|--------------------------------|
| <b>Sample Site:</b>                                                             | E1(H)                                                                                              | <b>Project Number:</b>      | 16-240.2                                                                               | <b>Date:</b>         | Jun. 14 / 2016                 |
| <b>UTM Coordinates</b>                                                          | Z <u>  E  </u> N                                                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                                 | <b>Samplers:</b>     | AN, CH.                        |
| <b>Waypoint</b>                                                                 | GPS <u>      </u> Name <u>      </u>                                                               | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                         | <b>Weather/Temp:</b> | Light rain/<br>wind.<br>~ 8°C. |
| <b>Photos</b>                                                                   | Cam <u>ELR</u> Nos. <u>603-622</u>                                                                 |                             |                                                                                        |                      |                                |
| <b>Sample Time (24h)</b>                                                        | 14:00                                                                                              | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                      |                                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u>             |                             |                                                                                        |                      |                                |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                                    |                             | <b>Site Sketch</b>                                                                     |                      |                                |
| Station Status                                                                  | 600D.                                                                                              |                             |                                                                                        |                      |                                |
| Sample Depth (m)                                                                | 0.2                                                                                                |                             |                                                                                        |                      |                                |
| Temperature (°C)                                                                | 14.9                                                                                               |                             |                                                                                        |                      |                                |
| pH (pH Units)                                                                   | 7.99                                                                                               |                             |                                                                                        |                      |                                |
| Cond. (µs/cm)                                                                   | 368.1                                                                                              |                             |                                                                                        |                      |                                |
| Specific Cond. (µs/cm)                                                          | 455.8                                                                                              |                             |                                                                                        |                      |                                |
| Redox (mV)                                                                      | 100.0                                                                                              |                             |                                                                                        |                      |                                |
| DO (mg/L)                                                                       | 9.72                                                                                               |                             |                                                                                        |                      |                                |
| DO (%)                                                                          | 96.4                                                                                               |                             |                                                                                        |                      |                                |
| Turbidity (NTU)                                                                 | —                                                                                                  |                             |                                                                                        |                      |                                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear / light brown / slight turbid.                                                               |                             |                                                                                        |                      |                                |
| <b>Field Measurements Log</b>                                                   |                                                                                                    |                             |                                                                                        |                      |                                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |                             |                                                                                        |                      |                                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>13:57</u>                                                                               |                             |                                                                                        |                      |                                |
| <b>Sample Time</b>                                                              | (hh:mm) <u>14:00</u>                                                                               |                             |                                                                                        |                      |                                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>      </u> |                             |                                                                                        |                      |                                |

Sample Site (Con't): E1(H)

Sample Date (Con't): Jun. 13 / 2016.

Sample Time (Con't): 14:00

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>Jun. 13 / 14:00</u>                 |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input type="checkbox"/> Field Filtered                 | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                |                             |                                                                                    |                      |                |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>                                                             | E2                                                                                             | <b>Project Number:</b>      | 16-240.2                                                                           | <b>Date:</b>         | July 15, 2016  |
| <b>UTM Coordinates</b>                                                          | Z <u>  </u> E <u>  </u> N <u>  </u>                                                            | <b>Client:</b>              | Yukon Government (AAM)                                                             | <b>Samplers:</b>     | CH + AN        |
| <b>Waypoint</b>                                                                 | GPS <u>  </u> Name <u>  </u>                                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                     | <b>Weather/Temp:</b> | Sunny<br>~15°C |
| <b>Photos</b>                                                                   | Cam <u>FLR</u> Nos. <u>647-649</u>                                                             |                             |                                                                                    |                      |                |
| <b>Sample Time (24h)</b>                                                        | 10:20                                                                                          | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u> |                      |                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u>             |                             |                                                                                    |                      |                |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                                |                             | <b>Site Sketch</b>                                                                 |                      |                |
| Station Status                                                                  | GOOD                                                                                           |                             |                                                                                    |                      |                |
| Sample Depth (m)                                                                | 0.10 m                                                                                         |                             |                                                                                    |                      |                |
| Temperature (°C)                                                                | 13.6                                                                                           |                             |                                                                                    |                      |                |
| pH (pH Units)                                                                   | 7.92                                                                                           |                             |                                                                                    |                      |                |
| Cond. (µs/cm)                                                                   | 494.4                                                                                          |                             |                                                                                    |                      |                |
| Specific Cond. (µs/cm)                                                          | 631.4                                                                                          |                             |                                                                                    |                      |                |
| Redox (mV)                                                                      | 52.6                                                                                           |                             |                                                                                    |                      |                |
| DO (mg/L)                                                                       | 9.26                                                                                           |                             |                                                                                    |                      |                |
| DO (%)                                                                          | 89.1                                                                                           |                             |                                                                                    |                      |                |
| Turbidity (NTU)                                                                 | -                                                                                              |                             |                                                                                    |                      |                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear, "tea" coloured.                                                                         |                             |                                                                                    |                      |                |
| <b>Field Measurements Log</b>                                                   |                                                                                                |                             |                                                                                    |                      |                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                            |                             |                                                                                    |                      |                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 10:23                                                                                  |                             |                                                                                    |                      |                |
| <b>Sample Time</b>                                                              | (hh:mm) 10:20                                                                                  |                             |                                                                                    |                      |                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>  </u> |                             |                                                                                    |                      |                |

Sample Site (Con't): E2

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 10:20

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                           |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 500 ml (plastic) | Asbestos                                             | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                |                                                   |
|                  |                                                      |                                                         |                                                           | <input type="checkbox"/>                         |                |                                                   |
| Total:           |                                                      |                                                         |                                                           |                                                  |                |                                                   |

General Notes:

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                       |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------|
| <b>Sample Site:</b>                                                             | E3                                                                                         | <b>Project Number:</b>      | 16-240.2                                                                       | <b>Date:</b>         | June 14, 2016         |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                      | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | CH + A.V.             |
| <b>Waypoint</b>                                                                 | GPS _____ Name _____                                                                       | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | partly cloudy<br>10°C |
| <b>Photos</b>                                                                   | Cam ELR Nos. 631-634                                                                       | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                       |
| <b>Sample Time (24h)</b>                                                        | 17:00                                                                                      |                             |                                                                                |                      |                       |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                       |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                       |
| Station Status                                                                  | GOOD                                                                                       |                             |                                                                                |                      |                       |
| Sample Depth (m)                                                                | ≈ 0.10 m                                                                                   |                             |                                                                                |                      |                       |
| Temperature (°C)                                                                | 8.5                                                                                        |                             |                                                                                |                      |                       |
| pH (pH Units)                                                                   | 8.27                                                                                       |                             |                                                                                |                      |                       |
| Cond. (µs/cm)                                                                   | 671.6                                                                                      |                             |                                                                                |                      |                       |
| Specific Cond. (µs/cm)                                                          | 675.5                                                                                      |                             |                                                                                |                      |                       |
| Redox (mV)                                                                      | 11.2                                                                                       |                             |                                                                                |                      |                       |
| DO (mg/L)                                                                       | 11.76                                                                                      |                             |                                                                                |                      |                       |
| DO (%)                                                                          | 100.1                                                                                      |                             |                                                                                |                      |                       |
| Turbidity (NTU)                                                                 | -                                                                                          |                             |                                                                                |                      |                       |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | slightly cloudy, brown.<br>No odours.                                                      |                             |                                                                                |                      |                       |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                       |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                       |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 16:59:47                                                                           |                             |                                                                                |                      |                       |
| <b>Sample Time</b>                                                              | (hh:mm) 17:00                                                                              |                             |                                                                                |                      |                       |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                       |

Sample Site (Con't): E3

Sample Date (Con't): Jun. 14 / 2016

Sample Time (Con't): 17:00

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 9           |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                |                             |                                                                                    |                      |                         |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|----------------------|-------------------------|
| <b>Sample Site:</b>                                                             | E4                                                                                             | <b>Project Number:</b>      | 16-240.2                                                                           | <b>Date:</b>         | June 15, 2016           |
| <b>UTM Coordinates</b>                                                          | Z <u>  </u> E <u>  </u> N <u>  </u>                                                            | <b>Client:</b>              | Yukon Government (AAM)                                                             | <b>Samplers:</b>     | CH + AV                 |
| <b>Waypoint</b>                                                                 | GPS <u>  </u> Name <u>  </u>                                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                     | <b>Weather/Temp:</b> | Partly cloudy<br>≈ 12°C |
| <b>Photos</b>                                                                   | Cam <u>ELP</u> Nos. <u>657-660</u>                                                             | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u> |                      |                         |
| <b>Sample Time (24h)</b>                                                        | 12:45                                                                                          |                             |                                                                                    |                      |                         |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u>             |                             |                                                                                    |                      |                         |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                                |                             | <b>Site Sketch</b>                                                                 |                      |                         |
| Station Status                                                                  | Good.                                                                                          |                             |                                                                                    |                      |                         |
| Sample Depth (m)                                                                | 0.200                                                                                          |                             |                                                                                    |                      |                         |
| Temperature (°C)                                                                | 13.4                                                                                           |                             |                                                                                    |                      |                         |
| pH (pH Units)                                                                   | 7.82                                                                                           |                             |                                                                                    |                      |                         |
| Cond. (µs/cm)                                                                   | 542                                                                                            |                             |                                                                                    |                      |                         |
| Specific Cond. (µs/cm)                                                          | 697                                                                                            |                             |                                                                                    |                      |                         |
| Redox (mV)                                                                      | 94.9                                                                                           |                             |                                                                                    |                      |                         |
| DO (mg/L)                                                                       | 10.36                                                                                          |                             |                                                                                    |                      |                         |
| DO (%)                                                                          | 99.0                                                                                           |                             |                                                                                    |                      |                         |
| Turbidity (NTU)                                                                 | -                                                                                              |                             |                                                                                    |                      |                         |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | clear.<br>Tea coloured.                                                                        |                             |                                                                                    |                      |                         |
| <b>Field Measurements Log</b>                                                   |                                                                                                |                             |                                                                                    |                      |                         |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                            |                             |                                                                                    |                      |                         |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>12:46</u>                                                                           |                             |                                                                                    |                      |                         |
| <b>Sample Time</b>                                                              | (hh:mm) <u>12:45</u>                                                                           |                             |                                                                                    |                      |                         |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>  </u> |                             |                                                                                    |                      |                         |

Sample Site (Con't): E4

Sample Date (Con't): June 15<sup>th</sup>

Sample Time (Con't): 12:45

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 9           |                                                   |

General Notes:



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                             |                                                                                |                      |                |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>                                                             | E7                                                                                   | <b>Project Number:</b>      | 16-240.2                                                                       | <b>Date:</b>         | June 15, 2016  |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | CH + AV        |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | Sunny<br>~15°C |
| <b>Photos</b>                                                                   | Cam EFR Nos. 661-664                                                                 | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name DUP-2 |                      |                |
| <b>Sample Time (24h)</b>                                                        | 14:15                                                                                |                             |                                                                                |                      |                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                             |                                                                                |                      |                |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                      |                             | <b>Site Sketch</b>                                                             |                      |                |
| Station Status                                                                  | Good                                                                                 |                             |                                                                                |                      |                |
| Sample Depth (m)                                                                | 0.20 m                                                                               |                             |                                                                                |                      |                |
| Temperature (°C)                                                                | 11.8                                                                                 |                             |                                                                                |                      |                |
| pH (pH Units)                                                                   | 7.82                                                                                 |                             |                                                                                |                      |                |
| Cond. (µs/cm)                                                                   | 538                                                                                  |                             |                                                                                |                      |                |
| Specific Cond. (µs/cm)                                                          | 719                                                                                  |                             |                                                                                |                      |                |
| Redox (mV)                                                                      | 59.6                                                                                 |                             |                                                                                |                      |                |
| DO (mg/L)                                                                       | 10.49                                                                                |                             |                                                                                |                      |                |
| DO (%)                                                                          | 97.2                                                                                 |                             |                                                                                |                      |                |
| Turbidity (NTU)                                                                 | -                                                                                    |                             |                                                                                |                      |                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | clear.<br>Tea coloured                                                               |                             |                                                                                |                      |                |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                             |                                                                                |                      |                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                             |                                                                                |                      |                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 14:17                                                                        |                             |                                                                                |                      |                |
| <b>Sample Time</b>                                                              | (hh:mm) 14:15                                                                        |                             |                                                                                |                      |                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                             |                                                                                |                      |                |

Sample Site (Con't): E7

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 14:15

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           | <u>9</u>    | <u>18 including DUP.</u>                          |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                             |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------------|
| <b>Sample Site:</b>                                                             | <u>E8</u>                                                                                  | <b>Project Number:</b>      | 16-240.2                                                                       | <b>Date:</b>         | <u>June 15, 2016</u>        |
| <b>UTM Coordinates</b>                                                          | <u>Z</u> <u>E</u> <u>N</u>                                                                 | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | <u>CH &amp; MW</u>          |
| <b>Waypoint</b>                                                                 | GPS _____ Name _____                                                                       | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | <u>Sunny</u><br><u>15°C</u> |
| <b>Photos</b>                                                                   | Cam <u>ELR</u> Nos. <u>665-668</u>                                                         |                             |                                                                                |                      |                             |
| <b>Sample Time (24h)</b>                                                        | <u>15:30</u>                                                                               | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                             |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                             |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                             |
| Station Status                                                                  | <u>Good</u>                                                                                |                             |                                                                                |                      |                             |
| Sample Depth (m)                                                                | <u>0.20</u>                                                                                |                             |                                                                                |                      |                             |
| Temperature (°C)                                                                | <u>12.5</u>                                                                                |                             |                                                                                |                      |                             |
| pH (pH Units)                                                                   | <u>8.03</u>                                                                                |                             |                                                                                |                      |                             |
| Cond. (µs/cm)                                                                   | <u>122.0</u>                                                                               |                             |                                                                                |                      |                             |
| Specific Cond. (µs/cm)                                                          | <u>160.2</u>                                                                               |                             |                                                                                |                      |                             |
| Redox (mV)                                                                      | <u>67.2</u>                                                                                |                             |                                                                                |                      |                             |
| DO (mg/L)                                                                       | <u>11.56</u>                                                                               |                             |                                                                                |                      |                             |
| DO (%)                                                                          | <u>108.0</u>                                                                               |                             |                                                                                |                      |                             |
| Turbidity (NTU)                                                                 | <u>-</u>                                                                                   |                             |                                                                                |                      |                             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | <u>slightly cloudy,</u><br><u>brown/tea colored.</u>                                       |                             |                                                                                |                      |                             |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                             |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                             |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>15:36</u>                                                                       |                             |                                                                                |                      |                             |
| <b>Sample Time</b>                                                              | (hh:mm) <u>15:30</u>                                                                       |                             |                                                                                |                      |                             |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                             |

Sample Site (Con't): E8

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 15:30

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                |                             |                                                                                    |                      |                        |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|----------------------|------------------------|
| <b>Sample Site:</b>                                                             | R1                                                                                             | <b>Project Number:</b>      | 16-240.2                                                                           | <b>Date:</b>         | June 16                |
| <b>UTM Coordinates</b>                                                          | Z <u>  </u> E <u>  </u> N <u>  </u>                                                            | <b>Client:</b>              | Yukon Government (AAM)                                                             | <b>Samplers:</b>     | CH + AN                |
| <b>Waypoint</b>                                                                 | GPS <u>  </u> Name <u>  </u>                                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                     | <b>Weather/Temp:</b> | Partly cloudy<br>~15°C |
| <b>Photos</b>                                                                   | Cam <u>ER</u> Nos. <u>676-679</u>                                                              |                             |                                                                                    |                      |                        |
| <b>Sample Time (24h)</b>                                                        | 14:45                                                                                          | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u> |                      |                        |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u>             |                             |                                                                                    |                      |                        |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                                |                             | <b>Site Sketch</b>                                                                 |                      |                        |
| Station Status                                                                  | Good                                                                                           |                             |                                                                                    |                      |                        |
| Sample Depth (m)                                                                | -0.10m                                                                                         |                             |                                                                                    |                      |                        |
| Temperature (°C)                                                                | 9.3                                                                                            |                             |                                                                                    |                      |                        |
| pH (pH Units)                                                                   | 7.90                                                                                           |                             |                                                                                    |                      |                        |
| Cond. (µs/cm)                                                                   | 460.9                                                                                          |                             |                                                                                    |                      |                        |
| Specific Cond. (µs/cm)                                                          | 659.1                                                                                          |                             |                                                                                    |                      |                        |
| Redox (mV)                                                                      | 93.8                                                                                           |                             |                                                                                    |                      |                        |
| DO (mg/L)                                                                       | 11.32                                                                                          |                             |                                                                                    |                      |                        |
| DO (%)                                                                          | 99.7                                                                                           |                             |                                                                                    |                      |                        |
| Turbidity (NTU)                                                                 | -                                                                                              |                             |                                                                                    |                      |                        |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Slightly silty.                                                                                |                             |                                                                                    |                      |                        |
| <b>Field Measurements Log</b>                                                   |                                                                                                |                             |                                                                                    |                      |                        |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                            |                             |                                                                                    |                      |                        |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>14:47</u>                                                                           |                             |                                                                                    |                      |                        |
| <b>Sample Time</b>                                                              | (hh:mm) <u>14:45</u>                                                                           |                             |                                                                                    |                      |                        |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>  </u> |                             |                                                                                    |                      |                        |

Sample Site (Con't): R1

Sample Date (Con't): June 16<sup>th</sup>

Sample Time (Con't): 14:45

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time: <u>June 17 10:50</u>                   |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time: <u>June 16<sup>th</sup> 14:45</u>      |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | <u>June 17<sup>th</sup> 10:50</u>                 |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           |             |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                          |                                                                                      |                      |                                                                          |               |                 |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------|---------------|-----------------|
| Sample Site:                                                             | R2                                                                                   | Project Number:      | 16-240.2                                                                 | Date:         | June 16         |
| UTM Coordinates                                                          | Z E N                                                                                | Client:              | Yukon Government (AAM)                                                   | Samplers:     | CH + AN         |
| Waypoint                                                                 | GPS Name                                                                             | Project Name:        | Clinton Creek Surface Water Monitoring Program                           | Weather/Temp: | Sunny<br>~ 15°C |
| Photos                                                                   | Cam ELR Nos. 672-675                                                                 |                      |                                                                          |               |                 |
| Sample Time (24h)                                                        |                                                                                      | Duplicate Collected: | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |               |                 |
| Field Blank Collected:                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                      |                                                                          |               |                 |
| Field Parameter Measurements (note units if different than those stated) |                                                                                      |                      | Site Sketch                                                              |               |                 |
| Station Status                                                           | GOOD                                                                                 |                      |                                                                          |               |                 |
| Sample Depth (m)                                                         | 0.020                                                                                |                      |                                                                          |               |                 |
| Temperature (°C)                                                         | 6.9                                                                                  |                      |                                                                          |               |                 |
| pH (pH Units)                                                            | 8.03                                                                                 |                      |                                                                          |               |                 |
| Cond. (µs/cm)                                                            | 399.2                                                                                |                      |                                                                          |               |                 |
| Specific Cond. (µs/cm)                                                   | 609.2                                                                                |                      |                                                                          |               |                 |
| Redox (mV)                                                               | 85.4                                                                                 |                      |                                                                          |               |                 |
| DO (mg/L)                                                                | 12.19                                                                                |                      |                                                                          |               |                 |
| DO (%)                                                                   | 100.5                                                                                |                      |                                                                          |               |                 |
| Turbidity (NTU)                                                          | -                                                                                    |                      |                                                                          |               |                 |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | Clear.                                                                               |                      |                                                                          |               |                 |
| Field Measurements Log                                                   |                                                                                      |                      |                                                                          |               |                 |
| YSI Logged?                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                      |                                                                          |               |                 |
| Time Logged on YSI                                                       | (hh:mm) 13:28                                                                        |                      |                                                                          |               |                 |
| Sample Time                                                              | (hh:mm) 13:30                                                                        |                      |                                                                          |               |                 |
| Unit Used                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                      |                                                                          |               |                 |

Sample Site (Con't): R2

Sample Date (Con't): June 16, 2016

Sample Time (Con't): 13:30

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input type="checkbox"/>                         |             | Date/Time: <u>June 17 10:30</u>                   |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input type="checkbox"/>                         |             | Date/Time: <u>June 16 13:30</u>                   |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | <u>9</u>    |                                                   |

General Notes:



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>                                                             | R3                                                                                         | <b>Project Number:</b>      | 16-240.2                                                                       | <b>Date:</b>         | June 17        |
| <b>UTM Coordinates</b>                                                          | <del>Z E N</del>                                                                           | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | CH & AN        |
| <b>Waypoint</b>                                                                 | GPS <del>Name</del>                                                                        | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | Sunny<br>~25°C |
| <b>Photos</b>                                                                   | Cam <u>ELR</u> Nos. <u>712-715</u>                                                         | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                |
| <b>Sample Time (24h)</b>                                                        | 16:45                                                                                      |                             |                                                                                |                      |                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                |
| Station Status                                                                  | Good                                                                                       |                             |                                                                                |                      |                |
| Sample Depth (m)                                                                | - 0.30m                                                                                    |                             |                                                                                |                      |                |
| Temperature (°C)                                                                | 9.6                                                                                        |                             |                                                                                |                      |                |
| pH (pH Units)                                                                   | 8.70                                                                                       |                             |                                                                                |                      |                |
| Cond. (µs/cm)                                                                   | 546                                                                                        |                             |                                                                                |                      |                |
| Specific Cond. (µs/cm)                                                          | 774                                                                                        |                             |                                                                                |                      |                |
| Redox (mV)                                                                      | 34.2                                                                                       |                             |                                                                                |                      |                |
| DO (mg/L)                                                                       | 11.46                                                                                      |                             |                                                                                |                      |                |
| DO (%)                                                                          | 100.8                                                                                      |                             |                                                                                |                      |                |
| Turbidity (NTU)                                                                 | -                                                                                          |                             |                                                                                |                      |                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | cloudy<br>Brown                                                                            |                             |                                                                                |                      |                |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 16:46                                                                              |                             |                                                                                |                      |                |
| <b>Sample Time</b>                                                              | (hh:mm) 16:45                                                                              |                             |                                                                                |                      |                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                |

Sample Site (Con't): 23

Sample Date (Con't): Jun. 17/2016

Sample Time (Con't): 16:45

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input type="checkbox"/>                         |             | Date/Time: <u>June 17</u>                         |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time: <u>16:45</u>                           |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  |             |                                                   |

General Notes:

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                |                             |                                                                                    |                      |                |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>                                                             | R4                                                                                             | <b>Project Number:</b>      | 16-240.2                                                                           | <b>Date:</b>         | June 15        |
| <b>UTM Coordinates</b>                                                          | Z <u>  </u> E <u>  </u> N <u>  </u>                                                            | <b>Client:</b>              | Yukon Government (AAM)                                                             | <b>Samplers:</b>     | CH + AN        |
| <b>Waypoint</b>                                                                 | GPS <u>  </u> Name <u>  </u>                                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                     | <b>Weather/Temp:</b> | Sunny<br>~15°C |
| <b>Photos</b>                                                                   | Cam <u>ELR</u> Nos. <u>653-655</u>                                                             | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u> |                      |                |
| <b>Sample Time (24h)</b>                                                        | 12:00                                                                                          |                             |                                                                                    |                      |                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>  </u>             |                             |                                                                                    |                      |                |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                                |                             | <b>Site Sketch</b>                                                                 |                      |                |
| Station Status                                                                  | 600D                                                                                           |                             |                                                                                    |                      |                |
| Sample Depth (m)                                                                | -0.010m                                                                                        |                             |                                                                                    |                      |                |
| Temperature (°C)                                                                | 8.16 5.2                                                                                       |                             |                                                                                    |                      |                |
| pH (pH Units)                                                                   | 8.16                                                                                           |                             |                                                                                    |                      |                |
| Cond. (µs/cm)                                                                   | 385.4                                                                                          |                             |                                                                                    |                      |                |
| Specific Cond. (µs/cm)                                                          | 618.9                                                                                          |                             |                                                                                    |                      |                |
| Redox (mV)                                                                      | 96.5                                                                                           |                             |                                                                                    |                      |                |
| DO (mg/L)                                                                       | 13.65                                                                                          |                             |                                                                                    |                      |                |
| DO (%)                                                                          | 107.8                                                                                          |                             |                                                                                    |                      |                |
| Turbidity (NTU)                                                                 | -                                                                                              |                             |                                                                                    |                      |                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear.                                                                                         |                             |                                                                                    |                      |                |
| <b>Field Measurements Log</b>                                                   |                                                                                                |                             |                                                                                    |                      |                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                            |                             |                                                                                    |                      |                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 12:00                                                                                  |                             |                                                                                    |                      |                |
| <b>Sample Time</b>                                                              | (hh:mm) 12:00                                                                                  |                             |                                                                                    |                      |                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>  </u> |                             |                                                                                    |                      |                |

Sample Site (Con't): R4

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 12:00

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 9           |                                                   |

General Notes:

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                                  |                                                                                 |                      |                 |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------|----------------------|-----------------|
| <b>Sample Site:</b>                                                             | R6 40m u/s                                                                           | <b>Project Number:</b>           | 16-240.2                                                                        | <b>Date:</b>         | June 18, 2016   |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>                   | Yukon Government (AAM)                                                          | <b>Samplers:</b>     | CH + AN         |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>             | Clinton Creek Surface Water Monitoring Program                                  | <b>Weather/Temp:</b> | Sunny<br>~ 20°C |
| <b>Photos</b>                                                                   | Cam EIR Nos.                                                                         | <b>Duplicate Collected:</b>      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name DUP-03 |                      |                 |
| <b>Sample Time (24h)</b>                                                        | 11:00                                                                                |                                  |                                                                                 |                      |                 |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                                  |                                                                                 |                      |                 |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                      |                                  | <b>Site Sketch</b>                                                              |                      |                 |
| Station Status                                                                  | Good                                                                                 | Logged under US40M.<br>with YSI. |                                                                                 |                      |                 |
| Sample Depth (m)                                                                | -0.20                                                                                |                                  |                                                                                 |                      |                 |
| Temperature (°C)                                                                | 15.9                                                                                 |                                  |                                                                                 |                      |                 |
| pH (pH Units)                                                                   | 7.90                                                                                 |                                  |                                                                                 |                      |                 |
| Cond. (µs/cm)                                                                   | 156.1                                                                                |                                  |                                                                                 |                      |                 |
| Specific Cond. (µs/cm)                                                          | 188.7                                                                                |                                  |                                                                                 |                      |                 |
| Redox (mV)                                                                      | 11.8                                                                                 |                                  |                                                                                 |                      |                 |
| DO (mg/L)                                                                       | 8.58                                                                                 |                                  |                                                                                 |                      |                 |
| DO (%)                                                                          | 86.8                                                                                 |                                  |                                                                                 |                      |                 |
| Turbidity (NTU)                                                                 | -                                                                                    |                                  |                                                                                 |                      |                 |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Brown / tea-colored.<br>slightly cloudy / silty                                      |                                  |                                                                                 |                      |                 |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                                  |                                                                                 |                      |                 |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                                  |                                                                                 |                      |                 |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 11:02                                                                        |                                  |                                                                                 |                      |                 |
| <b>Sample Time</b>                                                              | (hh:mm) 11:00                                                                        |                                  |                                                                                 |                      |                 |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                                  |                                                                                 |                      |                 |

Sample Site (Con't): R6

Sample Date (Con't): June 18

Sample Time (Con't): 11:00

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 2           | Date/Time: <u>June 18, 11:00</u>                  |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 2           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 2           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 2           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 2           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 2           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 2           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 2           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 2           |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           | <u>18</u>   | <u>including DVP.</u>                             |

General Notes:

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                               |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------------------|
| <b>Sample Site:</b>                                                             | <u>Q7</u>                                                                                  | <b>Project Number:</b>      | 16-240.2                                                                       | <b>Date:</b>         | <u>June 17</u>                |
| <b>UTM Coordinates</b>                                                          | <u>Z E N</u>                                                                               | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | <u>CH + MW</u>                |
| <b>Waypoint</b>                                                                 | <u>GPS</u> Name _____                                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | <u>Sunny</u><br><u>≈ 20°C</u> |
| <b>Photos</b>                                                                   | Cam <u>ELR</u> Nos. <u>699-703</u>                                                         |                             |                                                                                |                      |                               |
| <b>Sample Time (24h)</b>                                                        |                                                                                            | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                               |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                               |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                               |
| <b>Station Status</b>                                                           | <u>Hed to walk upstream</u>                                                                |                             |                                                                                |                      |                               |
| <b>Sample Depth (m)</b>                                                         | <u>-0.20</u>                                                                               |                             |                                                                                |                      |                               |
| <b>Temperature (°C)</b>                                                         | <u>5.7</u>                                                                                 |                             |                                                                                |                      |                               |
| <b>pH (pH Units)</b>                                                            | <u>7.62</u>                                                                                |                             |                                                                                |                      |                               |
| <b>Cond. (µs/cm)</b>                                                            | <u>113.7</u>                                                                               |                             |                                                                                |                      |                               |
| <b>Specific Cond. (µs/cm)</b>                                                   | <u>180.0</u>                                                                               |                             |                                                                                |                      |                               |
| <b>Redox (mV)</b>                                                               | <u>-5.6</u>                                                                                |                             |                                                                                |                      |                               |
| <b>DO (mg/L)</b>                                                                | <u>11.76</u>                                                                               |                             |                                                                                |                      |                               |
| <b>DO (%)</b>                                                                   | <u>93.9</u>                                                                                |                             |                                                                                |                      |                               |
| <b>Turbidity (NTU)</b>                                                          |                                                                                            |                             |                                                                                |                      |                               |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                   | <u>Silty, brown</u>                                                                        |                             |                                                                                |                      |                               |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                               |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                               |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>12:49</u>                                                                       |                             |                                                                                |                      |                               |
| <b>Sample Time</b>                                                              | (hh:mm) <u>12:45</u>                                                                       |                             |                                                                                |                      |                               |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                               |

Sample Site (Con't): R7

Sample Date (Con't): June 17<sup>th</sup>

Sample Time (Con't): 12:45

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time: <u>12:45</u>                           |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | <u>9</u>    |                                                   |

General Notes:



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>                                                             | R8                                                                                         | <b>Project Number:</b>      | 16-240.2                                                                       | <b>Date:</b>         | June 16        |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                      | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | CH AW          |
| <b>Waypoint</b>                                                                 | GPS _____ Name _____                                                                       | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | Cloudy<br>15°C |
| <b>Photos</b>                                                                   | Cam FLR Nos. 669-671                                                                       |                             |                                                                                |                      |                |
| <b>Sample Time (24h)</b>                                                        | 12:45                                                                                      | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                |
| <b>Station Status</b>                                                           | Good, fairly low flow.                                                                     |                             |                                                                                |                      |                |
| <b>Sample Depth (m)</b>                                                         | -0.010 m                                                                                   |                             |                                                                                |                      |                |
| <b>Temperature (°C)</b>                                                         | 6.4                                                                                        |                             |                                                                                |                      |                |
| <b>pH (pH Units)</b>                                                            | 7.58                                                                                       |                             |                                                                                |                      |                |
| <b>Cond. (µs/cm)</b>                                                            | 167.2                                                                                      |                             |                                                                                |                      |                |
| <b>Specific Cond. (µs/cm)</b>                                                   | 259.2                                                                                      |                             |                                                                                |                      |                |
| <b>Redox (mV)</b>                                                               | 61.6                                                                                       |                             |                                                                                |                      |                |
| <b>DO (mg/L)</b>                                                                | 11.80                                                                                      |                             |                                                                                |                      |                |
| <b>DO (%)</b>                                                                   | 94.9                                                                                       |                             |                                                                                |                      |                |
| <b>Turbidity (NTU)</b>                                                          | -                                                                                          |                             |                                                                                |                      |                |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                   | Clear.                                                                                     |                             |                                                                                |                      |                |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 12:46                                                                              |                             |                                                                                |                      |                |
| <b>Sample Time</b>                                                              | (hh:mm) 12:45                                                                              |                             |                                                                                |                      |                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                |

Sample Site (Con't): 8 R8

Sample Date (Con't): June 16, 2016

Sample Time (Con't): 12:45

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input type="checkbox"/>                         |             | Date/Time: <u>June 17 10:35</u>                   |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time: <u>June 16 12:45</u>                   |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 9           |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                       |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------|
| <b>Sample Site:</b>                                                             | R9                                                                                         | <b>Project Number:</b>      | 16-240.2                                                                       | <b>Date:</b>         | June 10 <sup>th</sup> |
| <b>UTM Coordinates</b>                                                          | <del>Z E N</del>                                                                           | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | CH + AW               |
| <b>Waypoint</b>                                                                 | GPS <del>Name</del>                                                                        | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | Sunny<br>~10°C        |
| <b>Photos</b>                                                                   | Cam <u>ELR</u> Nos. <u>692-695</u>                                                         |                             |                                                                                |                      |                       |
| <b>Sample Time (24h)</b>                                                        | 9:50 - 10:15                                                                               | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                       |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                       |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                       |
| Station Status                                                                  | Good                                                                                       |                             |                                                                                |                      |                       |
| Sample Depth (m)                                                                | -0.10m                                                                                     |                             |                                                                                |                      |                       |
| Temperature (°C)                                                                | 5.6                                                                                        |                             |                                                                                |                      |                       |
| pH (pH Units)                                                                   | 7.65                                                                                       |                             |                                                                                |                      |                       |
| Cond. (µs/cm)                                                                   | 329.4                                                                                      |                             |                                                                                |                      |                       |
| Specific Cond. (µs/cm)                                                          | 523.4                                                                                      |                             |                                                                                |                      |                       |
| Redox (mV)                                                                      | 1.9                                                                                        |                             |                                                                                |                      |                       |
| DO (mg/L)                                                                       | 11.94                                                                                      |                             |                                                                                |                      |                       |
| DO (%)                                                                          | 95.1                                                                                       |                             |                                                                                |                      |                       |
| Turbidity (NTU)                                                                 | -                                                                                          |                             |                                                                                |                      |                       |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear                                                                                      |                             |                                                                                |                      |                       |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                       |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                       |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 9:54                                                                               |                             |                                                                                |                      |                       |
| <b>Sample Time</b>                                                              | (hh:mm) 9:50                                                                               |                             |                                                                                |                      |                       |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                       |

Sample Site (Con't): R9

Sample Date (Con't): June 17<sup>th</sup>

Sample Time (Con't): 9:50

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time: <u>June 17<sup>th</sup> 10:15</u>      |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time: <u>June 17<sup>th</sup> 9:50</u>       |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  |             |                                                   |

General Notes:

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                             |                                                                          |                      |                |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>                                                             | R11                                                                                  | <b>Project Number:</b>      | 16-240.2                                                                 | <b>Date:</b>         | June 17        |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | CH & AW        |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | Sunny<br>~20°C |
| <b>Photos</b>                                                                   | Cam ELR Nos. 716-723                                                                 |                             |                                                                          |                      |                |
| <b>Sample Time (24h)</b>                                                        | 17:50                                                                                | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                             |                                                                          |                      |                |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                      |                             | <b>Site Sketch</b>                                                       |                      |                |
| Station Status                                                                  | Good                                                                                 |                             |                                                                          |                      |                |
| Sample Depth (m)                                                                | -0.20                                                                                |                             |                                                                          |                      |                |
| Temperature (°C)                                                                | 6.7                                                                                  |                             |                                                                          |                      |                |
| pH (pH Units)                                                                   | 8.01                                                                                 |                             |                                                                          |                      |                |
| Cond. (µs/cm)                                                                   | 262.4                                                                                |                             |                                                                          |                      |                |
| Specific Cond. (µs/cm)                                                          | 403.3                                                                                |                             |                                                                          |                      |                |
| Redox (mV)                                                                      | 58.2                                                                                 |                             |                                                                          |                      |                |
| DO (mg/L)                                                                       | 12.84                                                                                |                             |                                                                          |                      |                |
| DO (%)                                                                          | 105.2                                                                                |                             |                                                                          |                      |                |
| Turbidity (NTU)                                                                 | -                                                                                    |                             |                                                                          |                      |                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear.                                                                               |                             |                                                                          |                      |                |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                             |                                                                          |                      |                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                             |                                                                          |                      |                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 17:51                                                                        |                             |                                                                          |                      |                |
| <b>Sample Time</b>                                                              | (hh:mm) 17:50                                                                        |                             |                                                                          |                      |                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                             |                                                                          |                      |                |

Sample Site (Con't): R11

Sample Date (Con't): June 17

Sample Time (Con't): 17:50

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input type="checkbox"/> Field Filtered                 | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                             |                                                                          |                      |                 |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-----------------|
| <b>Sample Site:</b>                                                             | SL                                                                                   | <b>Project Number:</b>      | 16-240.2                                                                 | <b>Date:</b>         | June 17/12 06   |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | CH + AV         |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | Sunny<br>~ 25°C |
| <b>Photos</b>                                                                   | Cam ELR Nos. 704-711                                                                 |                             |                                                                          |                      |                 |
| <b>Sample Time (24h)</b>                                                        | 14:40                                                                                | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                 |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                             |                                                                          |                      |                 |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                      |                             | <b>Site Sketch</b>                                                       |                      |                 |
| Station Status                                                                  | Good                                                                                 |                             |                                                                          |                      |                 |
| Sample Depth (m)                                                                | 17.5 0.40                                                                            |                             |                                                                          |                      |                 |
| Temperature (°C)                                                                | 17.5                                                                                 |                             |                                                                          |                      |                 |
| pH (pH Units)                                                                   | 8.25                                                                                 |                             |                                                                          |                      |                 |
| Cond. (µs/cm)                                                                   | 1261                                                                                 |                             |                                                                          |                      |                 |
| Specific Cond. (µs/cm)                                                          | 1471                                                                                 |                             |                                                                          |                      |                 |
| Redox (mV)                                                                      | 62.0                                                                                 |                             |                                                                          |                      |                 |
| DO (mg/L)                                                                       | 8.24                                                                                 |                             |                                                                          |                      |                 |
| DO (%)                                                                          | 86.1                                                                                 |                             |                                                                          |                      |                 |
| Turbidity (NTU)                                                                 | -                                                                                    |                             |                                                                          |                      |                 |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | slightly cloudy green                                                                |                             |                                                                          |                      |                 |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                             |                                                                          |                      |                 |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                             |                                                                          |                      |                 |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 14:38                                                                        |                             |                                                                          |                      |                 |
| <b>Sample Time</b>                                                              | (hh:mm) 14:40                                                                        |                             |                                                                          |                      |                 |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                             |                                                                          |                      |                 |

Sample Site (Con't): SL

Sample Date (Con't): June 17

Sample Time (Con't): 14:40

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                | Date/Time: <u>June 17 14:40</u>                   |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 500 ml (plastic) | Asbestos                                             | -                                                       | -                                                         | <input type="checkbox"/>                         |                |                                                   |
|                  |                                                      |                                                         |                                                           | <input type="checkbox"/>                         |                |                                                   |
| Total:           |                                                      |                                                         |                                                           |                                                  |                |                                                   |

General Notes:



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                             |                                                                          |                      |                 |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-----------------|
| <b>Sample Site:</b>                                                             | GWCC-1                                                                               | <b>Project Number:</b>      | 16-240.2                                                                 | <b>Date:</b>         | June 15, 2016   |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | CH & AN         |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | Sunny<br>~ 15°C |
| <b>Photos</b>                                                                   | Cam ELR Nos. 635-640                                                                 |                             |                                                                          |                      |                 |
| <b>Sample Time (24h)</b>                                                        | 8:30                                                                                 | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                 |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                             |                                                                          |                      |                 |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                      |                             | <b>Site Sketch</b>                                                       |                      |                 |
| <b>Station Status</b>                                                           | GOOD                                                                                 |                             |                                                                          |                      |                 |
| <b>Sample Depth (m)</b>                                                         | -0.10m                                                                               |                             |                                                                          |                      |                 |
| <b>Temperature (°C)</b>                                                         | 2.7                                                                                  |                             |                                                                          |                      |                 |
| <b>pH (pH Units)</b>                                                            | 7.22                                                                                 |                             |                                                                          |                      |                 |
| <b>Cond. (µs/cm)</b>                                                            | 2461 1413                                                                            |                             |                                                                          |                      |                 |
| <b>Specific Cond. (µs/cm)</b>                                                   | 2461                                                                                 |                             |                                                                          |                      |                 |
| <b>Redox (mV)</b>                                                               | 70.4                                                                                 |                             |                                                                          |                      |                 |
| <b>DO (mg/L)</b>                                                                | 4.78                                                                                 |                             |                                                                          |                      |                 |
| <b>DO (%)</b>                                                                   | 35.4                                                                                 |                             |                                                                          |                      |                 |
| <b>Turbidity (NTU)</b>                                                          | -                                                                                    |                             |                                                                          |                      |                 |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                   | Clear                                                                                |                             |                                                                          |                      |                 |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                             |                                                                          |                      |                 |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                             |                                                                          |                      |                 |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 8:32                                                                         |                             |                                                                          |                      |                 |
| <b>Sample Time</b>                                                              | (hh:mm) 8:30                                                                         |                             |                                                                          |                      |                 |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                             |                                                                          |                      |                 |

Sample Site (Con't): GWCC-1

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 8:30

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           | 9           |                                                   |

**General Notes:**

No weir possible. Boulder strewn stream bed. water flows under boulders.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                             |                                                                          |                      |               |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|---------------|
| <b>Sample Site:</b>                                                             | GWCC-2                                                                               | <b>Project Number:</b>      | 16-240.2                                                                 | <b>Date:</b>         | June 15 2016  |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | CH + AN.      |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | Sunny<br>15°C |
| <b>Photos</b>                                                                   | Cam <u>ELR</u> Nos. <u>641-642</u>                                                   |                             |                                                                          |                      |               |
| <b>Sample Time (24h)</b>                                                        | 9:00                                                                                 |                             |                                                                          |                      |               |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |               |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                      |                             | <b>Site Sketch</b>                                                       |                      |               |
| Station Status                                                                  | GOOD                                                                                 |                             |                                                                          |                      |               |
| Sample Depth (m)                                                                | 0.05m                                                                                |                             |                                                                          |                      |               |
| Temperature (°C)                                                                | 4.5                                                                                  |                             |                                                                          |                      |               |
| pH (pH Units)                                                                   | 7.57                                                                                 |                             |                                                                          |                      |               |
| Cond. (µs/cm)                                                                   | 1069                                                                                 |                             |                                                                          |                      |               |
| Specific Cond. (µs/cm)                                                          | 1763                                                                                 |                             |                                                                          |                      |               |
| Redox (mV)                                                                      | 85.0                                                                                 |                             |                                                                          |                      |               |
| DO (mg/L)                                                                       | 8.37                                                                                 |                             |                                                                          |                      |               |
| DO (%)                                                                          | 64.8                                                                                 |                             |                                                                          |                      |               |
| Turbidity (NTU)                                                                 | -                                                                                    |                             |                                                                          |                      |               |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | clear                                                                                |                             |                                                                          |                      |               |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                             |                                                                          |                      |               |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                             |                                                                          |                      |               |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 8:53                                                                         |                             |                                                                          |                      |               |
| <b>Sample Time</b>                                                              | (hh:mm) 9:00                                                                         |                             |                                                                          |                      |               |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                             |                                                                          |                      |               |

Sample Site (Con't): GWCC-2

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 9:00

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                     | <input type="checkbox"/> Field Filtered                 | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 500 ml (plastic) | Asbestos                                             | -                                                       | -                                                         | <input type="checkbox"/>                         |                |                                                   |
|                  |                                                      |                                                         |                                                           | <input type="checkbox"/>                         |                |                                                   |
| Total:           |                                                      |                                                         |                                                           |                                                  | 9              |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                             |                                                                          |                      |                |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>                                                             | GWCC-3                                                                               | <b>Project Number:</b>      | 16-240.2                                                                 | <b>Date:</b>         | June 15, 2016  |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | CH + AW        |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | Sunny<br>~15°C |
| <b>Photos</b>                                                                   | Cam ELR Nos. 643-644                                                                 | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                |
| <b>Sample Time (24h)</b>                                                        | 9:15                                                                                 |                             |                                                                          |                      |                |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                             |                                                                          |                      |                |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                      |                             | <b>Site Sketch</b>                                                       |                      |                |
| Station Status                                                                  | GOOD                                                                                 |                             |                                                                          |                      |                |
| Sample Depth (m)                                                                | 0.05m                                                                                |                             |                                                                          |                      |                |
| Temperature (°C)                                                                | 6.4                                                                                  |                             |                                                                          |                      |                |
| pH (pH Units)                                                                   | 7.46                                                                                 |                             |                                                                          |                      |                |
| Cond. (µs/cm)                                                                   | 642                                                                                  |                             |                                                                          |                      |                |
| Specific Cond. (µs/cm)                                                          | 994                                                                                  |                             |                                                                          |                      |                |
| Redox (mV)                                                                      | 95.0                                                                                 |                             |                                                                          |                      |                |
| DO (mg/L)                                                                       | 4.73                                                                                 |                             |                                                                          |                      |                |
| DO (%)                                                                          | 38.5                                                                                 |                             |                                                                          |                      |                |
| Turbidity (NTU)                                                                 | -                                                                                    |                             |                                                                          |                      |                |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear.                                                                               |                             |                                                                          |                      |                |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                             |                                                                          |                      |                |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                             |                                                                          |                      |                |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 9:12                                                                         |                             |                                                                          |                      |                |
| <b>Sample Time</b>                                                              | (hh:mm) 9:15                                                                         |                             |                                                                          |                      |                |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                             |                                                                          |                      |                |

Sample Site (Con't): GWCC-3

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 9:15

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                           |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 500 ml (plastic) | Asbestos                                             | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                |                                                   |
|                  |                                                      |                                                         |                                                           | <input type="checkbox"/>                         |                |                                                   |
|                  |                                                      |                                                         |                                                           | Total:                                           | 9              |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |                             |                                                                          |                      |               |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|---------------|
| <b>Sample Site:</b>                                                             | GWCC-4                                                                               | <b>Project Number:</b>      | 16-240.2                                                                 | <b>Date:</b>         | June 15, 2016 |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | CH + AN.      |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | Sunny<br>15°C |
| <b>Photos</b>                                                                   | Cam FLR Nos. 645-646                                                                 | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |               |
| <b>Sample Time (24h)</b>                                                        | 9:40                                                                                 |                             |                                                                          |                      |               |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |                             |                                                                          |                      |               |
| <b>Field Parameter Measurements</b> (note units if different than those stated) |                                                                                      |                             | <b>Site Sketch</b>                                                       |                      |               |
| Station Status                                                                  | GOOD                                                                                 |                             |                                                                          |                      |               |
| Sample Depth (m)                                                                | 0.05 m                                                                               |                             |                                                                          |                      |               |
| Temperature (°C)                                                                | 6.4                                                                                  |                             |                                                                          |                      |               |
| pH (pH Units)                                                                   | 7.59                                                                                 |                             |                                                                          |                      |               |
| Cond. (µs/cm)                                                                   | 501                                                                                  |                             |                                                                          |                      |               |
| Specific Cond. (µs/cm)                                                          | 777                                                                                  |                             |                                                                          |                      |               |
| Redox (mV)                                                                      | 100.4                                                                                |                             |                                                                          |                      |               |
| DO (mg/L)                                                                       | 4.26                                                                                 |                             |                                                                          |                      |               |
| DO (%)                                                                          | 34.7                                                                                 |                             |                                                                          |                      |               |
| Turbidity (NTU)                                                                 | -                                                                                    |                             |                                                                          |                      |               |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear                                                                                |                             |                                                                          |                      |               |
| <b>Field Measurements Log</b>                                                   |                                                                                      |                             |                                                                          |                      |               |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |                             |                                                                          |                      |               |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 9:36                                                                         |                             |                                                                          |                      |               |
| <b>Sample Time</b>                                                              | (hh:mm) 9:40                                                                         |                             |                                                                          |                      |               |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |                             |                                                                          |                      |               |

Sample Site (Con't): GWCL-4

Sample Date (Con't): June 15, 2016

Sample Time (Con't): 9:40

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and CR(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 500 ml (plastic) | Asbestos                                             | -                                                       | -                                                         | <input type="checkbox"/>                         |                |                                                   |
|                  |                                                      |                                                         |                                                           | <input type="checkbox"/>                         |                |                                                   |
| Total:           |                                                      |                                                         |                                                           |                                                  | 9              |                                                   |

General Notes:



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                      |  |                             |                                                                          |                      |                    |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|-----------------------------|--------------------------------------------------------------------------|----------------------|--------------------|
| <b>Sample Site:</b>                                                             | GWCC-5                                                                               |  | <b>Project Number:</b>      | 16-240.2                                                                 | <b>Date:</b>         | Jan. 13/2016       |
| <b>UTM Coordinates</b>                                                          | Z E N                                                                                |  | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | AN, CH.            |
| <b>Waypoint</b>                                                                 | GPS Name                                                                             |  | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | Overcast<br>~ 8°C. |
| <b>Photos</b>                                                                   | Cam ELR Nos. 627-630                                                                 |  |                             |                                                                          |                      |                    |
| <b>Sample Time (24h)</b>                                                        | 16:10                                                                                |  |                             |                                                                          |                      |                    |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name             |  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                    |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                      |  |                             | <b>Site Sketch</b>                                                       |                      |                    |
| Station Status                                                                  | GOOD                                                                                 |  |                             |                                                                          |                      |                    |
| Sample Depth (m)                                                                | 0.1                                                                                  |  |                             |                                                                          |                      |                    |
| Temperature (°C)                                                                | 9.5                                                                                  |  |                             |                                                                          |                      |                    |
| pH (pH Units)                                                                   | 7.56                                                                                 |  |                             |                                                                          |                      |                    |
| Cond. (µs/cm)                                                                   | 620                                                                                  |  |                             |                                                                          |                      |                    |
| Specific Cond. (µs/cm)                                                          | 882                                                                                  |  |                             |                                                                          |                      |                    |
| Redox (mV)                                                                      | 132.1                                                                                |  |                             |                                                                          |                      |                    |
| DO (mg/L)                                                                       | 4.35                                                                                 |  |                             |                                                                          |                      |                    |
| DO (%)                                                                          | 38.0                                                                                 |  |                             |                                                                          |                      |                    |
| Turbidity (NTU)                                                                 | —                                                                                    |  |                             |                                                                          |                      |                    |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | Clear. Algae growth in pond w/s of site.                                             |  |                             |                                                                          |                      |                    |
| <b>Field Measurements Log</b>                                                   |                                                                                      |  |                             |                                                                          |                      |                    |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |  |                             |                                                                          |                      |                    |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 16:11                                                                        |  |                             |                                                                          |                      |                    |
| <b>Sample Time</b>                                                              | (hh:mm) 16:10                                                                        |  |                             |                                                                          |                      |                    |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |  |                             |                                                                          |                      |                    |

Sample Site (Con't): GWCC-5

Sample Date (Con't): Jun. 13/2016

Sample Time (Con't): 16:10

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>Jun. 13/2016</u>                    |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and CR(III)     |                                                         | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | Asbestos                                          | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | <input type="checkbox"/>                         |             |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 9           |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                              |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|------------------------------|
| <b>Sample Site:</b>                                                             | E1                                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 22 2016                 |
| <b>UTM Coordinates</b>                                                          | Z51-E 0513649 N 7147109                                                                    | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                      |
| <b>Waypoint</b>                                                                 | GPS <u>GR</u> Name <u>E1</u>                                                               | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~15°C<br>RAIN.<br>100% cloud |
| <b>Photos</b>                                                                   | Cam <u>GR</u> Nos. <u>6867-6869</u>                                                        |                             |                                                                                |                      |                              |
| <b>Sample Time (24h)</b>                                                        | <del>08</del> 10-10                                                                        | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                              |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                              |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                              |
| Station Status                                                                  | Good.                                                                                      |                             |                                                                                |                      |                              |
| Sample Depth (m)                                                                | 0.1                                                                                        |                             |                                                                                |                      |                              |
| Temperature (°C)                                                                | 14.4                                                                                       |                             |                                                                                |                      |                              |
| pH (pH Units)                                                                   | 8.3                                                                                        |                             |                                                                                |                      |                              |
| Cond. (µs/cm)                                                                   | 398.4                                                                                      |                             |                                                                                |                      |                              |
| Specific Cond. (µs/cm)                                                          | 499.8                                                                                      |                             |                                                                                |                      |                              |
| Redox (mV)                                                                      | 156.4                                                                                      |                             |                                                                                |                      |                              |
| DO (mg/L)                                                                       | 8.86                                                                                       |                             |                                                                                |                      |                              |
| DO (%)                                                                          | 86.7                                                                                       |                             |                                                                                |                      |                              |
| Turbidity (NTU)                                                                 | ✓                                                                                          |                             |                                                                                |                      |                              |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | SLIGHTLY NO<br>TURBID COLOUR                                                               |                             |                                                                                |                      |                              |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                              |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                              |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 10-10 *                                                                            |                             |                                                                                |                      |                              |
| <b>Sample Time</b>                                                              | (hh:mm) 10-10                                                                              |                             |                                                                                |                      |                              |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                              |

FLOW

↓

E1

↓

X

SAMPLE

\* HAD TO RESET DATE + TIME ON YSI

Sample Site (Con't): E1

Sample Date (Con't): JULY 22 2016

Sample Time (Con't): 10-10

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: 24/7/2016 @ 1150                       |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

General Notes:

RAINING!

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                               |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------------------|
| <b>Sample Site:</b>                                                             | E1(H)                                                                                      | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 22 2016                  |
| <b>UTM Coordinates</b>                                                          | Z 094 E 0512851 N 7141433                                                                  | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                       |
| <b>Waypoint</b>                                                                 | GPS GMR Name E1H                                                                           | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~11°C<br>RAIN.<br>100% CLOUD. |
| <b>Photos</b>                                                                   | Cam GMR Nos. 6870-6875                                                                     |                             |                                                                                |                      |                               |
| <b>Sample Time (24h)</b>                                                        | 10-45                                                                                      |                             |                                                                                |                      |                               |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                               |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                               |
| <b>Station Status</b>                                                           | GOOD (RAINING)                                                                             |                             |                                                                                |                      |                               |
| <b>Sample Depth (m)</b>                                                         | 0.1                                                                                        |                             |                                                                                |                      |                               |
| <b>Temperature (°C)</b>                                                         | 14.3                                                                                       |                             |                                                                                |                      |                               |
| <b>pH (pH Units)</b>                                                            | 8.04                                                                                       |                             |                                                                                |                      |                               |
| <b>Cond. (µs/cm)</b>                                                            | 399.0                                                                                      |                             |                                                                                |                      |                               |
| <b>Specific Cond. (µs/cm)</b>                                                   | 501.4                                                                                      |                             |                                                                                |                      |                               |
| <b>Redox (mV)</b>                                                               | 158.6                                                                                      |                             |                                                                                |                      |                               |
| <b>DO (mg/L)</b>                                                                | 8.51                                                                                       |                             |                                                                                |                      |                               |
| <b>DO (%)</b>                                                                   | 83.6                                                                                       |                             |                                                                                |                      |                               |
| <b>Turbidity (NTU)</b>                                                          | —                                                                                          |                             |                                                                                |                      |                               |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                   | ✓ SLIGHTLY TURBID.<br>NO ODOUR                                                             |                             |                                                                                |                      |                               |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                               |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                               |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 1042                                                                               |                             |                                                                                |                      |                               |
| <b>Sample Time</b>                                                              | (hh:mm) 10-45                                                                              |                             |                                                                                |                      |                               |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                               |

HODGEON LAKE

Flow ↓

FORD

SAMPLE

Sample Site (Con't): E1(H)

Sample Date (Con't): JULY 22 2016

Sample Time (Con't): 10-45.

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: JULY 24 2016 1110                      |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              | Date/Time: JULY 22 10-45                          |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |                |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 910            |                                                   |

General Notes:

RAINING. GEN CHEM TO BE COLLECTED. ✓

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                       |                             |                                                                                |                      |                    |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|--------------------|
| <b>Sample Site:</b>                                                             | E2                                                                                                    | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 21 2016       |
| <b>UTM Coordinates</b>                                                          | Z07W E 0514165 N 7147076                                                                              | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + MB            |
| <b>Waypoint</b>                                                                 | GPS <u>GMR</u> Name <u>E2</u>                                                                         | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~14°C<br>OVERCAST. |
| <b>Photos</b>                                                                   | Cam <u>GMR</u> Nos. <u>6856-6856</u>                                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                    |
| <b>Sample Time (24h)</b>                                                        | 1715                                                                                                  |                             |                                                                                |                      |                    |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____                        |                             |                                                                                |                      |                    |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                                       |                             | <b>Site Sketch</b>                                                             |                      |                    |
| <b>Station Status</b>                                                           | GOOD.                                                                                                 |                             | <p>NOTE: HAS BEEN RAINING MOST OF THE DAY. STOPPED AROUND 1545.</p>            |                      |                    |
| <b>Sample Depth (m)</b>                                                         | 0.1                                                                                                   |                             |                                                                                |                      |                    |
| <b>Temperature (°C)</b>                                                         | 14.4                                                                                                  |                             |                                                                                |                      |                    |
| <b>pH (pH Units)</b>                                                            | 6.9 (PEN) YSI 8.11                                                                                    |                             |                                                                                |                      |                    |
| <b>Cond. (µs/cm)</b>                                                            | 501                                                                                                   |                             |                                                                                |                      |                    |
| <b>Specific Cond. (µs/cm)</b>                                                   | 629                                                                                                   |                             |                                                                                |                      |                    |
| <b>Redox (mV)</b>                                                               | 146.0                                                                                                 |                             |                                                                                |                      |                    |
| <b>DO (mg/L)</b>                                                                | 8.13                                                                                                  |                             |                                                                                |                      |                    |
| <b>DO (%)</b>                                                                   | 79.2                                                                                                  |                             |                                                                                |                      |                    |
| <b>Turbidity (NTU)</b>                                                          | —                                                                                                     |                             |                                                                                |                      |                    |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                   | CLEAR. NO COLOUR.                                                                                     |                             |                                                                                |                      |                    |
| <b>Field Measurements Log</b>                                                   |                                                                                                       |                             |                                                                                |                      |                    |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |                             |                                                                                |                      |                    |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 1716                                                                                          |                             |                                                                                |                      |                    |
| <b>Sample Time</b>                                                              | (hh:mm) 1715                                                                                          |                             |                                                                                |                      |                    |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                    |

pH.

Sample Site (Con't): E2

Sample Date (Con't): JULY 21 2016

Sample Time (Con't): 1715

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: 24/7/2016 1210                         |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

General Notes:

GEN CARM TO BE COLLECTED. ✓



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                           |                             |                                                                                |                      |                      |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------------|
| <b>Sample Site:</b>                                                             | E3                                                                                                        | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 20 2016         |
| <b>UTM Coordinates</b>                                                          | Z7W E 0514078 N 7147190                                                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB              |
| <b>Waypoint</b>                                                                 | GPS <u>GRV</u> Name <u>E3</u>                                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | LIGHT RAIN.<br>~15°C |
| <b>Photos</b>                                                                   | Cam <u>GRV</u> Nos. <u>6809-6811</u>                                                                      | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                      |
| <b>Sample Time (24h)</b>                                                        | 0805.                                                                                                     |                             |                                                                                |                      |                      |
| <b>Field Blank Collected:</b>                                                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>FB1</u><br><u>No asbestos</u> |                             |                                                                                |                      |                      |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                                           |                             | <b>Site Sketch</b>                                                             |                      |                      |
| Station Status                                                                  | GOOD.                                                                                                     |                             |                                                                                |                      |                      |
| Sample Depth (m)                                                                | 0.1.                                                                                                      |                             |                                                                                |                      |                      |
| Temperature (°C)                                                                | 8.2                                                                                                       |                             |                                                                                |                      |                      |
| pH (pH Units)                                                                   | 8.14                                                                                                      |                             |                                                                                |                      |                      |
| Cond. (µs/cm)                                                                   | 557                                                                                                       |                             |                                                                                |                      |                      |
| Specific Cond. (µs/cm)                                                          | 825                                                                                                       |                             |                                                                                |                      |                      |
| Redox (mV)                                                                      | 364.4                                                                                                     |                             |                                                                                |                      |                      |
| DO (mg/L)                                                                       | 10.92                                                                                                     |                             |                                                                                |                      |                      |
| DO (%)                                                                          | 93.2                                                                                                      |                             |                                                                                |                      |                      |
| Turbidity (NTU)                                                                 | SLIGHTLY TURBID.                                                                                          |                             |                                                                                |                      |                      |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | ↓                                                                                                         |                             |                                                                                |                      |                      |
| <b>Field Measurements Log</b>                                                   |                                                                                                           |                             |                                                                                |                      |                      |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                       |                             |                                                                                |                      |                      |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>0813</u>                                                                                       |                             |                                                                                |                      |                      |
| <b>Sample Time</b>                                                              | (hh:mm) <u>0805</u>                                                                                       |                             |                                                                                |                      |                      |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____                |                             |                                                                                |                      |                      |

Sample Site (Con't): E3.

Sample Date (Con't): JULY 20 2016

Sample Time (Con't): 0805

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate)                                              |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|------------------------------------------------------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: JULY 20 0805                                                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:  |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 125 ml (plastic) | Total Speciated Chromium - Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 125 ml (plastic) | Dissolved Speciated Chromium - Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                                                                |
|                  |                                                   |                                                         |                                                           | Total:                                           | 11          |             |

**General Notes:**

INCLUDES FB1 WITH NO ASBESTOS. ~~SAMPLE FB.~~

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                       |                             |                                                                                |                      |                    |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|--------------------|
| <b>Sample Site:</b>                                                             | E4                                                                                                    | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 21 2016       |
| <b>UTM Coordinates</b>                                                          | Z 07W E 0515945 N 7145281                                                                             | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GMK + NB           |
| <b>Waypoint</b>                                                                 | GPS <u>GMK</u> Name <u>E4</u>                                                                         | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | LIGHT RAIN<br>14°C |
| <b>Photos</b>                                                                   | Cam <u>GMK</u> Nos. <u>6851-6855</u>                                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                    |
| <b>Sample Time (24h)</b>                                                        | 1515                                                                                                  |                             |                                                                                |                      |                    |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____                        |                             |                                                                                |                      |                    |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                                       |                             | <b>Site Sketch</b>                                                             |                      |                    |
| Station Status                                                                  | GOOD                                                                                                  |                             |                                                                                |                      |                    |
| Sample Depth (m)                                                                | 0.1                                                                                                   |                             |                                                                                |                      |                    |
| Temperature (°C)                                                                | 13.0                                                                                                  |                             |                                                                                |                      |                    |
| pH (pH Units)                                                                   | 6.8                                                                                                   |                             |                                                                                |                      |                    |
| Cond. (µs/cm)                                                                   | 532                                                                                                   |                             |                                                                                |                      |                    |
| Specific Cond. (µs/cm)                                                          | 690                                                                                                   |                             |                                                                                |                      |                    |
| Redox (mV)                                                                      | 146.2                                                                                                 |                             |                                                                                |                      |                    |
| DO (mg/L)                                                                       | 9.17                                                                                                  |                             |                                                                                |                      |                    |
| DO (%)                                                                          | 87.2                                                                                                  |                             |                                                                                |                      |                    |
| Turbidity (NTU)                                                                 | —                                                                                                     |                             |                                                                                |                      |                    |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | CLEAR                                                                                                 |                             |                                                                                |                      |                    |
| <b>Field Measurements Log</b>                                                   |                                                                                                       |                             |                                                                                |                      |                    |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |                             |                                                                                |                      |                    |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 1517                                                                                          |                             |                                                                                |                      |                    |
| <b>Sample Time</b>                                                              | (hh:mm) 1515                                                                                          |                             |                                                                                |                      |                    |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                    |

PH

Sample Site (Con't): E4

Sample Date (Con't): JULY 21 2016

Sample Time (Con't): 1515

| Bottle Type              | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: 24/7/2016 1240 *                       |
| 125 ml (plastic)         | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              | Date/Time:                                        |
| 125 ml (plastic)         | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium –<br>Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium<br>– Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                                  | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |                |                                                   |
| 500 ml (plastic)         | TSS                                                  | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
|                          |                                                      |                                                         |                                                           | Total:                                           | 910            |                                                   |

General Notes:

GEN CHEM TO BE COLLECTED ✓

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                          |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|------------------------------------------|
| <b>Sample Site:</b>           | E7                                                                             | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 22 2016                             |
| <b>UTM Coordinates</b>        | ZONE E 0519362 N 7142041                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                                  |
| <b>Waypoint</b>               | GPS GMR Name _____                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 14°C<br>LIGHT RAIN!<br>(VARIABLE RAIN) |
| <b>Photos</b>                 | Cam GMR Nos. 6893 - 6898                                                       | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                          |
| <b>Sample Time (24h)</b>      | 1515                                                                           |                             |                                                                                |                      |                                          |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                          |

| Field Parameter Measurements (note units if different than those stated) |                                                | Site Sketch |
|--------------------------------------------------------------------------|------------------------------------------------|-------------|
| <b>Station Status</b>                                                    | GOOD BUT CREEK FLOODED BANK TO BANK AND TURBID |             |
| <b>Sample Depth (m)</b>                                                  | 0.1                                            |             |
| <b>Temperature (°C)</b>                                                  | 11.7                                           |             |
| <b>pH (pH Units)</b>                                                     | 8.06                                           |             |
| <b>Cond. (µs/cm)</b>                                                     | 496.1                                          |             |
| <b>Specific Cond. (µs/cm)</b>                                            | 671                                            |             |
| <b>Redox (mV)</b>                                                        | 134.7                                          |             |
| <b>DO (mg/L)</b>                                                         | 9.40                                           |             |
| <b>DO (%)</b>                                                            | 87.5                                           |             |
| <b>Turbidity (NTU)</b>                                                   | TURBID.                                        |             |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>            | BROWN! NO ODOUR                                |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1530                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1515                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): E7

Sample Date (Con't): JULY 22 2016

Sample Time (Con't): 1515

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: 24/7/2016 1310                         |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: JULY 22 2016                           |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 810         |                                                   |

**General Notes:**

SAMPLE COLLECTED ~ 25m UPSTREAM OF E7 SIGN.  
 RIVER/LK FLOWED BANK TO BANK. WANTED TO AVOID INFLUENCE  
 OFF 40 MILE RIVER & SOFT SUBSTRATE WHERE CREEK  
 USED TO BE (STABILITY/SAFETY). HAS BEEN RAINING EVERY DAY WHILE  
 ON SITE.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                                       |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|---------------------------------------|
| <b>Sample Site:</b>                                                             | E8                                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 22 2016                          |
| <b>UTM Coordinates</b>                                                          | Z974 E 0519457 N 7142789                                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + N13                              |
| <b>Waypoint</b>                                                                 | GPS <u>GWR</u> Name <u>E8</u>                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | 16°C.<br>CLOUDY<br>OCCASIONAL<br>RAIN |
| <b>Photos</b>                                                                   | Cam <u>GWR</u> Nos. <u>6900-6902</u>                                                       | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                       |
| <b>Sample Time (24h)</b>                                                        | 1710                                                                                       |                             |                                                                                |                      |                                       |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                                       |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                                       |
| Station Status                                                                  | GOOD. 40 MILE IS HIGH!                                                                     |                             |                                                                                |                      |                                       |
| Sample Depth (m)                                                                | 0.1                                                                                        |                             |                                                                                |                      |                                       |
| Temperature (°C)                                                                | 10.5                                                                                       |                             |                                                                                |                      |                                       |
| pH (pH Units)                                                                   | 7.89                                                                                       |                             |                                                                                |                      |                                       |
| Cond. (µs/cm)                                                                   | 118.5                                                                                      |                             |                                                                                |                      |                                       |
| Specific Cond. (µs/cm)                                                          | 163.8                                                                                      |                             |                                                                                |                      |                                       |
| Redox (mV)                                                                      | 96.7                                                                                       |                             |                                                                                |                      |                                       |
| DO (mg/L)                                                                       | 10.31                                                                                      |                             |                                                                                |                      |                                       |
| DO (%)                                                                          | 92.5                                                                                       |                             |                                                                                |                      |                                       |
| Turbidity (NTU)                                                                 | TURBID.                                                                                    |                             |                                                                                |                      |                                       |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | BROWN RIVER<br>NO ODOUR                                                                    |                             |                                                                                |                      |                                       |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                                       |
| YSI Logged?                                                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                                       |
| Time Logged on YSI                                                              | (hh:mm) 1709                                                                               |                             |                                                                                |                      |                                       |
| Sample Time                                                                     | (hh:mm) 1710                                                                               |                             |                                                                                |                      |                                       |
| Unit Used                                                                       | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                                       |

FLOW BRIDGE.

THE GRNGL BAR IS ONLY VISIBLE AT NORTHERN END.

SAMPLE SITE

Sample Site (Con't): E8

Sample Date (Con't): JULY 22 2016

Sample Time (Con't): 1710

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: 24/7/2016 1300                         |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: JULY 22 2016                           |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 410         |                                                   |

**General Notes:**

GEN CHEM TO BE COLLECTED. ✓  
 LOTS OF RAIN OVER LAST FOUR DAYS (AT LEAST).  
 RIVERS ARE HIGH. LOWER CC + FORTY MILE ARE  
 BROWN (TURBID)



# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                 |                             |                                                                                |                      |                                   |
|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------------------|
| <b>Sample Site:</b>                                                             | E9                                                                              | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 24 2016                      |
| <b>UTM Coordinates</b>                                                          | Z 07W E 0513893 N 7146931                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                           |
| <b>Waypoint</b>                                                                 | GPS <u>GWR</u> Name <u>E9</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~18°C<br>SOME CLOUD<br>NO PRECIP. |
| <b>Photos</b>                                                                   | Cam <u>GWR</u> Nos. _____                                                       | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                   |
| <b>Sample Time (24h)</b>                                                        | DRY *                                                                           |                             |                                                                                |                      |                                   |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____  |                             |                                                                                |                      |                                   |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                 |                             | <b>Site Sketch</b>                                                             |                      |                                   |
| <b>Station Status</b>                                                           | DRY *                                                                           |                             |                                                                                |                      |                                   |
| <b>Sample Depth (m)</b>                                                         |                                                                                 |                             |                                                                                |                      |                                   |
| <b>Temperature (°C)</b>                                                         |                                                                                 |                             |                                                                                |                      |                                   |
| <b>pH (pH Units)</b>                                                            |                                                                                 |                             |                                                                                |                      |                                   |
| <b>Cond. (µs/cm)</b>                                                            |                                                                                 |                             |                                                                                |                      |                                   |
| <b>Specific Cond. (µs/cm)</b>                                                   |                                                                                 |                             |                                                                                |                      |                                   |
| <b>Redox (mV)</b>                                                               |                                                                                 |                             |                                                                                |                      |                                   |
| <b>DO (mg/L)</b>                                                                |                                                                                 |                             |                                                                                |                      |                                   |
| <b>DO (%)</b>                                                                   |                                                                                 |                             |                                                                                |                      |                                   |
| <b>Turbidity (NTU)</b>                                                          |                                                                                 |                             |                                                                                |                      |                                   |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                   |                                                                                 |                             |                                                                                |                      |                                   |
| <b>Field Measurements Log</b>                                                   |                                                                                 |                             |                                                                                |                      |                                   |
| <b>YSI Logged?</b>                                                              | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No             |                             |                                                                                |                      |                                   |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) <u>N/A</u>                                                              |                             |                                                                                |                      |                                   |
| <b>Sample Time</b>                                                              | (hh:mm) <u>N/A</u>                                                              |                             |                                                                                |                      |                                   |
| <b>Unit Used</b>                                                                | <input type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                                   |

Sample Site (Con't): E9

Sample Date (Con't): JULY 24 2016 @ 1210

Sample Time (Con't): ~ DRY

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input type="checkbox"/>                         |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input type="checkbox"/> Nitric Acid                      | <input type="checkbox"/>                         |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Nitric Acid                      | <input type="checkbox"/>                         |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input type="checkbox"/> Hydrochloric Acid                | <input type="checkbox"/>                         |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Hydrochloric Acid                | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input type="checkbox"/> Sulfuric Acid                    | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Sulfuric Acid                    | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input type="checkbox"/> NaOH                             | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> NaOH                             | <input type="checkbox"/>                         |             |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           |             |                                                   |

**General Notes:**

E9 appears to be a constricted rock/French drain which now has a lot of vegetation growing through it and on it. No surface water observed. Given the flow down gradient at GWCC-1 there is likely ~~then~~ ~~to~~ gw flow at E9. GW connection between E9 and SL is very likely.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                          |                                                                                                       |                      |                                                                                |               |                                    |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------|---------------|------------------------------------|
| Sample Site:                                                             | GWCC-1                                                                                                | Project Number:      | 16-240.3 Clinton Creek Water Program                                           | Date:         | JULY 20 2016                       |
| UTM Coordinates                                                          | ZONE E 0513903 N 7146956                                                                              | Client:              | Yukon Government (AAM)                                                         | Samplers:     | GR + NB                            |
| Waypoint                                                                 | GPS <u>GR</u> Name <u>GWCC1</u>                                                                       | Project Name:        | Clinton Creek Surface Water Monitoring Program                                 | Weather/Temp: | ~17°C<br>OVERCAST<br>SOME BLUE SKY |
| Photos                                                                   | Cam <u>GR</u> Nos. <u>6836-6839</u>                                                                   |                      |                                                                                |               |                                    |
| Sample Time (24h)                                                        | 1715                                                                                                  | Duplicate Collected: | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |               |                                    |
| Field Blank Collected:                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____                        |                      |                                                                                |               |                                    |
| Field Parameter Measurements (note units if different than those stated) |                                                                                                       |                      | Site Sketch                                                                    |               |                                    |
| Station Status                                                           | GOOD                                                                                                  |                      |                                                                                |               |                                    |
| Sample Depth (m)                                                         | <del>0.2</del> FROM OUTFLOW ~0.1                                                                      |                      |                                                                                |               |                                    |
| Temperature (°C)                                                         | 4.2                                                                                                   |                      |                                                                                |               |                                    |
| pH (pH Units)                                                            | 7.40                                                                                                  |                      |                                                                                |               |                                    |
| Cond. (µs/cm)                                                            | 1374 /                                                                                                |                      |                                                                                |               |                                    |
| Specific Cond. (µs/cm)                                                   | 2282                                                                                                  |                      |                                                                                |               |                                    |
| Redox (mV)                                                               | 24.1                                                                                                  |                      |                                                                                |               |                                    |
| DO (mg/L)                                                                | 4.29                                                                                                  |                      |                                                                                |               |                                    |
| DO (%)                                                                   | 33.1                                                                                                  |                      |                                                                                |               |                                    |
| Turbidity (NTU)                                                          | CLEAR                                                                                                 |                      |                                                                                |               |                                    |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | SLIGHT SULPHUR SMELL FROM GENERAL SITE BUT NOT FROM THE WATER.                                        |                      |                                                                                |               |                                    |
| Field Measurements Log                                                   |                                                                                                       |                      |                                                                                |               |                                    |
| YSI Logged?                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |                      |                                                                                |               |                                    |
| Time Logged on YSI                                                       | (hh:mm) 1714                                                                                          |                      |                                                                                |               |                                    |
| Sample Time                                                              | (hh:mm) 1715                                                                                          |                      |                                                                                |               |                                    |
| Unit Used                                                                | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |                      |                                                                                |               |                                    |

BEAVER FIELD

VEG.

VEG.

BEAVER POND

⊗ = OUTFLOW POINT

COND. 2.17 M/S  
USE YSI READING. PEN NOT CALIBRATED.

Sample Site (Con't): GWCC-1

Sample Date (Con't): JULY 20 2016

Sample Time (Con't): 1715

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>JULY 20 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input type="checkbox"/> Nitric Acid                      | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Nitric Acid                      | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

WADERS FOR THIS SITE. USEFUL - OEGP NEARBY.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                                       |                             |                                                                                |                      |              |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|--------------|
| <b>Sample Site:</b>                                                             | GLWCC-2                                                                                               | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 20 2016 |
| <b>UTM Coordinates</b>                                                          | ZONE 0313901 N 7146968                                                                                | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB      |
| <b>Waypoint</b>                                                                 | GPS GMR Name GLWCC-2                                                                                  | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~17°C        |
| <b>Photos</b>                                                                   | Cam GMR Nos. 6831-6835                                                                                |                             |                                                                                |                      |              |
| <b>Sample Time (24h)</b>                                                        | 1650                                                                                                  |                             |                                                                                |                      |              |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____                        | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |              |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                                       |                             | <b>Site Sketch</b>                                                             |                      |              |
| <b>Station Status</b>                                                           | GOOD                                                                                                  |                             |                                                                                |                      |              |
| <b>Sample Depth (m)</b>                                                         | FROM DAYLIGHTING WATER                                                                                |                             |                                                                                |                      |              |
| <b>Temperature (°C)</b>                                                         | 7.6                                                                                                   |                             |                                                                                |                      |              |
| <b>pH (pH Units)</b>                                                            | 7.62                                                                                                  |                             |                                                                                |                      |              |
| <b>Cond. (µs/cm)</b>                                                            | 1045 (1848 US PEN)                                                                                    |                             |                                                                                |                      |              |
| <b>Specific Cond. (µs/cm)</b>                                                   | 1564                                                                                                  |                             |                                                                                |                      |              |
| <b>Redox (mV)</b>                                                               | 198.8                                                                                                 |                             |                                                                                |                      |              |
| <b>DO (mg/L)</b>                                                                | 7.26                                                                                                  |                             |                                                                                |                      |              |
| <b>DO (%)</b>                                                                   | 61.0                                                                                                  |                             |                                                                                |                      |              |
| <b>Turbidity (NTU)</b>                                                          | CLEAR                                                                                                 |                             |                                                                                |                      |              |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                   | CLEAR. NO ODOUR                                                                                       |                             |                                                                                |                      |              |
| <b>Field Measurements Log</b>                                                   |                                                                                                       |                             |                                                                                |                      |              |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |                             |                                                                                |                      |              |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 1659                                                                                          |                             |                                                                                |                      |              |
| <b>Sample Time</b>                                                              | (hh:mm) 1650                                                                                          |                             |                                                                                |                      |              |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |              |

UP GRADIENT

DOWN GRADIENT

"BEAVER" POND (OLD)

COND. USE YSI READING. PEN NOT CALIBRATED.

Sample Site (Con't): GLWCE-2

Sample Date (Con't): JULY 20 2016

Sample Time (Con't): 1650

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>JUL 20 1650</u>                     |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input type="checkbox"/>                         | 1           | ↓                                                 |
|                          |                                                   |                                                         |                                                           | Total:                                           | 10          |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                       |                      |                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------|----------------------|-------------------|
| <b>Sample Site:</b>           | GWCC-3                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                                  | <b>Date:</b>         | JULY 20 2016      |
| <b>UTM Coordinates</b>        | ZONE 0513882 N 7142038                                                         | <b>Client:</b>              | Yukon Government (AAM)                                                                | <b>Samplers:</b>     | GR + NB           |
| <b>Waypoint</b>               | GPS <del>SWR</del> Name <del>SWR</del> GWCC3                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                        | <b>Weather/Temp:</b> | -17°C<br>OVERCAST |
| <b>Photos</b>                 | Cam <del>SWR</del> Nos. 6826 - 6830                                            | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>DUP 1</u> |                      |                   |
| <b>Sample Time (24h)</b>      | 1615                                                                           |                             |                                                                                       |                      |                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                       |                      |                   |

| Field Parameter Measurements (note units if different than those stated) |                   | Site Sketch |
|--------------------------------------------------------------------------|-------------------|-------------|
| Station Status                                                           | GOOD              |             |
| Sample Depth (m)                                                         | FLOW FLOWING SEEP |             |
| Temperature (°C)                                                         | 10.9              |             |
| pH (pH Units)                                                            | 7.48              |             |
| Cond. (µs/cm)                                                            | 690 (1123 µs PEN) |             |
| Specific Cond. (µs/cm)                                                   | 945               |             |
| Redox (mV)                                                               | 155.9             |             |
| DO (mg/L)                                                                | 4.24              |             |
| DO (%)                                                                   | 38.5              |             |
| Turbidity (NTU)                                                          | CLEAR             |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR, NO ODOUR   |             |

| Field Measurements Log    |                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |
| <b>Time Logged on YSI</b> | (hh:mm) 1625                                                                                          |
| <b>Sample Time</b>        | (hh:mm) 1615                                                                                          |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |

COND. USE YSI READING. PEN NOT CALIBRATED.

Sample Site (Con't): GLCC-3

Sample Date (Con't): JULY 20 2016

Sample Time (Con't): 1615

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles  | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|--------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            | Date/Time: <u>0611 0611</u> 1                     |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1            | Date/Time: 1                                      |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Nitric Acid                      | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input checked="" type="checkbox"/></del>   | <del>1</del> | <del>1</del>                                      |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            | 1                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10           | 10                                                |

**General Notes:**

SAMPLE COLLECTED FROM WATER FLOWING ~~IN~~ FROM BANK,  
NOT FROM BELOW THE SEEP.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                     |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------------------------|
| <b>Sample Site:</b>           | GWCC-4                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 20 2016                        |
| <b>UTM Coordinates</b>        | 297° E 0513874 N 7147058                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                             |
| <b>Waypoint</b>               | GPS <i>Garmin</i> Name <u>GWCC4</u>                                            | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~17°C<br>OVERCAST<br>SOME BLUE SKY. |
| <b>Photos</b>                 | Cam <i>Garmin</i> Nos. <u>6840-6843</u>                                        | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                     |
| <b>Sample Time (24h)</b>      | 1745                                                                           |                             |                                                                                |                      |                                     |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                     |

| Field Parameter Measurements (note units if different than those stated) |                    | Site Sketch |
|--------------------------------------------------------------------------|--------------------|-------------|
| Station Status                                                           | OK. WATER IS LOW   |             |
| Sample Depth (m)                                                         | 0.05               |             |
| Temperature (°C)                                                         | 11.6               |             |
| pH (pH Units)                                                            | 7.49               |             |
| Cond. (µs/cm)                                                            | 559 / PEN = 885 µS |             |
| Specific Cond. (µs/cm)                                                   | 751                |             |
| Redox (mV)                                                               | 200.8              |             |
| DO (mg/L)                                                                | 2.20               |             |
| DO (%)                                                                   | 20.3               |             |
| Turbidity (NTU)                                                          | CLEAR              |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR .. NO ODOUR  |             |

| Field Measurements Log    |                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1745</u>                                                                                   |
| <b>Sample Time</b>        | (hh:mm) <u>1745</u>                                                                                   |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |

COND. USE YSI READINGS. PEN NOT CALIBRATED.

Sample Site (Con't): GWCC-4

Sample Date (Con't): JULY 20 2016

Sample Time (Con't): 1745

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles    | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: <u>JULY 20 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              | Date/Time:                                        |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              | ↓                                                 |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |                |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | <del>1</del> 1 | ↓                                                 |
|                          |                                                   |                                                         |                                                           | Total:                                           | 10             |                                                   |

**General Notes:**

POOL FOR SAMPLING IS V. SHALLOW ~ 5-8cm DEEP.  
WATER IS NOT GUSHING FROM THE ROCKS.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                       |                      |                                                 |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------|----------------------|-------------------------------------------------|
| <b>Sample Site:</b>           | GWCC-5                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                                  | <b>Date:</b>         | JULY 22 2016                                    |
| <b>UTM Coordinates</b>        | ZONE E 0513983 N 7147127                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                                | <b>Samplers:</b>     | GA + NB                                         |
| <b>Waypoint</b>               | GPS <u>GWR</u> Name <u>GWCC5</u>                                               | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                        | <b>Weather/Temp:</b> | ~13°C<br>RAIN.<br><del>OVER</del><br>100% CLOUD |
| <b>Photos</b>                 | Cam <u>GWR</u> Nos. <u>6861 - 6864</u>                                         | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>DUP 2</u> |                      |                                                 |
| <b>Sample Time (24h)</b>      | 0830                                                                           |                             |                                                                                       |                      |                                                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                       |                      |                                                 |

| Field Parameter Measurements (note units if different than those stated) |                            | Site Sketch |
|--------------------------------------------------------------------------|----------------------------|-------------|
| Station Status                                                           | GOOD Lots of ALGAL GROWTH. |             |
| Sample Depth (m)                                                         | 0.05 SHALLOW WATER         |             |
| Temperature (°C)                                                         | 9.1                        |             |
| pH (pH Units)                                                            | 7.51                       |             |
| Cond. (µs/cm)                                                            | 629                        |             |
| Specific Cond. (µs/cm)                                                   | 903                        |             |
| Redox (mV)                                                               | 111.3                      |             |
| DO (mg/L)                                                                | 3.93                       |             |
| DO (%)                                                                   | 34.2                       |             |
| Turbidity (NTU)                                                          | ~                          |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR.                     |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 0837                                                                               |
| <b>Sample Time</b>        | (hh:mm) 0830                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): GLCC-5

Sample Date (Con't): JULY 22 2015

Sample Time (Con't): 0830

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/> X            | 1           | Date/Time: 24/7/2016 1200                         |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: JULY 22 2016 0830                      |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | DUP2 10 BOTTLES. *                                |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

GEN CHEM OF SAMPLE AND DUPLICATE TO BE COLLECTED, ✓  
 \* GEN CHEM OF DUP 2 COLLECTED 24/7/2016 @ 1200  
 10TH + 10 BOTTLES TOTAL FOR DUP 2.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                         |                             |                                                                          |                      |                                     |
|-------------------------------|-------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-------------------------------------|
| <b>Sample Site:</b>           | PL *                                                                    | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                     | <b>Date:</b>         | JULY 24 2016                        |
| <b>UTM Coordinates</b>        | Z <u>  </u> E <u>  </u> N <u>  </u>                                     | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NB                             |
| <b>Waypoint</b>               | GPS <u>  </u> Name <u>  </u>                                            | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | N 18°C<br>PART CLOUDY<br>NO PRECIP. |
| <b>Photos</b>                 | Cam <u>  </u> Nos. <u>  </u>                                            | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input type="checkbox"/> No Name <u>N/A</u> |                      |                                     |
| <b>Sample Time (24h)</b>      | <u>N/A</u> *                                                            |                             |                                                                          |                      |                                     |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input type="checkbox"/> No Name <u>  </u> |                             |                                                                          |                      |                                     |

| Field Parameter Measurements (note units if different than those stated) |  | Site Sketch                                                          |
|--------------------------------------------------------------------------|--|----------------------------------------------------------------------|
| Station Status                                                           |  | <p>* DUE TO POTENTIAL ROCK FALL IN PIT, NO SAMPLE WAS COLLECTED.</p> |
| Sample Depth (m)                                                         |  |                                                                      |
| Temperature (°C)                                                         |  |                                                                      |
| pH (pH Units)                                                            |  |                                                                      |
| Cond. (µs/cm)                                                            |  |                                                                      |
| Specific Cond. (µs/cm)                                                   |  |                                                                      |
| Redox (mV)                                                               |  |                                                                      |
| DO (mg/L)                                                                |  |                                                                      |
| DO (%)                                                                   |  |                                                                      |
| Turbidity (NTU)                                                          |  |                                                                      |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       |  |                                                                      |

| Field Measurements Log    |                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input type="checkbox"/> Yes <input type="checkbox"/> No                            |
| <b>Time Logged on YSI</b> | (hh:mm) <u>  </u>                                                                   |
| <b>Sample Time</b>        | (hh:mm) <u>  </u>                                                                   |
| <b>Unit Used</b>          | <input type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>  </u> |

⊗ = EASIEST ACCESS POINT TO WATER BUT ALSO VERY HAZARDOUS.

Sample Site (Con't): JULY 24 2016 \*

Sample Date (Con't): PL

Sample Time (Con't): N/A \*

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input type="checkbox"/>                         |             | Date/Time:                                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input type="checkbox"/> Nitric Acid                      | <input type="checkbox"/>                         |             | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Nitric Acid                      | <input type="checkbox"/>                         |             |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input type="checkbox"/> Hydrochloric Acid                | <input type="checkbox"/>                         |             |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Hydrochloric Acid                | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (amber)   | Ammonia (NH <sub>3</sub> )                        |                                                         | <input type="checkbox"/> Sulfuric Acid                    | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Sulfuric Acid                    | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input type="checkbox"/> NaOH                             | <input type="checkbox"/>                         |             |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> NaOH                             | <input type="checkbox"/>                         |             |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input type="checkbox"/>                         |             |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           |             |                                                   |

**General Notes:**

\* UNSAFE TO ACCESS BECAUSE OF POTENTIAL ROCK FALL.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                      |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------------|
| <b>Sample Site:</b>                                                             | R1                                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 23 2016.        |
| <b>UTM Coordinates</b>                                                          | ZONE E 0510597 N 7147500                                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB              |
| <b>Waypoint</b>                                                                 | GPS <u>GMR</u> Name <u>R1</u>                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~19°C<br>PART CLOUD. |
| <b>Photos</b>                                                                   | Cam <u>GMR</u> Nos. <u>6915-6919.</u>                                                      |                             |                                                                                |                      |                      |
| <b>Sample Time (24h)</b>                                                        | 1405                                                                                       | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                      |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                      |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                      |
| Station Status                                                                  | GOOD. VERY HIGH WATER                                                                      |                             |                                                                                |                      |                      |
| Sample Depth (m)                                                                | 0.1                                                                                        |                             |                                                                                |                      |                      |
| Temperature (°C)                                                                | 6.0                                                                                        |                             |                                                                                |                      |                      |
| pH (pH Units)                                                                   | 7.88                                                                                       |                             |                                                                                |                      |                      |
| Cond. (µs/cm)                                                                   | 243.1                                                                                      |                             |                                                                                |                      |                      |
| Specific Cond. (µs/cm)                                                          | 380.9                                                                                      |                             |                                                                                |                      |                      |
| Redox (mV)                                                                      | 53.6                                                                                       |                             |                                                                                |                      |                      |
| DO (mg/L)                                                                       | 11.40                                                                                      |                             |                                                                                |                      |                      |
| DO (%)                                                                          | 91.8.                                                                                      |                             |                                                                                |                      |                      |
| Turbidity (NTU)                                                                 | TURBID BROWN                                                                               |                             |                                                                                |                      |                      |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | NO ODOUR.                                                                                  |                             |                                                                                |                      |                      |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                      |
| YSI Logged?                                                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                      |
| Time Logged on YSI                                                              | (hh:mm) 1404                                                                               |                             |                                                                                |                      |                      |
| Sample Time                                                                     | (hh:mm) 1405                                                                               |                             |                                                                                |                      |                      |
| Unit Used                                                                       | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                      |

**Site Sketch:**

The sketch shows a vertical line representing a river channel. On the left side, there is a box labeled 'R1' with an arrow pointing to it labeled 'SIGN'. In the center of the channel, there is a box labeled 'SAMPLE' with an arrow pointing to it. Above the 'SAMPLE' box, there is a downward arrow labeled 'FLOW'. To the right of the channel, there is a vertical line representing the bank, with the text 'BANK TO BANK WATER' written next to it.

Sample Site (Con't): R1

Sample Date (Con't): JULY 23 2016

Sample Time (Con't): 14-05

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>JULY 23 2016</u>                    |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 11          |                                                   |

**General Notes:**

WATER .15  
TURBID - BROWN.  
A LOT OF RAIN OVER  
PREVIOUS 4 DAYS!

FULL SAMPLE TODAY. WILL GEN CHEM.



# SURFACE WATER SAMPLE COLLECTION SHEET

1343-005.19

|                               |                                                                                |                             |                                                                                |                      |                                  |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------------------------|
| <b>Sample Site:</b>           | RZ                                                                             | <b>Project Number:</b>      | 46-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 23 2016                     |
| <b>UTM Coordinates</b>        | ZONE 05T033 N 7148063                                                          | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + MB                          |
| <b>Waypoint</b>               | GPS GMR Name RZ                                                                | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | 19°C<br>PART CLOUD.<br>NO PRECIP |
| <b>Photos</b>                 | Cam GMR Nos. 6920-6923                                                         | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                  |
| <b>Sample Time (24h)</b>      | 1555                                                                           |                             |                                                                                |                      |                                  |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                  |

| Field Parameter Measurements (note units if different than those stated) |                            | Site Sketch |
|--------------------------------------------------------------------------|----------------------------|-------------|
| Station Status                                                           | GOOD. WATER TURBID         |             |
| Sample Depth (m)                                                         | 0.1                        |             |
| Temperature (°C)                                                         | 8.2                        |             |
| pH (pH Units)                                                            | 7.99                       |             |
| Cond. (µs/cm)                                                            | 265.7                      |             |
| Specific Cond. (µs/cm)                                                   | 391.2                      |             |
| Redox (mV)                                                               | 44.3                       |             |
| DO (mg/L)                                                                | 10.93                      |             |
| DO (%)                                                                   | 92.9                       |             |
| Turbidity (NTU)                                                          | TURBID. BROWN              |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | BROWN.<br>CAN'T SEE BOTTOM |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1559                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1555                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R2  
 Sample Date (Con't): JULY 23 2018  
 Sample Time (Con't): 1555

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>JULY 23</u>                         |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           | 10          |                                                   |

**General Notes:**

FULL SAMPLE. WATER V. BROWN (TURBID) RECENT RAIN FOR FOUR DAYS! WATER LEVEL IS HIGH.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------|
| <b>Sample Site:</b>           | R3                                                                             | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 19 2016      |
| <b>UTM Coordinates</b>        | Z7W E 0513930 N 7148618                                                        | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB           |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>R3</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~16°C<br>OVERCAST |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>6802-6805</u>                                            | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                   |
| <b>Sample Time (24h)</b>      | 16:50                                                                          |                             |                                                                                |                      |                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                   |

| Field Parameter Measurements (note units if different than those stated) |                      | Site Sketch |
|--------------------------------------------------------------------------|----------------------|-------------|
| Station Status                                                           | GOOD. SOME TURBIDITY |             |
| Sample Depth (m)                                                         | 0.1                  |             |
| Temperature (°C)                                                         | 7.7°C                |             |
| pH (pH Units)                                                            | 8.28                 |             |
| Cond. (µs/cm)                                                            | 546                  |             |
| Specific Cond. (µs/cm)                                                   | 814                  |             |
| Redox (mV)                                                               | 176.5                |             |
| DO (mg/L)                                                                | 12.36                |             |
| DO (%)                                                                   | 103.9 (?) ↑ HIGH?    |             |
| Turbidity (NTU)                                                          | SLIGHTLY TURBID.     |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | NO ODOUR             |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1710</u>                                                                        |
| <b>Sample Time</b>        | (hh:mm) <u>1650</u>                                                                        |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

6802-6805

Sample Site (Con't): R3

Sample Date (Con't): JULY 19 2016

Sample Time (Con't): 1650

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: JUL 19 1650                            |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: JUL 19 1650                            |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

WATER SLIGHTLY TURBID.

DO READINGS ARE HIGH. DO NOT USE.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                        |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------------------------------|
| <b>Sample Site:</b>           | R4                                                                             | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 21 2016                           |
| <b>UTM Coordinates</b>        | Z <u>0515980</u> E <u>7145352</u> N                                            | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                                |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>R4</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~10°C<br>V. LIGHT<br>RAIN.<br>OVERCAST |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>6845-6849 50</u>                                         | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                        |
| <b>Sample Time (24h)</b>      | 1345                                                                           |                             |                                                                                |                      |                                        |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                        |

| Field Parameter Measurements (note units if different than those stated) |                 | Site Sketch                                                                                                              |
|--------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD            | <p>SMALL DROP OFFS<br/>UPSTREAM &lt;0.5m<br/>HIGH.</p> <p>FLOW</p> <p>STUMP</p> <p>COLLECTION POINT.</p> <p>R4 SIGN.</p> |
| Sample Depth (m)                                                         | 0.08            |                                                                                                                          |
| Temperature (°C)                                                         | 4.9             |                                                                                                                          |
| pH (pH Units)                                                            | PEN =           |                                                                                                                          |
| Cond. (µs/cm)                                                            | 389.4           |                                                                                                                          |
| Specific Cond. (µs/cm)                                                   | 631.9           |                                                                                                                          |
| Redox (mV)                                                               | 132.5           |                                                                                                                          |
| DO (mg/L)                                                                | 11.79           |                                                                                                                          |
| DO (%)                                                                   | 92.2            |                                                                                                                          |
| Turbidity (NTU)                                                          | —               |                                                                                                                          |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR, NO ODOUR |                                                                                                                          |

| Field Measurements Log    |                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |
| <b>Time Logged on YSI</b> | (hh:mm) 1347                                                                                          |
| <b>Sample Time</b>        | (hh:mm) 1345                                                                                          |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |

PH

Sample Site (Con't): R4

Sample Date (Con't): JULY 21 2016

Sample Time (Con't): 1345

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>24/7/2016 1245</u>                  |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>JULY 21 1345</u>                    |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

General Notes:

GEN CHEM - DELAYED COLLECTION - DONE 24/7/2016

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                                                                                                                                                                                                                                                                                      |                                                                                            |                             |                                                                                |                      |                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------------|
| <b>Sample Site:</b>                                                                                                                                                                                                                                                                                                                                  | R6*                                                                                        | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 22 2014                |
| <b>UTM Coordinates</b>                                                                                                                                                                                                                                                                                                                               | Z _ E _ N _ *                                                                              | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + MB                     |
| <b>Waypoint</b>                                                                                                                                                                                                                                                                                                                                      | GPS <u>GR2</u> Name _____                                                                  | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | RAIN<br>~16°C<br>100% CLOUD |
| <b>Photos</b>                                                                                                                                                                                                                                                                                                                                        | Cam <u>GR2</u> Nos. <u>6903 - 6904</u>                                                     |                             |                                                                                |                      |                             |
| <b>Sample Time (24h)</b>                                                                                                                                                                                                                                                                                                                             | 1820                                                                                       | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                             |
| <b>Field Blank Collected:</b>                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             |                             |                                                                                |                      |                             |
| <b>Field Parameter Measurements (note units if different than those stated)</b>                                                                                                                                                                                                                                                                      |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                             |
| <b>Station Status</b>                                                                                                                                                                                                                                                                                                                                | * GOOD                                                                                     |                             |                                                                                |                      |                             |
| <b>Sample Depth (m)</b>                                                                                                                                                                                                                                                                                                                              | 0.1                                                                                        |                             |                                                                                |                      |                             |
| <b>Temperature (°C)</b>                                                                                                                                                                                                                                                                                                                              | 10.6                                                                                       |                             |                                                                                |                      |                             |
| <b>pH (pH Units)</b>                                                                                                                                                                                                                                                                                                                                 | 7.87                                                                                       |                             |                                                                                |                      |                             |
| <b>Cond. (µs/cm)</b>                                                                                                                                                                                                                                                                                                                                 | 112.8                                                                                      |                             |                                                                                |                      |                             |
| <b>Specific Cond. (µs/cm)</b>                                                                                                                                                                                                                                                                                                                        | 155.8                                                                                      |                             |                                                                                |                      |                             |
| <b>Redox (mV)</b>                                                                                                                                                                                                                                                                                                                                    | 126.4                                                                                      |                             |                                                                                |                      |                             |
| <b>DO (mg/L)</b>                                                                                                                                                                                                                                                                                                                                     | 10.03                                                                                      |                             |                                                                                |                      |                             |
| <b>DO (%)</b>                                                                                                                                                                                                                                                                                                                                        | 90.5                                                                                       |                             |                                                                                |                      |                             |
| <b>Turbidity (NTU)</b>                                                                                                                                                                                                                                                                                                                               | TURBID.                                                                                    |                             |                                                                                |                      |                             |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>                                                                                                                                                                                                                                                                                        | BROWN - TURBID.                                                                            |                             |                                                                                |                      |                             |
| <b>Field Measurements Log</b>                                                                                                                                                                                                                                                                                                                        |                                                                                            |                             |                                                                                |                      |                             |
| <b>YSI Logged?</b>                                                                                                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                             |
| <b>Time Logged on YSI</b>                                                                                                                                                                                                                                                                                                                            | (hh:mm) 1826 (CCTC)                                                                        |                             |                                                                                |                      |                             |
| <b>Sample Time</b>                                                                                                                                                                                                                                                                                                                                   | (hh:mm) 1820                                                                               |                             |                                                                                |                      |                             |
| <b>Unit Used</b>                                                                                                                                                                                                                                                                                                                                     | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                             |
| <p>* NOTES:</p> <p>FORTY MILE RIVER VERY HIGH DUE TO RAIN. THIS SAMPLE WAS COLLECTED AT THE CLINTON CREEK TOWN SITE (HOMESTEAD) UPSTREAM OF THE <del>ORIGINAL</del> USUAL R6 LOCATION, <del>R6</del> <sup>AND</sup> STILL CONSIDERED TO BE A REFERENCE SITE ON THE FORTY MILE.</p> <p>USUAL R6 LOCATION WAS NOT SAFE TO ACCESS DUE TO HIGH WATER</p> |                                                                                            |                             |                                                                                |                      |                             |

Sample Site (Con't): R6 \*

Sample Date (Con't): JULY 22 2016

Sample Time (Con't): 1820

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: JULY 24 2016 1330                      |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              | Date/Time: JULY 22                                |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 1 L (plastic)    | Asbestos                                             | Wrapped tightly in foil                                 | -                                                         | <input type="checkbox"/>                         |                |                                                   |
| 500 ml (plastic) | TSS                                                  | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:           |                                                      |                                                         |                                                           |                                                  | 10             |                                                   |

**General Notes:**

SEE OVER

GEN CHEM TO COLLECT. ✓



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                         |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------------|
| <b>Sample Site:</b>           | R7                                                                             | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 20 2016            |
| <b>UTM Coordinates</b>        | Z _ E 0513003 N 7145659                                                        | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                 |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>R7</u>                                                  | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 15°C<br>PARTIAL CLOUD |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>6814-6816</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                         |
| <b>Sample Time (24h)</b>      | 1320                                                                           |                             |                                                                                |                      |                         |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                         |

| Field Parameter Measurements (note units if different than those stated) |                                      | Site Sketch |
|--------------------------------------------------------------------------|--------------------------------------|-------------|
| Station Status                                                           | OK. BENERS AFFECTING DOWNSTREAM FLOW |             |
| Sample Depth (m)                                                         | 0-10                                 |             |
| Temperature (°C)                                                         | 5.3                                  |             |
| pH (pH Units)                                                            | 7.42                                 |             |
| Cond. (µs/cm)                                                            | 167.5                                |             |
| Specific Cond. (µs/cm)                                                   | 268.7                                |             |
| Redox (mV)                                                               | 51.1                                 |             |
| DO (mg/L)                                                                | 10.65                                |             |
| DO (%)                                                                   | 84.1                                 |             |
| Turbidity (NTU)                                                          | —                                    |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | BROWNISH. SLIGHTLY TURBID.           |             |

| Field Measurements Log |                                                                                                                  |
|------------------------|------------------------------------------------------------------------------------------------------------------|
| YSI Logged?            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                              |
| Time Logged on YSI     | (hh:mm) 1319                                                                                                     |
| Sample Time            | (hh:mm) 1320                                                                                                     |
| Unit Used              | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other <u>PEN USED.</u> |

COND. = 334 µS/cm  
PEN NOT REQUIRED.

TWICE THAT OF YSI (CHECK UNITS)  
USE YSI READING. PEN HAD NOT BEEN CALIBRATED.

Sample Site (Con't): R7  
 Sample Date (Con't): JULY 20 2016  
 Sample Time (Con't): 1320

| Bottle Type                 | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|-----------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)            | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>JULY 20 2016 1320</u>               |
| 125 ml (plastic)            | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>                    </u>            |
| 125 ml (plastic)            | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)               | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)               | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)              | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)              | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)            | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)            | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>125 ml (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | -                                                         | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)            | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                      |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

SLIGHTLY TURBID.  
 LOW FLOW, NARROW CREEK (<1m in many locations)  
 THIS SITE IS LIKELY AFFECTED BY BEAVER ACTIVITY.  
 SITE WAS MOVED UPSTREAM BUT BEAVER ACTIVITY IS EXTENSIVE DOWNSTREAM  
 NAME TAG WAS NOT MOVED (MOVE IN AUGUST). NEW FLAGGING INSTALLED ON ACCESS TRAIL

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                    |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|------------------------------------|
| <b>Sample Site:</b>           | R8                                                                             | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 23 2016                       |
| <b>UTM Coordinates</b>        | Z <sup>SW</sup> E 051895 N 7147900                                             | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GA + N13                           |
| <b>Waypoint</b>               | GPS GMR Name R8                                                                | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | N 26°C<br>Some CLOUD<br>NO PRECIP. |
| <b>Photos</b>                 | Cam GMR Nos. 6928-6932                                                         | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                    |
| <b>Sample Time (24h)</b>      | 1715                                                                           |                             |                                                                                |                      |                                    |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                    |

| Field Parameter Measurements (note units if different than those stated) |                                           | Site Sketch |
|--------------------------------------------------------------------------|-------------------------------------------|-------------|
| Station Status                                                           | GOOD. WATER IS CLEAR (MOSTLY)             |             |
| Sample Depth (m)                                                         | 0.05                                      |             |
| Temperature (°C)                                                         | 6.6                                       |             |
| pH (pH Units)                                                            | 7.72                                      |             |
| Cond. (µs/cm)                                                            | 172.2                                     |             |
| Specific Cond. (µs/cm)                                                   | 265.4                                     |             |
| Redox (mV)                                                               | 51.2                                      |             |
| DO (mg/L)                                                                | 10.92                                     |             |
| DO (%)                                                                   | 89.1                                      |             |
| Turbidity (NTU)                                                          | V. SLIGHTLY TURBID. COMES THROUGH FOREST. |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | ↓ NO ODOUR.                               |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1712                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1715                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R8  
 Sample Date (Con't): JULY 23 2016  
 Sample Time (Con't): 1715

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: JULY 23                                |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

THIS CREEK HAS CLEARER WATER THAN R1 + R2.  
 SOME BANK VEGETATION AFFECTED BY HIGH WATER BUT ~~AS~~ NOT AS  
 MUCH AS OTHER SITES.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                                                                                 |                                                                                            |                             |                                                                                |                      |                                 |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|---------------------------------|
| <b>Sample Site:</b>                                                             | R9                                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 23 2016                    |
| <b>UTM Coordinates</b>                                                          | Z <sup>07W</sup> E 0512340 N 7146752                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + <del>MB</del> NB           |
| <b>Waypoint</b>                                                                 | GPS <del>SMR</del> Name R9                                                                 | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~17°C<br>BF. 1-2<br>HIGH CLOUD. |
| <b>Photos</b>                                                                   | Cam <del>SMR</del> Nos. 6933-6937                                                          |                             |                                                                                |                      |                                 |
| <b>Sample Time (24h)</b>                                                        | 1815                                                                                       |                             |                                                                                |                      |                                 |
| <b>Field Blank Collected:</b>                                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____             | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                 |
| <b>Field Parameter Measurements (note units if different than those stated)</b> |                                                                                            |                             | <b>Site Sketch</b>                                                             |                      |                                 |
| Station Status                                                                  | GOOD, TURBID (BROWN WATER)                                                                 |                             |                                                                                |                      |                                 |
| Sample Depth (m)                                                                | 0.1                                                                                        |                             |                                                                                |                      |                                 |
| Temperature (°C)                                                                | 6.0                                                                                        |                             |                                                                                |                      |                                 |
| pH (pH Units)                                                                   | 7.64                                                                                       |                             |                                                                                |                      |                                 |
| Cond. (µs/cm)                                                                   | 143-8                                                                                      |                             |                                                                                |                      |                                 |
| Specific Cond. (µs/cm)                                                          | 225.6                                                                                      |                             |                                                                                |                      |                                 |
| Redox (mV)                                                                      | 48.2                                                                                       |                             |                                                                                |                      |                                 |
| DO (mg/L)                                                                       | 11.48                                                                                      |                             |                                                                                |                      |                                 |
| DO (%)                                                                          | 92.1                                                                                       |                             |                                                                                |                      |                                 |
| Turbidity (NTU)                                                                 | TURBID.                                                                                    |                             |                                                                                |                      |                                 |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                              | BROWN. NO ODOUR.                                                                           |                             |                                                                                |                      |                                 |
| <b>Field Measurements Log</b>                                                   |                                                                                            |                             |                                                                                |                      |                                 |
| <b>YSI Logged?</b>                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |                             |                                                                                |                      |                                 |
| <b>Time Logged on YSI</b>                                                       | (hh:mm) 1811                                                                               |                             |                                                                                |                      |                                 |
| <b>Sample Time</b>                                                              | (hh:mm) 1815                                                                               |                             |                                                                                |                      |                                 |
| <b>Unit Used</b>                                                                | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |                             |                                                                                |                      |                                 |

Sample Site (Con't): R9  
 Sample Date (Con't): JULY 23 2016  
 Sample Time (Con't): 1815

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>JULY 23 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time:                                        |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

TURBID (BROWN WATER)  
 RECENT RAIN HAS AFFECTED FLOWS AND TURBIDITY  
 AT ALL SITES VISITED TO DATE DURING THIS SAMPLING EVENT.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                                |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|------------------------------------------------|
| <b>Sample Site:</b>           | R11                                                                            | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 19 2016                                   |
| <b>UTM Coordinates</b>        | Z _ E 0514177 N 714828                                                         | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GMR + NB                                       |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>R11</u>                                                 | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~16°C<br>LIGHT RAIN OCCASIONALLY.<br>OVERCAST. |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>6794 6797</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                                |
| <b>Sample Time (24h)</b>      | 1430                                                                           |                             |                                                                                |                      |                                                |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                                |

| Field Parameter Measurements (note units if different than those stated) |                        | Site Sketch                                                              |
|--------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------|
| Station Status                                                           | GOOD. WATER CLEAR      | <p>PATH IN.</p> <p>SPRUCE &amp; ALDER</p> <p>SMALL ROCKS</p> <p>FLOW</p> |
| Sample Depth (m)                                                         | <del>0.10</del> 0.10   |                                                                          |
| Temperature (°C)                                                         | 5.7                    |                                                                          |
| pH (pH Units)                                                            | 8.11                   |                                                                          |
| Cond. (µs/cm)                                                            | <del>482.1</del> 303.9 |                                                                          |
| Specific Cond. (µs/cm)                                                   | 481.9                  |                                                                          |
| Redox (mV)                                                               | 168.8                  |                                                                          |
| DO (mg/L)                                                                | 14.05                  |                                                                          |
| DO (%)                                                                   | 112.1 (?) HIGH?        |                                                                          |
| Turbidity (NTU)                                                          | —                      |                                                                          |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR, NO ODOUR        |                                                                          |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1434                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1430                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R11  
 Sample Date (Con't): JULY 19 2016  
 Sample Time (Con't): 1430

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: JULY 19, 2016.                         |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: 11 11                                  |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           | <del>MAY NOT BE</del> PRESERVED. 0 21 30          |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

SOME BUSH WHACKING REQUIRED TO GET TO SITE.  
 WHACKING

DO READINGS ARE HIGH. DO NOT USE.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                             |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------------|
| <b>Sample Site:</b>           | SL                                                                             | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | JULY 24 2016                |
| <b>UTM Coordinates</b>        | ZONE E 051 3825 N 7146700                                                      | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                     |
| <b>Waypoint</b>               | GPS <u>GWR</u> Name <u>SL</u>                                                  | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | 9°C<br>BLUE SKIES<br>Ø WIND |
| <b>Photos</b>                 | Cam <u>GWR</u> Nos. <u>6938-6944</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                             |
| <b>Sample Time (24h)</b>      | 0850                                                                           |                             |                                                                                |                      |                             |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                             |

| Field Parameter Measurements (note units if different than those stated) |                    | Site Sketch |
|--------------------------------------------------------------------------|--------------------|-------------|
| Station Status                                                           | GOOD.              |             |
| Sample Depth (m)                                                         | 0.1                |             |
| Temperature (°C)                                                         | 14.6               |             |
| pH (pH Units)                                                            | 8.50               |             |
| Cond. (µs/cm)                                                            | 1215               |             |
| Specific Cond. (µs/cm)                                                   | 1518               |             |
| Redox (mV)                                                               | 73.4               |             |
| DO (mg/L)                                                                | 9.56               |             |
| DO (%)                                                                   | 93.3               |             |
| Turbidity (NTU)                                                          | V. SLICHTY TURBID. |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | ↓                  |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 0853                                                                               |
| <b>Sample Time</b>        | (hh:mm) 0850                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): SL

Sample Date (Con't): JULY 24 2016

Sample Time (Con't): 0850

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time:                                        |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              | Date/Time:                                        |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| <del>1-L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input checked="" type="checkbox"/></del>   | <del>1</del>   | <del></del>                                       |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10             |                                                   |

**General Notes:**

FULL SET.

# SURFACE WATER SAMPLE COLLECTION SHEET

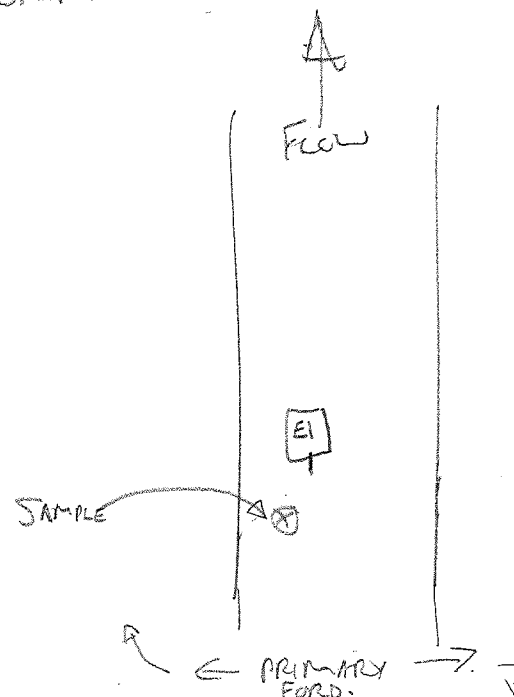
|                               |                                                                                     |                             |                                                                                       |                      |                                      |
|-------------------------------|-------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------|----------------------|--------------------------------------|
| <b>Sample Site:</b>           | E1                                                                                  | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                  | <b>Date:</b>         | 16 AUG 2016                          |
| <b>UTM Coordinates</b>        | ZON E 0513653 N 7147107                                                             | <b>Client:</b>              | Yukon Government (AAM)                                                                | <b>Samplers:</b>     | GR + NB                              |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>      </u>                                                    | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                        | <b>Weather/Temp:</b> | ~ 19°C<br>PART CLOUDY<br>LIGHT WIND. |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7062-7065</u>                                                 | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>DUP 1</u> |                      |                                      |
| <b>Sample Time (24h)</b>      | 1710                                                                                |                             |                                                                                       |                      |                                      |
| <b>Field Blank Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>FB1</u> |                             |                                                                                       |                      |                                      |

## Field Parameter Measurements (note units if different than those stated)

|                                                               |                           |
|---------------------------------------------------------------|---------------------------|
| <b>Station Status</b>                                         | <del>Good</del> - TURBID! |
| <b>Sample Depth (m)</b>                                       | 0.1                       |
| <b>Temperature (°C)</b>                                       | 12.8                      |
| <b>pH (pH Units)</b>                                          | 8.86                      |
| <b>Cond. (µs/cm)</b>                                          | 338.6                     |
| <b>Specific Cond. (µs/cm)</b>                                 | 441.5                     |
| <b>Redox (mV)</b>                                             | -28.3                     |
| <b>DO (mg/L)</b>                                              | <del>96.0</del> 10.17     |
| <b>DO (%)</b>                                                 | 96.0                      |
| <b>Turbidity (NTU)</b>                                        | TURBID.                   |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b> | TURBID!                   |

## Site Sketch

YSI TAKING TIME TO STABILIZE, ESPECIALLY ORP.



## Field Measurements Log

|                           |                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1716</u>                                                                                |
| <b>Sample Time</b>        | (hh:mm) <u>1710</u>                                                                                |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>      </u> |

Sample Site (Con't): E1

Sample Date (Con't): AUG 16 2016

Sample Time (Con't): 1710

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: FULL SAMPLE + DUP1 1                   |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input checked="" type="checkbox"/></del>   |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          | 10                                                |

**General Notes:**

DUP1 + FB1.

10 BOTTLES TOTAL IN DUP1.

3 FILTERS PER BOTTLE SET. (6 TOTAL)

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                       |                      |                                 |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------|----------------------|---------------------------------|
| <b>Sample Site:</b>           | E1(H)                                                                          | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                  | <b>Date:</b>         | AUG-20 2016                     |
| <b>UTM Coordinates</b>        | ZONE E 0512850 N 744423                                                        | <b>Client:</b>              | Yukon Government (AAM)                                                                | <b>Samplers:</b>     | GR + NB                         |
| <b>Waypoint</b>               | GPS <u>Cam</u> Name <u>7182-7187</u>                                           | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                        | <b>Weather/Temp:</b> | ~11°C<br>SPOTS OF RAIN<br>WIND. |
| <b>Photos</b>                 | Cam <u>Cam</u> Nos. <u>7182-7187</u>                                           | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>DUP 2</u> |                      |                                 |
| <b>Sample Time (24h)</b>      | 1010                                                                           |                             |                                                                                       |                      |                                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                       |                      |                                 |

| Field Parameter Measurements (note units if different than those stated) |                        | Site Sketch |
|--------------------------------------------------------------------------|------------------------|-------------|
| <b>Station Status</b>                                                    | GOOD. SLIGHTLY TURBID. |             |
| <b>Sample Depth (m)</b>                                                  | 0.1                    |             |
| <b>Temperature (°C)</b>                                                  | 12.1                   |             |
| <b>pH (pH Units)</b>                                                     | 7.89                   |             |
| <b>Cond. (µs/cm)</b>                                                     | 332.3                  |             |
| <b>Specific Cond. (µs/cm)</b>                                            | 441.0                  |             |
| <b>Redox (mV)</b>                                                        | 117.1                  |             |
| <b>DO (mg/L)</b>                                                         | 8.90                   |             |
| <b>DO (%)</b>                                                            | 83.1                   |             |
| <b>Turbidity (NTU)</b>                                                   | —                      |             |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>            | SLIGHTLY TURBID.       |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1011</u>                                                                        |
| <b>Sample Time</b>        | (hh:mm) <u>1010</u>                                                                        |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): E1(H)

Sample Date (Con't): AUG 20 2016

Sample Time (Con't): 1010

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 20 2016</u> <sup>DUP 2</sup>    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | 1                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          | 10                                                |

**General Notes:**

10 BOTTLES IN SAMPLE AND ~~A~~ <sup>10</sup> DUPLICATE SET

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                           |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------------------------------|
| <b>Sample Site:</b>           | E2                                                                             | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                           | <b>Date:</b>         | AUG 17 2016                               |
| <b>UTM Coordinates</b>        | ZONE E 0514168 N 7147077                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + N13                                  |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>✓</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~24°C<br>Mostly BLUE SKIES.<br>LIGHT WIND |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. 7103-7107                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                           |
| <b>Sample Time (24h)</b>      | 1420                                                                           |                             |                                                                                |                      |                                           |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                           |

| Field Parameter Measurements (note units if different than those stated) |                  | Site Sketch |
|--------------------------------------------------------------------------|------------------|-------------|
| Station Status                                                           | GOOD. HIGH WATER |             |
| Sample Depth (m)                                                         | 0-1              |             |
| Temperature (°C)                                                         | 12.0             |             |
| pH (pH Units)                                                            | 7.76             |             |
| Cond. (µs/cm)                                                            | 411.1            |             |
| Specific Cond. (µs/cm)                                                   | 547.3            |             |
| Redox (mV)                                                               | 73.7             |             |
| DO (mg/L)                                                                | 10.11            |             |
| DO (%)                                                                   | 93.8             |             |
| Turbidity (NTU)                                                          | —                |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | SLIGHTLY TURBID. |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1433                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1420                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): EZ

Sample Date (Con't): AUG 17 2016

Sample Time (Con't): 1420

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>FULL SET</u>                        |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           | 11          |                                                   |

**General Notes:**

NOTE TURBIDITY OF WOLVERINE CR AS IT ENTERS CLINTON CR.  
(SEE PHOTOS).  
ORP TAKING TIME TO STABILIZE. > 10 MINS



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                       |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------|
| <b>Sample Site:</b>           | E3                                                                             | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                           | <b>Date:</b>         | Aug 16 2016           |
| <b>UTM Coordinates</b>        | Z07W E 051474 N 7147189                                                        | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB.              |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>/</u>                                                    | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~15°C<br>PART CLOUDY. |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7059 - 7061</u>                                          | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                       |
| <b>Sample Time (24h)</b>      | 1610                                                                           |                             |                                                                                |                      |                       |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                       |

| Field Parameter Measurements (note units if different than those stated) |                        | Site Sketch |
|--------------------------------------------------------------------------|------------------------|-------------|
| Station Status                                                           | Good TURBID!           |             |
| Sample Depth (m)                                                         | 0.1                    |             |
| Temperature (°C)                                                         | 5.8                    |             |
| pH (pH Units)                                                            | <del>10.07</del> 11.96 |             |
| Cond. (µs/cm)                                                            | <del>216.8</del> 272.6 |             |
| Specific Cond. (µs/cm)                                                   | <del>472.5</del> 430.1 |             |
| Redox (mV)                                                               | -100.4                 |             |
| DO (mg/L)                                                                | <del>12.44</del> 12.20 |             |
| DO (%)                                                                   | 97.6                   |             |
| Turbidity (NTU)                                                          | -                      |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | TURBID!                |             |

| Field Measurements Log    |                                                                                 |
|---------------------------|---------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No             |
| <b>Time Logged on YSI</b> | (hh:mm) 1620.                                                                   |
| <b>Sample Time</b>        | (hh:mm) 1610.                                                                   |
| <b>Unit Used</b>          | <input type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): E3

Sample Date (Con't): AUG 16 2016

Sample Time (Con't): 1610.

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles  | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|--------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            | Date/Time: <u>FULL SET</u>                        |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1            |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <del><input checked="" type="checkbox"/></del>   | <del>1</del> | <del></del> * ASBESTOS ✓                          |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10           | ✓                                                 |

**General Notes:**

TURBID. METER TOOK A WHILE TO STABILIZE.  
USED 8 FILTERS. \* ASBESTOS SAMPLE COLLECTED ON  
AUG 17 @ 0810.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                                           |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-------------------------------------------|
| <b>Sample Site:</b>           | E4                                                                       | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                     | <b>Date:</b>         | AUG 18 2016                               |
| <b>UTM Coordinates</b>        | Z9W E 0515945 N 7145283                                                  | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GRT + NB                                  |
| <b>Waypoint</b>               | GPS GMYL Name /                                                          | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | N 21°C<br>SUNNY<br>PART CLOUDY<br>NO WIND |
| <b>Photos</b>                 | Cam GMYL Nos. 7124-7128                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                                           |
| <b>Sample Time (24h)</b>      | 1510                                                                     |                             |                                                                          |                      |                                           |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                                           |

| Field Parameter Measurements (note units if different than those stated) |                | Site Sketch |
|--------------------------------------------------------------------------|----------------|-------------|
| Station Status                                                           | GOOD (TURBID)  |             |
| Sample Depth (m)                                                         | 0.1            |             |
| Temperature (°C)                                                         | 12             |             |
| pH (pH Units)                                                            | 7.89           |             |
| Cond. (µs/cm)                                                            | 416.5          |             |
| Specific Cond. (µs/cm)                                                   | 554.1          |             |
| Redox (mV)                                                               | 125.5          |             |
| DO (mg/L)                                                                | 10.25          |             |
| DO (%)                                                                   | 95.3           |             |
| Turbidity (NTU)                                                          | —              |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | TURBID (BROWN) |             |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1515                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1510                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): EC

Sample Date (Con't): AUG 18 2016

Sample Time (Con't): 1510

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 20 2016 1425</u> *              |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | <u>AUG 18 2016</u>                                |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 9           |                                                   |

**General Notes:**

TURBID. DARK BROWN.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                 |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-----------------|
| <b>Sample Site:</b>           | E7                                                                       | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                     | <b>Date:</b>         | AUG 18 2016     |
| <b>UTM Coordinates</b>        | Z 01W E 0519358 N 7142050                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NB         |
| <b>Waypoint</b>               | GPS GRN Name /                                                           | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~15°C<br>SUNNY. |
| <b>Photos</b>                 | Cam GRN Nos. 7112-7115                                                   | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                 |
| <b>Sample Time (24h)</b>      | 1125                                                                     |                             |                                                                          |                      |                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                 |

| Field Parameter Measurements (note units if different than those stated) |                           | Site Sketch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD. WATER HIGH + TURBID | <p>WATER LEVELS VERY SIMILAR TO JULY SAMPLING.</p> <p>The sketch shows a vertical line representing a creek. An arrow points down to the line with the label 'CLINTON CREEK FLOW'. To the left of the line is the label 'RB'. To the right is 'LB'. A point on the line is marked with a circle and labeled 'SAMPLING POINT'. A double-headed vertical arrow indicates a distance of '~25m' from the sampling point to the bottom of the sketch. At the bottom, a horizontal arrow points right with the label '40 MILE'.</p> |
| Sample Depth (m)                                                         | 0.1                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Temperature (°C)                                                         | 8.0                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| pH (pH Units)                                                            | 7.98                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Cond. (µs/cm)                                                            | 353.7                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Specific Cond. (µs/cm)                                                   | 523.7                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Redox (mV)                                                               | 113.4                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| DO (mg/L)                                                                | 11.12                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| DO (%)                                                                   | 94.2                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Turbidity (NTU)                                                          |                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | V. TURBID. (BROWN)        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1142                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1125                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): E7

Sample Date (Con't): AUG 18 2016

Sample Time (Con't): 1125

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 20 2016 1445</u> *              |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | <u>AUG 18 2016</u>                                |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              | <del></del> | <del></del>                                       |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

WATER VERY TURBID. BROWN.

CRP TAKING A LONG TIME TO STABILIZE (>10 MINS)

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                                      |                             |                                                                                                      |                      |                                  |
|-------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------|----------------------|----------------------------------|
| <b>Sample Site:</b>           | E8                                                                                                   | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                                 | <b>Date:</b>         | AUG 18 2016                      |
| <b>UTM Coordinates</b>        | ZONE E 0519451 N 7142793                                                                             | <b>Client:</b>              | Yukon Government (AAM)                                                                               | <b>Samplers:</b>     | GR + NB                          |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>                    </u>                                                       | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                                       | <b>Weather/Temp:</b> | ~ 18°C<br>SUNNY.<br>LIGHT BREEZE |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7116 - 7118</u>                                                                | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>                    </u> |                      |                                  |
| <b>Sample Time (24h)</b>      | 1315                                                                                                 |                             |                                                                                                      |                      |                                  |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>                    </u> |                             |                                                                                                      |                      |                                  |

| Field Parameter Measurements (note units if different than those stated) |                       | Site Sketch |
|--------------------------------------------------------------------------|-----------------------|-------------|
| Station Status                                                           | GOOD                  |             |
| Sample Depth (m)                                                         | 0.1                   |             |
| Temperature (°C)                                                         | 9.3                   |             |
| pH (pH Units)                                                            | 8.36                  |             |
| Cond. (µs/cm)                                                            | 119.3                 |             |
| Specific Cond. (µs/cm)                                                   | 170.6                 |             |
| Redox (mV)                                                               | 220.0                 |             |
| DO (mg/L)                                                                | 11.12                 |             |
| DO (%)                                                                   | 96.6                  |             |
| Turbidity (NTU)                                                          | —                     |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | V. TURBID.<br>(BROWN) |             |

| Field Measurements Log    |                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                              |
| <b>Time Logged on YSI</b> | (hh:mm) 1324                                                                                                     |
| <b>Sample Time</b>        | (hh:mm) 1315                                                                                                     |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>                    </u> |

Sample Site (Con't): E8

Sample Date (Con't): AUG 18 2016

Sample Time (Con't): 1315 except Gen Chem

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: <u>AUG 20 2016 1450</u>                |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              | <u>AUG 18 2016</u>                                |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input checked="" type="checkbox"/></del>   | <del>1</del>   | <del></del>                                       |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | <u>10941</u>   |                                                   |

General Notes:

V. TURBID. 6 FILTERS USED



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                                   |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-----------------------------------|
| <b>Sample Site:</b>           | GLWCC-1                                                                  | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                     | <b>Date:</b>         | AUG 17 2016                       |
| <b>UTM Coordinates</b>        | ZONE 0513900 N 7148960                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NB                           |
| <b>Waypoint</b>               | GPS GRM Name                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~20°C<br>PART CLOUD<br>LIGHT WIND |
| <b>Photos</b>                 | Cam GRM2 Nos. 7098-7102                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                                   |
| <b>Sample Time (24h)</b>      | 1330                                                                     |                             |                                                                          |                      |                                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                                   |

| Field Parameter Measurements (note units if different than those stated) |                               | Site Sketch                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD                          | <p>The sketch shows an irregular shape representing a 'BOULDER FIELD'. Inside this field, there are several '7' characters and arrows pointing to specific locations. Below the boulder field, there is a label 'PROBES' with an arrow pointing to a point. Further down, there is a label 'SAMPLE POINT' with an arrow pointing to a point. At the bottom of the sketch, there is an oval shape labeled '"BEAVER" POND'.</p> |
| Sample Depth (m)                                                         | FROM VERTICAL FLOW FROM ROCKS |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Temperature (°C)                                                         | 7.7                           |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| pH (pH Units)                                                            | 7.84                          |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Cond. (µs/cm)                                                            | 848                           |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Specific Cond. (µs/cm)                                                   | 1263                          |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Redox (mV)                                                               | 129.0                         |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| DO (mg/L)                                                                | 7.93                          |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| DO (%)                                                                   | 66.8                          |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Turbidity (NTU)                                                          | —                             |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR                         |                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Field Measurements Log |                                                                                      |
|------------------------|--------------------------------------------------------------------------------------|
| YSI Logged?            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| Time Logged on YSI     | (hh:mm) 1239                                                                         |
| Sample Time            | (hh:mm) 1330                                                                         |
| Unit Used              | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): GWCC-1  
 Sample Date (Con't): AUG 17 2016  
 Sample Time (Con't): 1330

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>FULL SET</u>                        |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             | ↓                                                 |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

LOTS OF WATER GUSHING FROM THE ROCKS.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------------------|
| <b>Sample Site:</b>           | GLWCC-2                                                                        | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                           | <b>Date:</b>         | AUG 17 2016                       |
| <b>UTM Coordinates</b>        | ZONE 0513906 N 7146971                                                         | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                           |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>GR</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~19°C<br>LIGHT WIND<br>PART CLOUD |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. 7095-7097                                                   | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                   |
| <b>Sample Time (24h)</b>      | 1310                                                                           |                             |                                                                                |                      |                                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                   |

| Field Parameter Measurements (note units if different than those stated) |                                                               | Site Sketch                                                                                                                                                               |
|--------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD.                                                         | <p>Hand-drawn site sketch showing a river with a sample point and meter probes. Labels include 'FLOWING WATER', 'BOULDER FIELD.', 'SAMPLE POINT', and 'METER PROBES.'</p> |
| Sample Depth (m)                                                         | COLLECTED DIRECTLY FROM VERTICAL                              |                                                                                                                                                                           |
| Temperature (°C)                                                         | 6.7                                                           |                                                                                                                                                                           |
| pH (pH Units)                                                            | 8.24                                                          |                                                                                                                                                                           |
| Cond. (µs/cm)                                                            | 1215                                                          |                                                                                                                                                                           |
| Specific Cond. (µs/cm)                                                   | 1866                                                          |                                                                                                                                                                           |
| Redox (mV)                                                               | 105.5                                                         |                                                                                                                                                                           |
| DO (mg/L)                                                                | 7.81                                                          |                                                                                                                                                                           |
| DO (%)                                                                   | 64.3                                                          |                                                                                                                                                                           |
| Turbidity (NTU)                                                          |                                                               |                                                                                                                                                                           |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR.<br>ODOUR FROM AREA, NOT THE WATER. SLIGHT FRESH ODOUR. |                                                                                                                                                                           |

| Field Measurements Log |                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------|
| YSI Logged?            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| Time Logged on YSI     | (hh:mm) 1320                                                                               |
| Sample Time            | (hh:mm) 1310.                                                                              |
| Unit Used              | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): GWCK-2

Sample Date (Con't): AUG 17 2016

Sample Time (Con't): 1310

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |                | Date/Time: <u>Full SET</u>                        |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |                |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | ✓              | ✓                                                 |
| 1 L (plastic)    | <del>Asbestos</del>                                  | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |                |                                                   |
| 500 ml (plastic) | TSS                                                  | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 6              | ✓                                                 |
| Total:           |                                                      |                                                         |                                                           |                                                  | 10             |                                                   |

General Notes:

ORP took >10 min to stabilize

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                        |                             |                                                                                        |                      |                                  |
|-------------------------------|----------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------|----------------------|----------------------------------|
| <b>Sample Site:</b>           | GW CC-3                                                                                | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                   | <b>Date:</b>         | AUG 17 2016                      |
| <b>UTM Coordinates</b>        | Z <u>513884</u> N <u>7147038</u>                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                                 | <b>Samplers:</b>     | GR + MB                          |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>      </u>                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                         | <b>Weather/Temp:</b> | ~19°C<br>PART.<br>CLOUDY<br>WIND |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>7090-7094</u>                                                   | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                      |                                  |
| <b>Sample Time (24h)</b>      | 1250                                                                                   |                             |                                                                                        |                      |                                  |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                             |                                                                                        |                      |                                  |

| Field Parameter Measurements (note units if different than those stated) |                                                        | Site Sketch                                                                                                                                   |
|--------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD.                                                  | <p>STATION SIGN → [GW CC-3]</p> <p>BANK →</p> <p>OPENING IN BANK</p> <p>SAMPLE POINT</p> <p>WATER</p> <p>← FLOW</p> <p>PROBES PLACED HERE</p> |
| Sample Depth (m)                                                         | BOTTLES FILLED DIRECTLY FROM WATER FLOWING FROM ROCKS. |                                                                                                                                               |
| Temperature (°C)                                                         | 7.2                                                    |                                                                                                                                               |
| pH (pH Units)                                                            | 7.76                                                   |                                                                                                                                               |
| Cond. (µs/cm)                                                            | 1047                                                   |                                                                                                                                               |
| Specific Cond. (µs/cm)                                                   | 1591                                                   |                                                                                                                                               |
| Redox (mV)                                                               | <del>155.8</del> 162.9                                 |                                                                                                                                               |
| DO (mg/L)                                                                | 5.43                                                   |                                                                                                                                               |
| DO (%)                                                                   | 45.2                                                   |                                                                                                                                               |
| Turbidity (NTU)                                                          | —                                                      |                                                                                                                                               |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR                                                  |                                                                                                                                               |

| Field Measurements Log    |                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1259</u>                                                                                |
| <b>Sample Time</b>        | (hh:mm) <u>1250</u>                                                                                |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>      </u> |

Sample Site (Con't): GLWCC-3

Sample Date (Con't): AUG 17 2016

Sample Time (Con't): 1250

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | -Date/Time: FULL SET                              |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              | ↓                                                 |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |                | ↓                                                 |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10             |                                                   |

General Notes:

CRP > 10 mins to STABILIZE

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------------------|
| <b>Sample Site:</b>           | GWCC-4                                                                         | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                           | <b>Date:</b>         | AUG 17 2016                       |
| <b>UTM Coordinates</b>        | ZONE E 0513876 N 7147063                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GRZ + NB                          |
| <b>Waypoint</b>               | GPS <u>GRZ</u> Name <u>/</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 19 °C<br>NO RAIN<br>PART CLOUDY |
| <b>Photos</b>                 | Cam <u>GRZ</u> Nos. <u>7085-7089</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                   |
| <b>Sample Time (24h)</b>      | 1225.                                                                          |                             |                                                                                |                      |                                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                   |

| Field Parameter Measurements (note units if different than those stated) |           | Site Sketch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD.     | <p>The sketch shows a river with a horizontal line representing the water surface. Above the line, there are several rectangular shapes representing boulders. To the left of the boulders, there is a vertical line with a sign that says 'GWCC4'. An arrow points to the sign with the word 'SIGN'. Another arrow points to the boulders with the word 'BOULDERS.'. A wavy line above the boulders is labeled 'Willow.'. Below the river line, there is a circle with a dot in the center, labeled 'SAMPLE POINT'. An arrow points to the sample point with the text 'SOME FLOW HERE.'. At the bottom left, there is a large arrow pointing left with the word 'FLOW'.</p> |
| Sample Depth (m)                                                         | 0.02      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Temperature (°C)                                                         | 8.1       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| pH (pH Units)                                                            | 7.49 7.74 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Cond. (µs/cm)                                                            | 872       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Specific Cond. (µs/cm)                                                   | 1287      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Redox (mV)                                                               | 177.5     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DO (mg/L)                                                                | 4.77      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DO (%)                                                                   | 40.6      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Turbidity (NTU)                                                          | /         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR.    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1242.                                                                              |
| <b>Sample Time</b>        | (hh:mm) 1225                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): GLCC-4  
 Sample Date (Con't): AUG 17 2016  
 Sample Time (Con't): 1225

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>FULL SET.</u>                       |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
|                          |                                                   |                                                         |                                                           | Total:                                           | 10          |                                                   |

**General Notes:**

GRP TOOK A LONG TIME TO STABILIZE > 10 MINS.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                              |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|------------------------------|
| <b>Sample Site:</b>           | GWCC-5                                                                         | <b>Project Number:</b>      | 16-240.3 Clinton Creek Water Program                                           | <b>Date:</b>         | AUG 18 2016                  |
| <b>UTM Coordinates</b>        | Z07W E 0513984 N 7147128                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                      |
| <b>Waypoint</b>               | GPS <u>GNR</u> Name <u>✓</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~20°C<br>PART CLOUD.<br>WIND |
| <b>Photos</b>                 | Cam <u>GNR</u> Nos. <u>7137-7141</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                              |
| <b>Sample Time (24h)</b>      | 1650                                                                           |                             |                                                                                |                      |                              |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                              |

| Field Parameter Measurements (note units if different than those stated) |                      | Site Sketch                                                     |
|--------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------|
| Station Status                                                           | GOOD                 | <p>* FISH SEEN IN POND AND IN STREAM.<br/>PHOTOS: 7133-7136</p> |
| Sample Depth (m)                                                         | 0.05 (SHALLOW WATER) |                                                                 |
| Temperature (°C)                                                         | 9.3                  |                                                                 |
| pH (pH Units)                                                            | 7.64                 |                                                                 |
| Cond. (µs/cm)                                                            | 703                  |                                                                 |
| Specific Cond. (µs/cm)                                                   | 1004                 |                                                                 |
| Redox (mV)                                                               | 1540                 |                                                                 |
| DO (mg/L)                                                                | 6.63                 |                                                                 |
| DO (%)                                                                   | 58                   |                                                                 |
| Turbidity (NTU)                                                          | —                    |                                                                 |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR                |                                                                 |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) <del>16-57</del> 16-57                                                             |
| <b>Sample Time</b>        | (hh:mm) 1650                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): GWCC-5

Sample Date (Con't): AUG 18 2016

Sample Time (Con't): 1650

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 20 2016 1410</u>                |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 18 2016</u>                     |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input checked="" type="checkbox"/></del>   |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | <u>9+1</u>  |                                                   |

**General Notes:**

1 FILTER USED

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                                 |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|---------------------------------|
| <b>Sample Site:</b>           | R1                                                                       | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                     | <b>Date:</b>         | AUG 19 2016                     |
| <b>UTM Coordinates</b>        | ZONE E 0510604 N 7147490                                                 | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NB                         |
| <b>Waypoint</b>               | GPS GR Name                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~16°C<br>HIGH CLOUD<br>BLUSTERY |
| <b>Photos</b>                 | Cam GR Nos. 7161-7184                                                    | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                                 |
| <b>Sample Time (24h)</b>      | 1450                                                                     |                             |                                                                          |                      |                                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                                 |

| Field Parameter Measurements (note units if different than those stated) |                    | Site Sketch |
|--------------------------------------------------------------------------|--------------------|-------------|
| Station Status                                                           | GOOD BUT TURBID.   |             |
| Sample Depth (m)                                                         | 0.1                |             |
| Temperature (°C)                                                         | 6.8                |             |
| pH (pH Units)                                                            | 8.12               |             |
| Cond. (µs/cm)                                                            | 351.9              |             |
| Specific Cond. (µs/cm)                                                   | 539.5              |             |
| Redox (mV)                                                               | 67.5               |             |
| DO (mg/L)                                                                | 11.44              |             |
| DO (%)                                                                   | 93.7               |             |
| Turbidity (NTU)                                                          | —                  |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | TURBID.<br>(BROWN) |             |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1500.                                                                        |
| <b>Sample Time</b>        | (hh:mm) 1450                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): R1

Sample Date (Con't): AUG 19 2016

Sample Time (Con't): 1450

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: <u>AUG 19 2016</u>                     |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium –<br>Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 1 L (plastic)    | Asbestos                                             | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 500 ml (plastic) | TSS                                                  | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:           |                                                      |                                                         |                                                           |                                                  | 11             |                                                   |

**General Notes:**

WATER LEVEL A LITTLE LOWER THAN JULY EVENT.  
TURBID - 6 FILTERS USED.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                 |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|---------------------------------|
| <b>Sample Site:</b>           | R2                                                                             | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                           | <b>Date:</b>         | Aug 19 2016                     |
| <b>UTM Coordinates</b>        | 274 E 0512026 N 7148062                                                        | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                         |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>/</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 17°C<br>OVERCAST.<br>NO WIND. |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>7168-7171</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                 |
| <b>Sample Time (24h)</b>      | 1635                                                                           |                             |                                                                                |                      |                                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                 |

| Field Parameter Measurements (note units if different than those stated) |          | Site Sketch |
|--------------------------------------------------------------------------|----------|-------------|
| Station Status                                                           | GOOD     |             |
| Sample Depth (m)                                                         | 0.1      |             |
| Temperature (°C)                                                         | 6.9      |             |
| pH (pH Units)                                                            | 8.93     |             |
| Cond. (µs/cm)                                                            | 260.5    |             |
| Specific Cond. (µs/cm)                                                   | 398.5    |             |
| Redox (mV)                                                               | 132.9    |             |
| DO (mg/L)                                                                | 11.62    |             |
| DO (%)                                                                   | 95.6     |             |
| Turbidity (NTU)                                                          | —        |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | BRACKISH |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1641                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1635                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R2

Sample Date (Con't): AUG 19 2016

Sample Time (Con't): 13 1635

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 19 2016</u>                     |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

General Notes:

BRACKISH - 3 FILTERS

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                                          |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|------------------------------------------|
| <b>Sample Site:</b>           | R3                                                                       | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                     | <b>Date:</b>         | Aug 16 2016                              |
| <b>UTM Coordinates</b>        | Z074E 0913948 N 7148677                                                  | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NIS                                 |
| <b>Waypoint</b>               | GPS <u>Gm</u> Name /                                                     | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~15°C<br>cloudy<br>blue skies<br>wind: 0 |
| <b>Photos</b>                 | Cam <u>Gm</u> Nos. 7049 - 7052                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                                          |
| <b>Sample Time (24h)</b>      | 1410.                                                                    |                             |                                                                          |                      |                                          |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                                          |

| Field Parameter Measurements (note units if different than those stated) |                        | Site Sketch                                                                                                       |
|--------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Station Status</b>                                                    | Good BUT V. TURBID.    | <p>YSI reading took a while to stabilize.</p> <p>Flow ↓</p> <p>Sign → [R3]</p> <p>⊗ SAMPLE LOCATION.</p> <p>↓</p> |
| <b>Sample Depth (m)</b>                                                  | 0.1                    |                                                                                                                   |
| <b>Temperature (°C)</b>                                                  | 5.0                    |                                                                                                                   |
| <b>pH (pH Units)</b>                                                     | 9.78 11.67             |                                                                                                                   |
| <b>Cond. (µs/cm)</b>                                                     | 265.9 264              |                                                                                                                   |
| <b>Specific Cond. (µs/cm)</b>                                            | 427.0 425.7            |                                                                                                                   |
| <b>Redox (mV)</b>                                                        | -93.                   |                                                                                                                   |
| <b>DO (mg/L)</b>                                                         | 12.38                  |                                                                                                                   |
| <b>DO (%)</b>                                                            | 97.1                   |                                                                                                                   |
| <b>Turbidity (NTU)</b>                                                   | /                      |                                                                                                                   |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>            | V. TURBID.<br>NO ODOUR |                                                                                                                   |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 14-17                                                                        |
| <b>Sample Time</b>        | (hh:mm) 14-10                                                                        |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): R3

Sample Date (Con't): AUG 16 2016

Sample Time (Con't): 14:10

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: <u>FULL SAMPLE INC.</u> ASBESTOS       |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input type="checkbox"/> Nitric Acid                      | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Metals                                  | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Nitric Acid                      | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input type="checkbox"/> Field Filtered                 | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           | 11             |                                                   |

General Notes:

V. TURBID.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                            |                             |                                                                                            |                      |                 |
|-------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------|----------------------|-----------------|
| <b>Sample Site:</b>           | R4                                                                                         | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                       | <b>Date:</b>         | AUG 18 2016     |
| <b>UTM Coordinates</b>        | Z <sup>70W</sup> E 051885 N 7145352                                                        | <b>Client:</b>              | Yukon Government (AAM)                                                                     | <b>Samplers:</b>     | GR + NB         |
| <b>Waypoint</b>               | GPS <u>GWR</u> Name <u>          </u>                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                             | <b>Weather/Temp:</b> | ~ 19°C<br>SUNNY |
| <b>Photos</b>                 | Cam <u>GWR</u> Nos. 7119-7121                                                              | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>          </u> |                      |                 |
| <b>Sample Time (24h)</b>      | 1355                                                                                       |                             |                                                                                            |                      |                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>          </u> |                             |                                                                                            |                      |                 |

| Field Parameter Measurements (note units if different than those stated) |                        | Site Sketch |
|--------------------------------------------------------------------------|------------------------|-------------|
| Station Status                                                           | GOOD BUT TURBID.       |             |
| Sample Depth (m)                                                         | 0.1                    |             |
| Temperature (°C)                                                         | 4.4                    |             |
| pH (pH Units)                                                            | 8.16                   |             |
| Cond. (µs/cm)                                                            | 231.3                  |             |
| Specific Cond. (µs/cm)                                                   | 381.0                  |             |
| Redox (mV)                                                               | 142.9                  |             |
| DO (mg/L)                                                                | 12.76                  |             |
| DO (%)                                                                   | 98.6                   |             |
| Turbidity (NTU)                                                          | —                      |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | LIGHT BROWN<br>TURBID. |             |

| Field Measurements Log    |                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                    |
| <b>Time Logged on YSI</b> | (hh:mm) 1402                                                                                           |
| <b>Sample Time</b>        | (hh:mm) 1355                                                                                           |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>          </u> |

Sample Site (Con't):

R4

Sample Date (Con't):

AUG 18 2016

Sample Time (Con't):

1355

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: AUG 20 2016 1430 *                     |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | AUG 18 2016                                       |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
|                  |                                                   |                                                         |                                                           | Total:                                           | 9 + 1       |                                                   |

## General Notes:

TURBID. 12 FILTERS USED.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                   |                             |                                                                                   |                      |                                 |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|----------------------|---------------------------------|
| <b>Sample Site:</b>           | R6 *                                                                              | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                              | <b>Date:</b>         | Aug 18 2016                     |
| <b>UTM Coordinates</b>        | ZONE <u>OS18826</u> N <u>7141391</u>                                              | <b>Client:</b>              | Yukon Government (AAM)                                                            | <b>Samplers:</b>     | GR + NB                         |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>/</u>                                                       | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                    | <b>Weather/Temp:</b> | ~17°C<br>PART CLOUDY<br>NO WIND |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7144 - 7146</u>                                             | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>/</u> |                      |                                 |
| <b>Sample Time (24h)</b>      | <u>1810</u>                                                                       |                             |                                                                                   |                      |                                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>/</u> |                             |                                                                                   |                      |                                 |

| Field Parameter Measurements (note units if different than those stated) |                 | Site Sketch                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD            | <p>* SAMPLE COLLECTED FROM CC TOWN SITE DUE TO HIGH WATER. THE NORMAL R6 LOCATION WAS NOT EASILY ACCESSIBLE. SAME LOCATION AS JULY EVENT</p> <p>The sketch shows a rectangular area labeled 'BUILDINGS' with an arrow pointing to it. A dashed line labeled 'TRAIL' leads from the buildings down to a point marked with a circled 'X' labeled 'SAMPLE LOCATION'. To the right of the trail is a vertical line labeled '40 MILE RIVER' with an arrow pointing upwards labeled 'FLOW'.</p> |
| Sample Depth (m)                                                         | 0.1             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Temperature (°C)                                                         | 9.9             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| pH (pH Units)                                                            | 7.78            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Cond. (µs/cm)                                                            | 116.0           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Specific Cond. (µs/cm)                                                   | 163.0           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Redox (mV)                                                               | 142.8           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DO (mg/L)                                                                | 10.94           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DO (%)                                                                   | 96.4            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Turbidity (NTU)                                                          | —               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | TURBID. (Brown) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Field Measurements Log    |                                                                                               |
|---------------------------|-----------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                           |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1821</u>                                                                           |
| <b>Sample Time</b>        | (hh:mm) <u>1810</u>                                                                           |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>/</u> |

Sample Site (Con't): R6  
 Sample Date (Con't): AUG 18 2016  
 Sample Time (Con't): 1810

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <del>Aug 26</del> <u>AUG 26 2016</u>   |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | <u>AUG 18 2016</u>                                |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 9+1         |                                                   |

**General Notes:**

TURBID. (BROWN). SEE OVER FOR SAMPLE LOCATION.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                            |                             |                                                                                            |                      |                |
|-------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------|----------------------|----------------|
| <b>Sample Site:</b>           | <del>0513004</del> R7                                                                      | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                       | <b>Date:</b>         | AUG 27 2018    |
| <b>UTM Coordinates</b>        | ZONE E 0513003 N 7145649                                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                                     | <b>Samplers:</b>     | GR + NB.       |
| <b>Waypoint</b>               | GPS <u>GWR</u> Name <u>          </u>                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                             | <b>Weather/Temp:</b> | ~14°C<br>MISTY |
| <b>Photos</b>                 | Cam <u>GWR</u> Nos. 7072-7083                                                              | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>          </u> |                      |                |
| <b>Sample Time (24h)</b>      | 0940.                                                                                      |                             |                                                                                            |                      |                |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>          </u> |                             |                                                                                            |                      |                |

| Field Parameter Measurements (note units if different than those stated) |         | Site Sketch                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | OK *    | <p>THREE BEAVERS SEEN SWIMMING IN POND ON ARRIVAL. <del>ES</del> &gt; 10 WILCK USING MINERAL LICK (PECKING). CAMERA PRESENT (NOT CHECKED)</p> <p>FLOW ↓</p> <p>SAMPLE LOCATION</p> <p>NEW SIGN LOCATION. → [R7]</p> <p>DEBRIS TREES/</p> |
| Sample Depth (m)                                                         | 0.05    |                                                                                                                                                                                                                                          |
| Temperature (°C)                                                         | 3.1     |                                                                                                                                                                                                                                          |
| pH (pH Units)                                                            | 8.07    |                                                                                                                                                                                                                                          |
| Cond. (µs/cm)                                                            | 126.8   |                                                                                                                                                                                                                                          |
| Specific Cond. (µs/cm)                                                   | 217.7   |                                                                                                                                                                                                                                          |
| Redox (mV)                                                               | 28.8    |                                                                                                                                                                                                                                          |
| DO (mg/L)                                                                | 12.60   |                                                                                                                                                                                                                                          |
| DO (%)                                                                   | 94.0    |                                                                                                                                                                                                                                          |
| Turbidity (NTU)                                                          | —       |                                                                                                                                                                                                                                          |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | TURBID. | <p>* [R7] SIGN MOVED UPSTREAM TO SAME LOCATION AS JULY SAMPLING EVENT. LOTS OF BEAVER ACTIVITY.</p> <p>3 FILTERS USED.</p>                                                                                                               |

| Field Measurements Log    |                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                    |
| <b>Time Logged on YSI</b> | (hh:mm) 10-01                                                                                          |
| <b>Sample Time</b>        | (hh:mm) 09-40.                                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>          </u> |

Sample Site (Con't): 0940 R7

Sample Date (Con't): AUG 17 2016

Sample Time (Con't): 0940

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>FULL SET NO ASBESTOS</u><br>↓       |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

~~NA~~ TURBID. R7 SIGN MOVED UPSTREAM. ~ 40M.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                        |                             |                                                                                        |                      |                                     |
|-------------------------------|----------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------|----------------------|-------------------------------------|
| <b>Sample Site:</b>           | R8                                                                                     | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                   | <b>Date:</b>         | Aug 19 2016                         |
| <b>UTM Coordinates</b>        | Z17W E 0511894 N 7147906                                                               | <b>Client:</b>              | Yukon Government (AAM)                                                                 | <b>Samplers:</b>     | GR + NB                             |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>      </u>                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                         | <b>Weather/Temp:</b> | OVERCAST.<br>~17°C<br>SOME BLUE SKY |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>7172-7176</u>                                                   | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                      |                                     |
| <b>Sample Time (24h)</b>      | 1745                                                                                   |                             |                                                                                        |                      |                                     |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                             |                                                                                        |                      |                                     |

| Field Parameter Measurements (note units if different than those stated) |                      | Site Sketch |
|--------------------------------------------------------------------------|----------------------|-------------|
| Station Status                                                           | GOOD                 |             |
| Sample Depth (m)                                                         | 0.05 (SHALLOW WATER) |             |
| Temperature (°C)                                                         | 6.2                  |             |
| pH (pH Units)                                                            | 7.90                 |             |
| Cond. (µs/cm)                                                            | 151.8                |             |
| Specific Cond. (µs/cm)                                                   | 237.2                |             |
| Redox (mV)                                                               | 134.9                |             |
| DO (mg/L)                                                                | 11.86                |             |
| DO (%)                                                                   | 95.8                 |             |
| Turbidity (NTU)                                                          | ✓                    |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR                |             |

| Field Measurements Log    |                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1747</u>                                                                                |
| <b>Sample Time</b>        | (hh:mm) <u>1745</u>                                                                                |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>      </u> |

Sample Site (Con't): R8  
 Sample Date (Con't): AUG 19 2016  
 Sample Time (Con't): 1745

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 19 2016</u>                     |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

CLEAR WATER



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                                 |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------------------------------------|
| <b>Sample Site:</b>           | R9                                                                             | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                           | <b>Date:</b>         | AUG 20 2016                                     |
| <b>UTM Coordinates</b>        | Z 20 E 0512344 N 7146751                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                                         |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name _____                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 10°C<br>OVERCAST<br>SPOTS OF RAIN<br>NO WIND. |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. 7177-7181                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                                 |
| <b>Sample Time (24h)</b>      | 0850                                                                           |                             |                                                                                |                      |                                                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                                 |

| Field Parameter Measurements (note units if different than those stated) |                    | Site Sketch |
|--------------------------------------------------------------------------|--------------------|-------------|
| Station Status                                                           | GOOD.              |             |
| Sample Depth (m)                                                         | 0.05 SHALLOW WATER |             |
| Temperature (°C)                                                         | 3.5                |             |
| pH (pH Units)                                                            | 7.90               |             |
| Cond. (µs/cm)                                                            | 279.5              |             |
| Specific Cond. (µs/cm)                                                   | 474.0              |             |
| Redox (mV)                                                               | 22.4               |             |
| DO (mg/L)                                                                | 12.61              |             |
| DO (%)                                                                   | 95.2               |             |
| Turbidity (NTU)                                                          | /                  |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | SLIGHTLY TURBID.   |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 0848                                                                               |
| <b>Sample Time</b>        | (hh:mm) 0850                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R9

Sample Date (Con't): AUG 20 2016

Sample Time (Con't): 0850

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 20 2016</u>                     |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                        |                             |                                                                                        |                      |                                         |
|-------------------------------|----------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------|----------------------|-----------------------------------------|
| <b>Sample Site:</b>           | R11                                                                                    | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                                   | <b>Date:</b>         | AUG 16 2016                             |
| <b>UTM Coordinates</b>        | Z17W E 0514176 N 7147827                                                               | <b>Client:</b>              | Yukon Government (AAM)                                                                 | <b>Samplers:</b>     | GR + NB                                 |
| <b>Waypoint</b>               | GPS <u>GWR</u> Name <u>      </u>                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                         | <b>Weather/Temp:</b> | ~12°C.<br>OVERCAST<br>SOME BLUE<br>SKY. |
| <b>Photos</b>                 | Cam <u>GWR</u> Nos. <u>7046-7048</u>                                                   | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                      |                                         |
| <b>Sample Time (24h)</b>      | 1230                                                                                   |                             |                                                                                        |                      |                                         |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                             |                                                                                        |                      |                                         |

| Field Parameter Measurements (note units if different than those stated) |                         | Site Sketch                                                                                                                                                           |
|--------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD BUT TURBID         | <p>WATER IS HIGH BUT INDICATION THAT WATER HAS BEEN HIGHER BETWEEN <del>SEP</del><sup>JULY</sup> + AUG EVENTS. (EG. FLATTENED VEG &amp; COMMS WITH LOCAL PEOPLE.)</p> |
| Sample Depth (m)                                                         | 0.1                     |                                                                                                                                                                       |
| Temperature (°C)                                                         | 2.9                     |                                                                                                                                                                       |
| pH (pH Units)                                                            | 10.46                   |                                                                                                                                                                       |
| Cond. (µs/cm)                                                            | 170.9                   |                                                                                                                                                                       |
| Specific Cond. (µs/cm)                                                   | 295.5                   |                                                                                                                                                                       |
| Redox (mV)                                                               | -52.0                   |                                                                                                                                                                       |
| DO (mg/L)                                                                | 13.24                   |                                                                                                                                                                       |
| DO (%)                                                                   | 98.1                    |                                                                                                                                                                       |
| Turbidity (NTU)                                                          | —                       |                                                                                                                                                                       |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | V. TURBID.<br>NO ODOUR. |                                                                                                                                                                       |

| Field Measurements Log |                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------|
| YSI Logged?            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Time Logged on YSI     | (hh:mm) 1236                                                                                       |
| Sample Time            | (hh:mm) 1230                                                                                       |
| Unit Used              | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>      </u> |

Sample Site (Con't): R11

Sample Date (Con't): AUG 16 2018

Sample Time (Con't): 1230

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles  | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|--------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            | Date/Time: Full SET. NO ASBESTOS                  |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1            |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              | <del>1</del> |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            |                                                   |
|                          |                                                   |                                                         |                                                           | Total:                                           | 10           |                                                   |

**General Notes:**

WATER V. TURBID.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                            |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|----------------------------|
| <b>Sample Site:</b>           | SL                                                                       | <b>Project Number:</b>      | 16-240.4 Clinton Creek Water Program                                     | <b>Date:</b>         | AUG 20 2016                |
| <b>UTM Coordinates</b>        | Z 074 E 0513827 N 7146709                                                | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NB                    |
| <b>Waypoint</b>               | GPS GMR Name                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | N 13°C<br>OVERCAST<br>WIND |
| <b>Photos</b>                 | Cam GMR Nos. 7206 - 7214                                                 | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                            |
| <b>Sample Time (24h)</b>      | 1305                                                                     |                             |                                                                          |                      |                            |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                            |

| Field Parameter Measurements (note units if different than those stated) |                      | Site Sketch                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Station Status</b>                                                    | GOOD A LOT OF WATER. | <p>VERY HIGH WATER. TOP OF STAFF GAUGE COVERED BY ~ 20cm WATER. BENCHMARKS ALSO UNDER WATER (~10cm)</p> <p>SL Pond.</p> <p>WATERFALL FLOWING</p> <p>BEAVER DAM</p> <p>SG UNDER WATER.</p> <p>VEGETATION.</p> <p>BENCHMARKS UNDER WATER.</p> <p>OUTFLOW HERE</p> |
| <b>Sample Depth (m)</b>                                                  | 0.1                  |                                                                                                                                                                                                                                                                 |
| <b>Temperature (°C)</b>                                                  | 8.2                  |                                                                                                                                                                                                                                                                 |
| <b>pH (pH Units)</b>                                                     | 8.28                 |                                                                                                                                                                                                                                                                 |
| <b>Cond. (µs/cm)</b>                                                     | 777                  |                                                                                                                                                                                                                                                                 |
| <b>Specific Cond. (µs/cm)</b>                                            | 1143                 |                                                                                                                                                                                                                                                                 |
| <b>Redox (mV)</b>                                                        | 134.1                |                                                                                                                                                                                                                                                                 |
| <b>DO (mg/L)</b>                                                         | 11.0                 |                                                                                                                                                                                                                                                                 |
| <b>DO (%)</b>                                                            | 93.6                 |                                                                                                                                                                                                                                                                 |
| <b>Turbidity (NTU)</b>                                                   |                      |                                                                                                                                                                                                                                                                 |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>            | CLEAR.               |                                                                                                                                                                                                                                                                 |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1311                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1305                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

THERE WAS WATER FLOWING UNDER THE ACCESS TRAIL ENROUTE TO SL. SEE PHOTOS 7215 - 7220. WPT OF TRAIL !!

Sample Site (Con't): SL

Sample Date (Con't): AUG 20 2016

Sample Time (Con't): 1305

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>AUG 20 2016</u>                     |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

HIGH WATER. SEE OVER.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|--------------------------------|
| <b>Sample Site:</b>           | E1                                                                             | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 20                        |
| <b>UTM Coordinates</b>        | Z07W E 0513649 N 7147110                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                        |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>✓</u>                                                    | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~8°C<br>OVERCAST<br>NO PRECIP. |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7450-7454</u>                                            | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                |
| <b>Sample Time (24h)</b>      | 1750                                                                           |                             |                                                                                |                      |                                |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                |

| Field Parameter Measurements (note units if different than those stated) |                     | Site Sketch |
|--------------------------------------------------------------------------|---------------------|-------------|
| Station Status                                                           | <del>Bad</del> GOOD |             |
| Sample Depth (m)                                                         | 0.1                 |             |
| Temperature (°C)                                                         | 6.7                 |             |
| pH (pH Units)                                                            | 8.31                |             |
| Cond. (µs/cm)                                                            | 330.7               |             |
| Specific Cond. (µs/cm)                                                   | 508.1               |             |
| Redox (mV)                                                               | 98.6                |             |
| DO (mg/L)                                                                | 13.05               |             |
| DO (%)                                                                   | 106.5               |             |
| Turbidity (NTU)                                                          | ✓                   |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | V. SLIGHTLY TURBID  |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1750                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1750                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): E1

Sample Date (Con't): SEPT 20 2016

Sample Time (Con't): 1750

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 20 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

FORD HAS BEEN GRADED. LESS WATER THAN LAST MONTH.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                       |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-----------------------|
| <b>Sample Site:</b>           | E1(H)                                                                    | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                     | <b>Date:</b>         | SEP 24 2016           |
| <b>UTM Coordinates</b>        | ZONE 0512853 N 7147418                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NTB              |
| <b>Waypoint</b>               | GPS GR Name                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | -4°C<br>MOSTLY CLEAR. |
| <b>Photos</b>                 | Cam GR Nos. 7552-7557                                                    | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                       |
| <b>Sample Time (24h)</b>      | 0810                                                                     |                             |                                                                          |                      |                       |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                       |

| Field Parameter Measurements (note units if different than those stated) |        | Site Sketch |
|--------------------------------------------------------------------------|--------|-------------|
| Station Status                                                           | GOOD.  |             |
| Sample Depth (m)                                                         | 0.1    |             |
| Temperature (°C)                                                         | 5.8    |             |
| pH (pH Units)                                                            | 7.48   |             |
| Cond. (µs/cm)                                                            | 320.8  |             |
| Specific Cond. (µs/cm)                                                   | 506.4  |             |
| Redox (mV)                                                               | 166.2  |             |
| DO (mg/L)                                                                | 10.28  |             |
| DO (%)                                                                   | 82.2   |             |
| Turbidity (NTU)                                                          | /      |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR. |             |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 0813                                                                         |
| <b>Sample Time</b>        | (hh:mm) 0810                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): E1(H)

Sample Date (Con't): SEPT 24 2016

Sample Time (Con't): 0810

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 24 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

METER DISPLAY DOESN'T LIKE THE COLD, HARD TO READ.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                       |                      |                                  |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------|----------------------|----------------------------------|
| <b>Sample Site:</b>           | E2                                                                             | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                                  | <b>Date:</b>         | SEPT 20 2016                     |
| <b>UTM Coordinates</b>        | Z07W E 0514176 N 7147073                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                                | <b>Samplers:</b>     | GR + NB                          |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>✓</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                        | <b>Weather/Temp:</b> | ~ 11°C<br>OVERCAST<br>NO PRECIP. |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>446 - 449</u>                                           | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>DUP 1</u> |                      |                                  |
| <b>Sample Time (24h)</b>      | 1620                                                                           |                             |                                                                                       |                      |                                  |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                       |                      |                                  |

| Field Parameter Measurements (note units if different than those stated) |                     | Site Sketch |
|--------------------------------------------------------------------------|---------------------|-------------|
| Station Status                                                           | GOOD.               |             |
| Sample Depth (m)                                                         | 0.1                 |             |
| Temperature (°C)                                                         | 7.0                 |             |
| pH (pH Units)                                                            | 6.12                |             |
| Cond. (µs/cm)                                                            | 425.2               |             |
| Specific Cond. (µs/cm)                                                   | 647.3               |             |
| Redox (mV)                                                               | 48.9                |             |
| DO (mg/L)                                                                | 11.90               |             |
| DO (%)                                                                   | 98.5                |             |
| Turbidity (NTU)                                                          | —                   |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | V. SLIGHTLY TURBID. |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) <u>1634</u>                                                                        |
| <b>Sample Time</b>        | (hh:mm) <u>1620</u>                                                                        |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): E2  
 Sample Date (Con't): SEPT 20 2016  
 Sample Time (Con't): 1620

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |                                                                                 |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|---------------------------------------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: SEPT 20                                | SEPT 20 DUP 1                                                                   |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   | <div style="border: 1px solid black; padding: 2px;">No Dup</div> - For ASBESTOS |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |                                                                                 |
| Total:           |                                                   |                                                         |                                                           |                                                  | 11          |                                                   | 10 BOTTLES                                                                      |

**General Notes:**

NO DUPLICATE ASBESTOS COLLECTED.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                 |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|---------------------------------|
| <b>Sample Site:</b>           | E3                                                                             | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 20 2016                    |
| <b>UTM Coordinates</b>        | Z <sup>70</sup> E 0514174 N 7147194                                            | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                         |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>✓</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 11°C<br>OVERCAST<br>NO PRECIP |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>7443-7445</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                 |
| <b>Sample Time (24h)</b>      | 1555                                                                           |                             |                                                                                |                      |                                 |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                 |

| Field Parameter Measurements (note units if different than those stated) |                     | Site Sketch |
|--------------------------------------------------------------------------|---------------------|-------------|
| Station Status                                                           | GOOD.               |             |
| Sample Depth (m)                                                         | 0.1                 |             |
| Temperature (°C)                                                         | 3.0                 |             |
| pH (pH Units)                                                            | 8.25                |             |
| Cond. (µs/cm)                                                            | 327.4               |             |
| Specific Cond. (µs/cm)                                                   | 554.0               |             |
| Redox (mV)                                                               | 123.0               |             |
| DO (mg/L)                                                                | 14.19               |             |
| DO (%)                                                                   | 105.7               |             |
| Turbidity (NTU)                                                          | —                   |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | V. SLIGHTLY TURBID. |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1558                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1555                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): E3

Sample Date (Con't): SEPT 20 2016

Sample Time (Con't): 1555.

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 20 2016</u>                    |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 11          |                                                   |

**General Notes:**

SITE IS GOOD.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                                |                      |                              |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|------------------------------|
| <b>Sample Site:</b>           | E4                                                                       | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 22 2016                 |
| <b>UTM Coordinates</b>        | ZONW E 0515947 N 7145286                                                 | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                      |
| <b>Waypoint</b>               | GPS GR Name /                                                            | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 13°C<br>OVERCAST<br>BREEZY |
| <b>Photos</b>                 | Cam GR Nos. 7513-7517                                                    | <b>Duplicate Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name DUP 2 |                      |                              |
| <b>Sample Time (24h)</b>      | 1625                                                                     |                             |                                                                                |                      |                              |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                                |                      |                              |

| Field Parameter Measurements (note units if different than those stated) |                  | Site Sketch                                                                         |
|--------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|
| Station Status                                                           | GOOD             | <p>CLINTON CREEK<br/>FLOW</p> <p>⊗<br/>SAMPLE</p> <p>E4 SIGN</p> <p>EAGLE CREEK</p> |
| Sample Depth (m)                                                         | 0.1              |                                                                                     |
| Temperature (°C)                                                         | 6.9              |                                                                                     |
| pH (pH Units)                                                            | 7.90             |                                                                                     |
| Cond. (µs/cm)                                                            | 422.8            |                                                                                     |
| Specific Cond. (µs/cm)                                                   | 846.7            |                                                                                     |
| Redox (mV)                                                               | 108.5            |                                                                                     |
| DO (mg/L)                                                                | 12.50            |                                                                                     |
| DO (%)                                                                   | 103.8            |                                                                                     |
| Turbidity (NTU)                                                          | /                |                                                                                     |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | SLIGHTLY TURBID. |                                                                                     |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1627                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1625                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): E4

Sample Date (Con't): SEPT 22 2016

Sample Time (Con't): 1525

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: SEPT 24 1140 + DUP.                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | SEPT 22 2016                                      |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | ✓                                                 |
| <del>1-L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | 10g BOTTLES                                       |
| Total:                   |                                                   |                                                         |                                                           |                                                  |             | +10 BOTTLES IN DUPLICATE                          |

} SPLIT SAMPLE

**General Notes:**

SPLIT SAMPLE SET.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-----------------------------------|
| <b>Sample Site:</b>           | E7                                                                             | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 22 2016                      |
| <b>UTM Coordinates</b>        | Z974E 0519389 N 7142041                                                        | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                           |
| <b>Waypoint</b>               | GPS <u>GMM</u> Name <u>/</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 13°C<br>PARTLY CLOUDY<br>BREEZE |
| <b>Photos</b>                 | Cam <u>GMM</u> Nos. 7496-7499                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                                   |
| <b>Sample Time (24h)</b>      | 1230                                                                           |                             |                                                                                |                      |                                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                                   |

## Field Parameter Measurements (note units if different than those stated)

|                                                               |                     |
|---------------------------------------------------------------|---------------------|
| <b>Station Status</b>                                         | GOOD.               |
| <b>Sample Depth (m)</b>                                       | 0.1                 |
| <b>Temperature (°C)</b>                                       | 5.1                 |
| <b>pH (pH Units)</b>                                          | 7.99                |
| <b>Cond. (µs/cm)</b>                                          | 389.8               |
| <b>Specific Cond. (µs/cm)</b>                                 | 628.4               |
| <b>Redox (mV)</b>                                             | 108.4               |
| <b>DO (mg/L)</b>                                              | 13.22               |
| <b>DO (%)</b>                                                 | 104.3               |
| <b>Turbidity (NTU)</b>                                        | —                   |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b> | V. SLIGHTLY TURBID. |

## Site Sketch

E7 SIGN NOT LOCATED

SAMPLE LOCATION  
~ 30 m FROM CONFLUENCE

40 MILE RIVER



## Field Measurements Log

|                           |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1258                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1230                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

WITH LONG CABLE.

Sample Site (Con't): E7

Sample Date (Con't): SEPT 22 2016

Sample Time (Con't): 1230

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: SEPT 24 1210                           |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input type="checkbox"/> Nitric Acid                      | <input checked="" type="checkbox"/>              | 1           | SEPT 22 @ 1230                                    |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Nitric Acid                      | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Hydrochloric Acid                | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> Sulfuric Acid                    | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input type="checkbox"/> NaOH                             | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del></del>                                               | <del><input checked="" type="checkbox"/></del>   |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | 4 BOTTLES                                         |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

E7 SIGN NOT LOCATED. WATER MUCH LOWER THAN DURING AUGUST EVENT.

SPLIT SAMPLE SET.

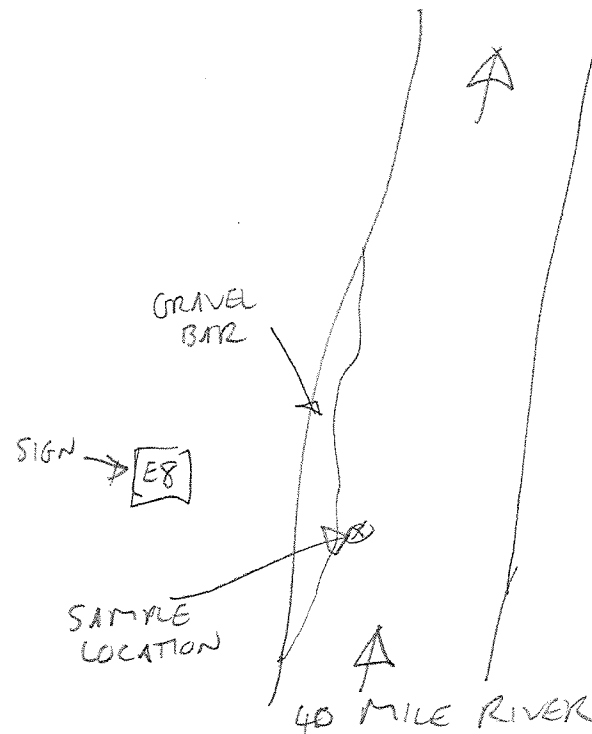
# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                            |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|----------------------------|
| <b>Sample Site:</b>           | <u>AE8</u>                                                                     | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 22 2016               |
| <b>UTM Coordinates</b>        | <u>ZONE 0519456N 7142795</u>                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB.                   |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>✓</u>                                                    | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 15°C<br>CLOUDY<br>BREEZY |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7503-7507</u>                                            | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                            |
| <b>Sample Time (24h)</b>      | <u>1450</u>                                                                    |                             |                                                                                |                      |                            |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                            |

## Field Parameter Measurements (note units if different than those stated)

|                                                    |                        |
|----------------------------------------------------|------------------------|
| Station Status                                     | GOOD                   |
| Sample Depth (m)                                   | 0.1                    |
| Temperature (°C)                                   | 4.9                    |
| pH (pH Units)                                      | 8.04                   |
| Cond. (µs/cm)                                      | 140.6                  |
| Specific Cond. (µs/cm)                             | 228.1                  |
| Redox (mV)                                         | <del>128.6</del> 95.7  |
| DO (mg/L)                                          | <del>108.3</del> 13.84 |
| DO (%)                                             | 108.3                  |
| Turbidity (NTU)                                    | —                      |
| Appearance & Odour (Clear, Silty, HC odours, etc.) | CLEAR                  |

## Site Sketch



## Field Measurements Log

|                           |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) <u>14-54</u>                                                                       |
| <b>Sample Time</b>        | (hh:mm) <u>1450</u>                                                                        |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): E8

Sample Date (Con't): SEPT 22 2016

Sample Time (Con't): 1450

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: SEPT 24 1205                           |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | SEPT 22 2016 @ 1450                               |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
|                          |                                                   |                                                         |                                                           | Total:                                           | 10          | 10 BOTTLES                                        |

**General Notes:**

WATER LOWER THAN AUGUST EVENT.

SPLIT SAMPLE SET.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                        |                             |                                                                                        |                      |                    |
|-------------------------------|----------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------|----------------------|--------------------|
| <b>Sample Site:</b>           | GWCC-1                                                                                 | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                                   | <b>Date:</b>         | SEPT 21 2016       |
| <b>UTM Coordinates</b>        | ZONE 0513901 N 7146955                                                                 | <b>Client:</b>              | Yukon Government (AAM)                                                                 | <b>Samplers:</b>     | GR + NB            |
| <b>Waypoint</b>               | GPS <u>SMR</u> Name <u>      </u>                                                      | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                         | <b>Weather/Temp:</b> | ~12°C<br>OVERCAST. |
| <b>Photos</b>                 | Cam <u>SMR</u> Nos. <u>7474-7476</u>                                                   | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                      |                    |
| <b>Sample Time (24h)</b>      | 1240. 7477-7479                                                                        |                             |                                                                                        |                      |                    |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>      </u> |                             |                                                                                        |                      |                    |

| Field Parameter Measurements (note units if different than those stated) |                                                                                         | Site Sketch                                                   |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Station Status                                                           | GOOD                                                                                    | <p>THERE ARE TWO ROW POINTS AT GWCC-1.</p> <p>BEAVER POND</p> |
| Sample Depth (m)                                                         | FROM VERTICAL FLOW                                                                      |                                                               |
| Temperature (°C)                                                         | 3.6 (YSI) 3.7 (PEN)                                                                     |                                                               |
| pH (pH Units)                                                            | 6.59 (YSI) 7.0 (PEN)                                                                    |                                                               |
| Cond. (µs/cm)                                                            | 1339                                                                                    |                                                               |
| Specific Cond. (µs/cm)                                                   | 2264 (YSI) 2.48ms (PEN)                                                                 |                                                               |
| Redox (mV)                                                               | -173.6 (?)                                                                              |                                                               |
| DO (mg/L)                                                                | 4.35                                                                                    |                                                               |
| DO (%)                                                                   | 33.2                                                                                    |                                                               |
| Turbidity (NTU)                                                          | —                                                                                       |                                                               |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR.                                                                                  |                                                               |
| <b>Field Measurements Log</b>                                            |                                                                                         |                                                               |
| YSI Logged?                                                              | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                     |                                                               |
| Time Logged on YSI                                                       | (hh:mm) 1244                                                                            |                                                               |
| Sample Time                                                              | (hh:mm) 1240                                                                            |                                                               |
| Unit Used                                                                | <input type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>      </u> |                                                               |

E9 CHECKED. DRY. 0513893 7146931  
PHOTOS. 7474 - 7476

Sample Site (Con't): GWCC-1  
 Sample Date (Con't): SEPT 21 2016  
 Sample Time (Con't): 1240

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 21 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input checked="" type="checkbox"/></del>   |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

YSI + PEN USED.

TWO EXIT POINTS AT GWCC-1 ABOUT  
2.5 - 3.0 m APART.

SAMPLE COLLECTED FROM FLOW FARTHEST  
FROM SIGN.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                     |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|---------------------|
| <b>Sample Site:</b>           | GLCC-2                                                                   | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                     | <b>Date:</b>         | SEPT 21 2016        |
| <b>UTM Coordinates</b>        | ZONE 0513902 N 7146969                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + N13            |
| <b>Waypoint</b>               | GPS GR Name /                                                            | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~ 12°C<br>OVERCAST. |
| <b>Photos</b>                 | Cam GR Nos. 7470-7477                                                    | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                     |
| <b>Sample Time (24h)</b>      | 1225                                                                     |                             |                                                                          |                      |                     |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                     |

| Field Parameter Measurements (note units if different than those stated) |                         | Site Sketch |
|--------------------------------------------------------------------------|-------------------------|-------------|
| Station Status                                                           | Good                    |             |
| Sample Depth (m)                                                         | 0.05 From VERTICAL FLOW |             |
| Temperature (°C)                                                         | 5.1 (YSI) 5.2 (PEN)     |             |
| pH (pH Units)                                                            | 16.54 (YSI) 7.6 (PEN)   |             |
| Cond. (µs/cm)                                                            | 1142                    |             |
| Specific Cond. (µs/cm)                                                   | 1846 2.00 ms (PEN)      |             |
| Redox (mV)                                                               | -181.6                  |             |
| DO (mg/L)                                                                | 9.18                    |             |
| DO (%)                                                                   | 72.3                    |             |
| Turbidity (NTU)                                                          | —                       |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR                   |             |

| Field Measurements Log |                                                                           |
|------------------------|---------------------------------------------------------------------------|
| YSI Logged?            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No       |
| Time Logged on YSI     | (hh:mm) 1227                                                              |
| Sample Time            | (hh:mm) 1225                                                              |
| Unit Used              | <input type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): GLCC-2

Sample Date (Con't): SEPT 21 2016

Sample Time (Con't): 1225

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: SEPT 21 2016                           |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

General Notes:

YSI & PEN USED.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                    |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|--------------------|
| <b>Sample Site:</b>           | GWCC-3                                                                   | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                     | <b>Date:</b>         | SEPT 21 2016       |
| <b>UTM Coordinates</b>        | Z07W E0513883 N 7147037                                                  | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + MB            |
| <b>Waypoint</b>               | GPS GMR Name                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~13°C<br>OVERCAST. |
| <b>Photos</b>                 | Cam GMR Nos. 7466-7469                                                   | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                    |
| <b>Sample Time (24h)</b>      | 1205                                                                     |                             |                                                                          |                      |                    |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                    |

| Field Parameter Measurements (note units if different than those stated) |                       | Site Sketch |
|--------------------------------------------------------------------------|-----------------------|-------------|
| Station Status                                                           | GOOD.                 |             |
| Sample Depth (m)                                                         | 0.05                  |             |
| Temperature (°C)                                                         | 7.7 (YSI) 7.9 (PEN)   |             |
| pH (pH Units)                                                            | 16.45 (YSI) 7.3 (PEN) |             |
| Cond. (µs/cm)                                                            | 749                   |             |
| Specific Cond. (µs/cm)                                                   | 1117 1194 (PEN)       |             |
| Redox (mV)                                                               | -198.4(?)             |             |
| DO (mg/L)                                                                | 5.20                  |             |
| DO (%)                                                                   | 44.8.                 |             |
| Turbidity (NTU)                                                          | /                     |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR.                |             |

| Field Measurements Log    |                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                             |
| <b>Time Logged on YSI</b> | (hh:mm) 1207                                                                                    |
| <b>Sample Time</b>        | (hh:mm) 1205                                                                                    |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other |

Sample Site (Con't): GLCC-3

Sample Date (Con't): SEPT 21 2016

Sample Time (Con't): 1205

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 21 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

General Notes:

YSI & PEN USED.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------|
| <b>Sample Site:</b>           | GLCC-4                                                                         | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 21 2016      |
| <b>UTM Coordinates</b>        | Z07E0513873 N 7147048                                                          | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB           |
| <b>Waypoint</b>               | GPS <u>GLCC</u> Name <u>✓</u>                                                  | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~13°C<br>OVERCAST |
| <b>Photos</b>                 | Cam <u>GLCC</u> Nos. <u>7461-7465</u>                                          | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                   |
| <b>Sample Time (24h)</b>      | 11:50                                                                          |                             |                                                                                |                      |                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                   |

| Field Parameter Measurements (note units if different than those stated) |                                                         | Site Sketch |
|--------------------------------------------------------------------------|---------------------------------------------------------|-------------|
| <b>Station Status</b>                                                    | GOOD <del>POOR</del> OBVIOUS FLOW <sup>from</sup> ROCKS |             |
| <b>Sample Depth (m)</b>                                                  | 0.05                                                    |             |
| <b>Temperature (°C)</b>                                                  | 9.1 9.2 (PEN)                                           |             |
| <b>pH (pH Units)</b>                                                     | 16.41 (YSI) 7.88 (PEN)                                  |             |
| <b>Cond. (µs/cm)</b>                                                     | 556                                                     |             |
| <b>Specific Cond. (µs/cm)</b>                                            | 775 833 (PEN)                                           |             |
| <b>Redox (mV)</b>                                                        | -216.2 (?)                                              |             |
| <b>DO (mg/L)</b>                                                         | 3.82                                                    |             |
| <b>DO (%)</b>                                                            | 32.9                                                    |             |
| <b>Turbidity (NTU)</b>                                                   | ✓                                                       |             |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>            | CLEAR.                                                  |             |

| Field Measurements Log    |                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |
| <b>Time Logged on YSI</b> | (hh:mm) 11-50                                                                                         |
| <b>Sample Time</b>        | (hh:mm) 11-50                                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): GWCC-4

Sample Date (Con't): SEPT 21 2016

Sample Time (Con't): 1150

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 21 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | ✓                                                 |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input checked="" type="checkbox"/></del>   |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | ✓                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

YSI AND PEN USED.

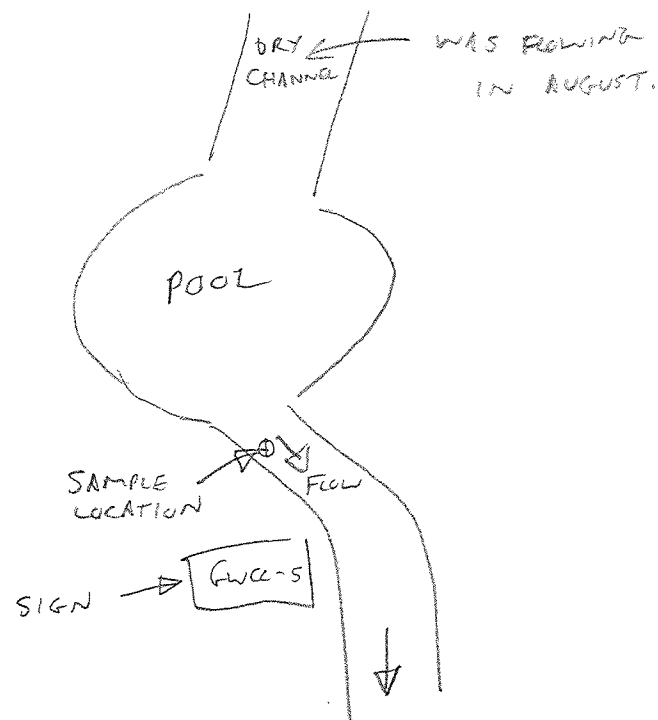
# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                    |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|--------------------|
| <b>Sample Site:</b>           | GWCC-5                                                                         | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 21 2016       |
| <b>UTM Coordinates</b>        | 207E 0513983 N 7147130                                                         | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB            |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>/</u>                                                    | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~13°C<br>OVERCAST. |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7491-7493</u>                                            | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                    |
| <b>Sample Time (24h)</b>      | 1525                                                                           |                             |                                                                                |                      |                    |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                    |

## Field Parameter Measurements (note units if different than those stated)

|                                                               |                                              |
|---------------------------------------------------------------|----------------------------------------------|
| <b>Station Status</b>                                         | <del>0-05</del> Good (SHALLOW WATER - <10cm) |
| <b>Sample Depth (m)</b>                                       | 0.05                                         |
| <b>Temperature (°C)</b>                                       | 6.6 (YSI) 6.7 (PEN)                          |
| <b>pH (pH Units)</b>                                          | 16.49 (YSI) 7.3 (PEN)                        |
| <b>Cond. (µs/cm)</b>                                          | 532 (YSI)                                    |
| <b>Specific Cond. (µs/cm)</b>                                 | 822 (YSI) 889 (PEN)                          |
| <b>Redox (mV)</b>                                             | -436.2                                       |
| <b>DO (mg/L)</b>                                              | 2.51                                         |
| <b>DO (%)</b>                                                 | 20.5                                         |
| <b>Turbidity (NTU)</b>                                        | —                                            |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b> | CLEAR BUT GREEN ALGAE PRESENT.               |

## Site Sketch



## Field Measurements Log

|                           |                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |
| <b>Time Logged on YSI</b> | (hh:mm) 1530                                                                                          |
| <b>Sample Time</b>        | (hh:mm) 1525                                                                                          |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): GWCC-5

Sample Date (Con't): SEPT 21 2016

Sample Time (Con't): 1525

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: <u>SEPT 21 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |                |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10             |                                                   |

**General Notes:**

Lower water than in August 2016

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |              |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|--------------|
| <b>Sample Site:</b>           | R1                                                                             | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 23 2016 |
| <b>UTM Coordinates</b>        | Z <sup>07W</sup> E 0310597 N 7147502                                           | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR2 + N13    |
| <b>Waypoint</b>               | GPS GR2 Name _____                                                             | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | CLEAR SKY    |
| <b>Photos</b>                 | Cam GR2 Nos. 7532-7537                                                         | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |              |
| <b>Sample Time (24h)</b>      | 1335                                                                           |                             |                                                                                |                      |              |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |              |

| Field Parameter Measurements (note units if different than those stated) |           | Site Sketch                                   |
|--------------------------------------------------------------------------|-----------|-----------------------------------------------|
| Station Status                                                           | GOOD      | <p>WATER MUCH LOWER THAN DURING AVG EVENT</p> |
| Sample Depth (m)                                                         | 0.05      |                                               |
| Temperature (°C)                                                         | 1.1       |                                               |
| pH (pH Units)                                                            | 8.14      |                                               |
| Cond. (µs/cm)                                                            | 348.3     |                                               |
| Specific Cond. (µs/cm)                                                   | 640.0     |                                               |
| Redox (mV)                                                               | 21.8 71.8 |                                               |
| DO (mg/L)                                                                | 14.47     |                                               |
| DO (%)                                                                   | 102.4     |                                               |
| Turbidity (NTU)                                                          | —         |                                               |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR     |                                               |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1334                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1335                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R1

Sample Date (Con't): SEPT 23 2016

Sample Time (Con't): 1335

| Bottle Type      | Parameters Analyzed                                  | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                    | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: <u>SEPT 23 2016</u>                    |
| 125 ml (plastic) | Total Metals                                         | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Metals                                     | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Total Mercury                                        |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon<br>(DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Total Speciated Chromium –<br>Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium<br>– Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 1 L (plastic)    | Asbestos                                             | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 500 ml (plastic) | TSS                                                  | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:           |                                                      |                                                         |                                                           |                                                  | 11             |                                                   |

General Notes:

Full SET



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                            |                             |                                                                            |                      |                                  |
|-------------------------------|----------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------|----------------------|----------------------------------|
| <b>Sample Site:</b>           | R2                                                                         | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                       | <b>Date:</b>         | SEPT 23 2016                     |
| <b>UTM Coordinates</b>        | Z97W E 0512028 N 7148065                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                     | <b>Samplers:</b>     | GR + NB                          |
| <b>Waypoint</b>               | GPS GR Name /                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                             | <b>Weather/Temp:</b> | ~13°C ~13°C<br>SLIGHTLY OVERCAST |
| <b>Photos</b>                 | Cam GR Nos. 7539 - 7542                                                    | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name / |                      |                                  |
| <b>Sample Time (24h)</b>      | 1520                                                                       |                             |                                                                            |                      |                                  |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name / |                             |                                                                            |                      |                                  |

| Field Parameter Measurements (note units if different than those stated) |       | Site Sketch |
|--------------------------------------------------------------------------|-------|-------------|
| Station Status                                                           | GOOD. |             |
| Sample Depth (m)                                                         | 0.05  |             |
| Temperature (°C)                                                         | 3.2   |             |
| pH (pH Units)                                                            | 8.27  |             |
| Cond. (µs/cm)                                                            | 328.7 |             |
| Specific Cond. (µs/cm)                                                   | 563.7 |             |
| Redox (mV)                                                               | 106.2 |             |
| DO (mg/L)                                                                | 1400  |             |
| DO (%)                                                                   | 104.8 |             |
| Turbidity (NTU)                                                          | /     |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR |             |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1524                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1520                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): R2  
 Sample Date (Con't): SEPT 23 2016  
 Sample Time (Con't): 1520

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 23 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <del><input checked="" type="checkbox"/></del>   |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

WATER LOWER THAN DURING AUGUST EVENT.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                          |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|--------------------------|
| <b>Sample Site:</b>           | R3                                                                             | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 20 2016             |
| <b>UTM Coordinates</b>        | Z074 E0513950 N7148673                                                         | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB                  |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>/</u>                                                    | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~ 14°C<br>PARTLY CLOUDY. |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. <u>7439-7442</u>                                            | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                          |
| <b>Sample Time (24h)</b>      | 1410                                                                           |                             |                                                                                |                      |                          |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                          |

| Field Parameter Measurements (note units if different than those stated) |                     | Site Sketch |
|--------------------------------------------------------------------------|---------------------|-------------|
| Station Status                                                           | GOOD                |             |
| Sample Depth (m)                                                         | 0.1                 |             |
| Temperature (°C)                                                         | 1.3                 |             |
| pH (pH Units)                                                            | 8.12                |             |
| Cond. (µs/cm)                                                            | 342.6               |             |
| Specific Cond. (µs/cm)                                                   | 629.4               |             |
| Redox (mV)                                                               | 82.0                |             |
| DO (mg/L)                                                                | 14.92               |             |
| DO (%)                                                                   | 106.0               |             |
| Turbidity (NTU)                                                          | —                   |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | V. SLIGHTLY TURBID. |             |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1413                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1410                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R3.

Sample Date (Con't): SEPT 20 2016

Sample Time (Con't): 1410

| Bottle Type      | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No.<br>Bottles | Comments<br>(note number of bottles in duplicate) |
|------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|----------------|---------------------------------------------------|
| 500 ml (plastic) | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              | Date/Time: <u>SEPT 20 2016</u>                    |
| 125 ml (plastic) | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 40 ml (glass)    | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (amber)   | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 125 ml (plastic) | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 1 L (plastic)    | Asbestos                                          | Wrapped tightly in foil                                 | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| 500 ml (plastic) | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1              |                                                   |
| Total:           |                                                   |                                                         |                                                           |                                                  | 11             |                                                   |

**General Notes:**

SHALLOW WATER. SEE HYDROLOGY SHEET.

MUSKRAT SEEN IN LWC NEAR R3. 0/5 ~ 100m

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                  |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|------------------|
| <b>Sample Site:</b>           | R4                                                                       | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                     | <b>Date:</b>         | SEPT 22 2016     |
| <b>UTM Coordinates</b>        | 2074 E 0515980 N 7145353                                                 | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NB          |
| <b>Waypoint</b>               | GPSR Name /                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~13°C<br>CLOUDY. |
| <b>Photos</b>                 | Cam GR Nos. 7508-7512                                                    | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                  |
| <b>Sample Time (24h)</b>      | 1525                                                                     |                             |                                                                          |                      |                  |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                  |

| Field Parameter Measurements (note units if different than those stated) |                  | Site Sketch |
|--------------------------------------------------------------------------|------------------|-------------|
| Station Status                                                           | GOOD.            |             |
| Sample Depth (m)                                                         | 0.1              |             |
| Temperature (°C)                                                         | 3.5              |             |
| pH (pH Units)                                                            | 8.23             |             |
| Cond. (µs/cm)                                                            | 274 + 284.6      |             |
| Specific Cond. (µs/cm)                                                   | 469 482.9        |             |
| Redox (mV)                                                               | 83.9             |             |
| DO (mg/L)                                                                | 14.01            |             |
| DO (%)                                                                   | 105.6            |             |
| Turbidity (NTU)                                                          | /                |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | SLIGHTLY TURBID. |             |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1531                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1525                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): R4

Sample Date (Con't): SEPT 22 2016

Sample Time (Con't): 1525

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input type="checkbox"/>                         |             | Date/Time: SEPT 24 1145                           |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | SEPT 22 2016 1525                                 |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and CR(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and CR(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
|                          |                                                   |                                                         |                                                           | Total:                                           | 1           | 100% BOTTLES                                      |

General Notes:

WATER LOWER THAN DURING AUG EVENT.

SPLIT SAMPLE SET.

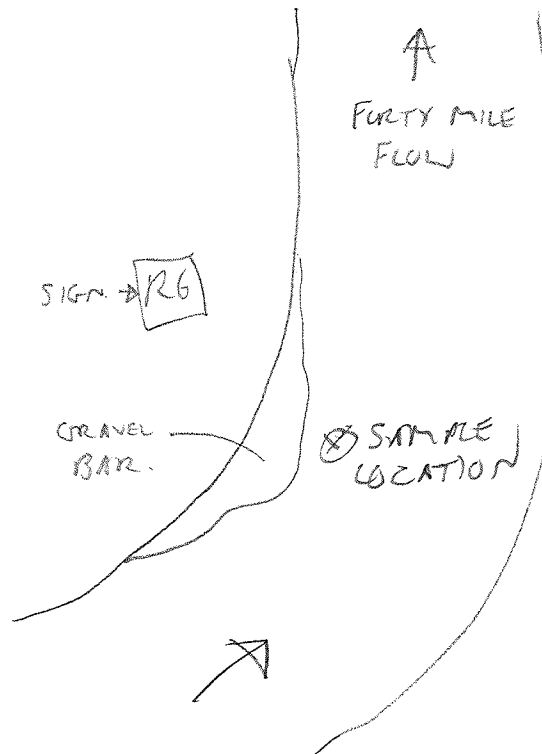
# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                             |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-----------------------------|
| <b>Sample Site:</b>           | R6                                                                       | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                     | <b>Date:</b>         | SEPT 22 2016                |
| <b>UTM Coordinates</b>        | 201W E 0519469 N 7141757                                                 | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR2 + N13                   |
| <b>Waypoint</b>               | GPS GR Name /                                                            | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~ 13°C<br>CLOUDY<br>BREEZY. |
| <b>Photos</b>                 | Cam GR Nos. 7500 - 7502                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                             |
| <b>Sample Time (24h)</b>      | 1415                                                                     |                             |                                                                          |                      |                             |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                             |

## Field Parameter Measurements (note units if different than those stated)

|                                                               |                    |
|---------------------------------------------------------------|--------------------|
| <b>Station Status</b>                                         | GOOD.              |
| <b>Sample Depth (m)</b>                                       | 0.1                |
| <b>Temperature (°C)</b>                                       | 8.1                |
| <b>pH (pH Units)</b>                                          | 7.50               |
| <b>Cond. (µs/cm)</b>                                          | 178.5              |
| <b>Specific Cond. (µs/cm)</b>                                 | 263.5              |
| <b>Redox (mV)</b>                                             | 126.3              |
| <b>DO (mg/L)</b>                                              | 12.90              |
| <b>DO (%)</b>                                                 | 109.2              |
| <b>Turbidity (NTU)</b>                                        | -                  |
| <b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b> | V. SLIGHTLY TURBID |

## Site Sketch



## Field Measurements Log

|                           |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1414                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1415                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): R6

Sample Date (Con't): SEPT 22 2016

Sample Time (Con't): 1415.

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: SEPT 24 1215                           |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | SEPT 22 2016 1415                                 |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           | ▽                                                 |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | ▽ 4 BOTTLES                                       |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

**General Notes:**

SAMPLE COLLECTED AT ORIGINAL REFERENCE SITE.  
SPLIT SAMPLE.



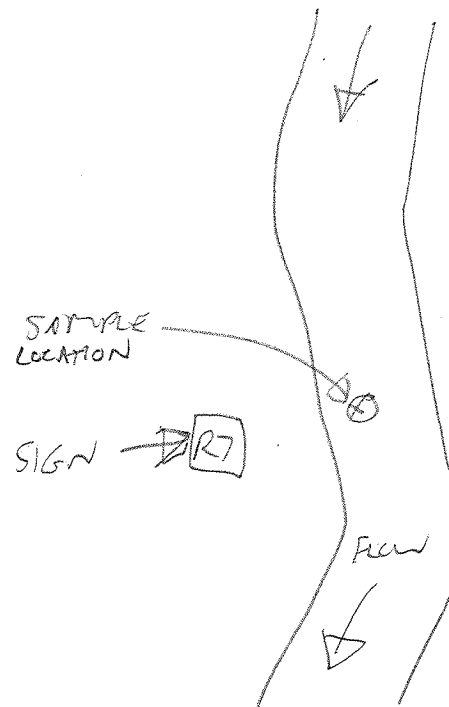
# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                       |                             |                                                                                   |                      |                                |
|-------------------------------|---------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|----------------------|--------------------------------|
| <b>Sample Site:</b>           | R7                                                                                    | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                              | <b>Date:</b>         | SEPT 21 2016                   |
| <b>UTM Coordinates</b>        | Z07W E 0513004 N 7145649                                                              | <b>Client:</b>              | Yukon Government (AAM)                                                            | <b>Samplers:</b>     | BR / NB                        |
| <b>Waypoint</b>               | GPS <u>GNR</u> Name <u>/</u>                                                          | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                    | <b>Weather/Temp:</b> | ~ 7°C<br>OVERCAST<br>NO PRECIP |
| <b>Photos</b>                 | Cam <u>GNR</u> Nos. 4755-4758                                                         | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name <u>/</u> |                      |                                |
| <b>Sample Time (24h)</b>      | 0850                                                                                  |                             |                                                                                   |                      |                                |
| <b>Field Blank Collected:</b> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Name <u>FBI *</u> |                             |                                                                                   |                      |                                |

## Field Parameter Measurements (note units if different than those stated)

|                                                    |                         |
|----------------------------------------------------|-------------------------|
| Station Status                                     | GOOD                    |
| Sample Depth (m)                                   | 0.1                     |
| Temperature (°C)                                   | 1.4                     |
| pH (pH Units)                                      | — NOT RECORDING "XXXXX" |
| Cond. (µs/cm)                                      | 131.2                   |
| Specific Cond. (µs/cm)                             | 238.8                   |
| Redox (mV)                                         | 7 (likely incorrect)    |
| DO (mg/L)                                          | 15.10 (?)               |
| DO (%)                                             | 107.3 (?)               |
| Turbidity (NTU)                                    | —                       |
| Appearance & Odour (Clear, Silty, HC odours, etc.) | ... SLIGHTLY TURBID.    |

## Site Sketch



## Field Measurements Log

|                           |                                                                                               |
|---------------------------|-----------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                           |
| <b>Time Logged on YSI</b> | (hh:mm) 0907                                                                                  |
| <b>Sample Time</b>        | (hh:mm) 0850                                                                                  |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other <u>/</u> |

Sample Site (Con't): R7

Sample Date (Con't): SEPT 21 2016

Sample Time (Con't): 0850.

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles  | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|--------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            | Date/Time: <u>SEPT 21 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1            |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1            |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              | <del>1</del> | <del></del>                                       |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1            |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10           |                                                   |

**General Notes:**

PH AND REDOX NOT ACCURATE ON YSI METER.  
 BACKUP PEN WAS NOT WITH CREW.  
 FBI WAS MADE UP AT 1035 AT TRUCK AFTER R7 VISIT.

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                            |                             |                                                                            |                      |                      |
|-------------------------------|----------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------|----------------------|----------------------|
| <b>Sample Site:</b>           | R8                                                                         | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                       | <b>Date:</b>         | SEPT 23 2016         |
| <b>UTM Coordinates</b>        | 2074 E 0511897 N 7147903                                                   | <b>Client:</b>              | Yukon Government (AAM)                                                     | <b>Samplers:</b>     | GR + N13             |
| <b>Waypoint</b>               | GPS GR Name /                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                             | <b>Weather/Temp:</b> | ~13°C<br>P.M. CLOUDY |
| <b>Photos</b>                 | Cam GR Nos. 7543-7547                                                      | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name / |                      |                      |
| <b>Sample Time (24h)</b>      | 1635                                                                       |                             |                                                                            |                      |                      |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name / |                             |                                                                            |                      |                      |

| Field Parameter Measurements (note units if different than those stated) |       | Site Sketch |
|--------------------------------------------------------------------------|-------|-------------|
| Station Status                                                           | GOOD. |             |
| Sample Depth (m)                                                         | 0.05  |             |
| Temperature (°C)                                                         | 2.4   |             |
| pH (pH Units)                                                            | 8.04  |             |
| Cond. (µs/cm)                                                            | 169.1 |             |
| Specific Cond. (µs/cm)                                                   | 297.6 |             |
| Redox (mV)                                                               | 122.9 |             |
| DO (mg/L)                                                                | 14.19 |             |
| DO (%)                                                                   | 103.8 |             |
| Turbidity (NTU)                                                          | /     |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR |             |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                  |
| <b>Time Logged on YSI</b> | (hh:mm) 1639                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1635                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): R8

Sample Date (Con't): SEPT 23 2016

Sample Time (Con't): 1635

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             | Date/Time: <u>SEPT 23 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              |             |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      | <del>-</del>                                              | <del><input type="checkbox"/></del>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              |             |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

SMALL RIFFLES AND WATERFALL ~~ABOVE~~ UP OF SAMPLING LOCATION

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                          |                             |                                                                          |                      |                                   |
|-------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------|----------------------|-----------------------------------|
| <b>Sample Site:</b>           | R9                                                                       | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                     | <b>Date:</b>         | SEPT 23 2016                      |
| <b>UTM Coordinates</b>        | ZONE E 8512343 N 7146754                                                 | <b>Client:</b>              | Yukon Government (AAM)                                                   | <b>Samplers:</b>     | GR + NB                           |
| <b>Waypoint</b>               | GPS GR Name                                                              | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                           | <b>Weather/Temp:</b> | ~12°C<br>PART CLOUDY.<br>NO WIND. |
| <b>Photos</b>                 | Cam GR Nos. 7548-7551                                                    | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                      |                                   |
| <b>Sample Time (24h)</b>      | 1740                                                                     |                             |                                                                          |                      |                                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name |                             |                                                                          |                      |                                   |

| Field Parameter Measurements (note units if different than those stated) |        | Site Sketch |
|--------------------------------------------------------------------------|--------|-------------|
| Station Status                                                           | GOOD.  |             |
| Sample Depth (m)                                                         | 0.1    |             |
| Temperature (°C)                                                         | 2.4    |             |
| pH (pH Units)                                                            | 7.92   |             |
| Cond. (µs/cm)                                                            | 260.1  |             |
| Specific Cond. (µs/cm)                                                   | 458.0  |             |
| Redox (mV)                                                               | 24.1   |             |
| DO (mg/L)                                                                | 14.19  |             |
| DO (%)                                                                   | 103.7  |             |
| Turbidity (NTU)                                                          | —      |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR. |             |

| Field Measurements Log    |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input type="checkbox"/> Yes <input type="checkbox"/> No                             |
| <b>Time Logged on YSI</b> | (hh:mm) 1740                                                                         |
| <b>Sample Time</b>        | (hh:mm) 1740                                                                         |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other |

Sample Site (Con't): R9

Sample Date (Con't): SEPT 23 2016

Sample Time (Con't): 1740

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: <u>SEPT 23 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10          |                                                   |

General Notes:

# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------|
| <b>Sample Site:</b>           | R11                                                                            | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 20 2016      |
| <b>UTM Coordinates</b>        | ZONE E 0514177 N 7147832                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB           |
| <b>Waypoint</b>               | GPS <u>GMR</u> Name <u>/</u>                                                   | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~3°C<br>OVERCAST. |
| <b>Photos</b>                 | Cam <u>GMR</u> Nos. <u>7431-7434</u>                                           | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                   |
| <b>Sample Time (24h)</b>      | 1225                                                                           |                             |                                                                                |                      |                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                   |

| Field Parameter Measurements (note units if different than those stated) |                  | Site Sketch                                         |
|--------------------------------------------------------------------------|------------------|-----------------------------------------------------|
| Station Status                                                           | Good.            | <p>LZR11 - WAYPOINT FOR POTENTIAL LANDING ZONE.</p> |
| Sample Depth (m)                                                         | 0.1              |                                                     |
| Temperature (°C)                                                         | 0.5              |                                                     |
| pH (pH Units)                                                            | 8.45             |                                                     |
| Cond. (µs/cm)                                                            | 210.5            |                                                     |
| Specific Cond. (µs/cm)                                                   | 394.8            |                                                     |
| Redox (mV)                                                               | 89.0             |                                                     |
| DO (mg/L)                                                                | 16.30            |                                                     |
| DO (%)                                                                   | 114.1            |                                                     |
| Turbidity (NTU)                                                          | /                |                                                     |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | SLIGHTLY TURBID. |                                                     |

| Field Measurements Log    |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                        |
| <b>Time Logged on YSI</b> | (hh:mm) 1231                                                                               |
| <b>Sample Time</b>        | (hh:mm) 1225                                                                               |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): R11

Sample Date (Con't): SEPT 20 2016

Sample Time (Con't): 1225

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles     | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-----------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1               | Date/Time: <u>SEPT 20 2016</u>                    |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1               |                                                   |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1               |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1               |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1               |                                                   |
| 125 ml (amber)           | Ammonia (NH <sub>3</sub> )                        |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1               |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1               |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1               |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1               |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input type="checkbox"/>                         |                 |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | <del>10</del> 1 |                                                   |
| Total:                   |                                                   |                                                         |                                                           |                                                  | 10              |                                                   |

**General Notes:**

SITE GOOD.



SIGN INSTALLED ON SPRUCE NEAR RIGHT BANK.



# SURFACE WATER SAMPLE COLLECTION SHEET

|                               |                                                                                |                             |                                                                                |                      |                   |
|-------------------------------|--------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------|----------------------|-------------------|
| <b>Sample Site:</b>           | SL                                                                             | <b>Project Number:</b>      | 16-240.5 Clinton Creek Water Program                                           | <b>Date:</b>         | SEPT 21 2016      |
| <b>UTM Coordinates</b>        | ZONE E 0513831 N 7146713                                                       | <b>Client:</b>              | Yukon Government (AAM)                                                         | <b>Samplers:</b>     | GR + NB           |
| <b>Waypoint</b>               | GPS <u>GR</u> Name <u>/</u>                                                    | <b>Project Name:</b>        | Clinton Creek Surface Water Monitoring Program                                 | <b>Weather/Temp:</b> | ~13°C<br>OVERCAST |
| <b>Photos</b>                 | Cam <u>GR</u> Nos. 7480-74845                                                  | <b>Duplicate Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                      |                   |
| <b>Sample Time (24h)</b>      | 1405                                                                           |                             |                                                                                |                      |                   |
| <b>Field Blank Collected:</b> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Name _____ |                             |                                                                                |                      |                   |

| Field Parameter Measurements (note units if different than those stated) |                           | Site Sketch |
|--------------------------------------------------------------------------|---------------------------|-------------|
| Station Status                                                           | Good HIGH WATER.          |             |
| Sample Depth (m)                                                         | 0.1                       |             |
| Temperature (°C)                                                         | 6.4 (YSI) 7.0 (PEN)       |             |
| pH (pH Units)                                                            | 16.49 (YSI) 8.2 (PEN)     |             |
| Cond. (µs/cm)                                                            | 854 (YSI)                 |             |
| Specific Cond. (µs/cm)                                                   | 132.3 (YSI) 1420 vs (PEN) |             |
| Redox (mV)                                                               | 65.1 (?)                  |             |
| DO (mg/L)                                                                | 10.89                     |             |
| DO (%)                                                                   | 88.5                      |             |
| Turbidity (NTU)                                                          | /                         |             |
| Appearance & Odour (Clear, Silty, HC odours, etc.)                       | CLEAR.                    |             |

| Field Measurements Log    |                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| <b>YSI Logged?</b>        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   |
| <b>Time Logged on YSI</b> | (hh:mm) 1412                                                                                          |
| <b>Sample Time</b>        | (hh:mm) 1405                                                                                          |
| <b>Unit Used</b>          | <input checked="" type="checkbox"/> Pro Plus <input checked="" type="checkbox"/> Pen Unit Other _____ |

Sample Site (Con't): SL

Sample Date (Con't): SEPT 21 2016

Sample Time (Con't): 1405

| Bottle Type              | Parameters Analyzed                               | Sample Treatment<br><input checked="" type="checkbox"/> | Preservative Added<br><input checked="" type="checkbox"/> | Collected<br><input checked="" type="checkbox"/> | No. Bottles | Comments<br>(note number of bottles in duplicate) |
|--------------------------|---------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------|---------------------------------------------------|
| 500 ml (plastic)         | General Chemistry                                 | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | Date/Time: SEPT 21 2016                           |
| 125 ml (plastic)         | Total Metals                                      | -                                                       | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| 125 ml (plastic)         | Dissolved Metals                                  | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Nitric Acid           | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Total Mercury                                     |                                                         | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 40 ml (glass)            | Dissolved Mercury                                 | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Hydrochloric Acid     | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Ammonia (NH3)                                     |                                                         | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (amber)           | Dissolved Organic Carbon (DOC)                    | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> Sulfuric Acid         | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Total Speciated Chromium – Cr(VI) and Cr(III)     | -                                                       | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| 125 ml (plastic)         | Dissolved Speciated Chromium – Cr(VI) and Cr(III) | <input checked="" type="checkbox"/> Field Filtered      | <input checked="" type="checkbox"/> NaOH                  | <input checked="" type="checkbox"/>              | 1           |                                                   |
| <del>1 L (plastic)</del> | <del>Asbestos</del>                               | <del>Wrapped tightly in foil</del>                      |                                                           | <input checked="" type="checkbox"/>              |             |                                                   |
| 500 ml (plastic)         | TSS                                               | -                                                       | -                                                         | <input checked="" type="checkbox"/>              | 1           | ↓                                                 |
| Total:                   |                                                   |                                                         |                                                           |                                                  |             |                                                   |

**General Notes:**

WATER IS SLIGHTLY LOWER THAN <sup>IN</sup> AUGUST BY ~ 30 cm BUT STILL HIGHER THAN LAST YEAR.

**APPENDIX 4**  
**Hudgeon Lake *In-situ* Monitoring Data**

**Appendix 4: Hudgeon Lake In-situ Monitoring Data - June 2016**

| Site | Depth (m) | Date/Time        | Conductivity (uS/cm) | Specific Conductance (uS/cm) | Dissolved Oxygen (mg/L) | ORP_1 (mV) | pH_1 (Units) | Temperature (C) |
|------|-----------|------------------|----------------------|------------------------------|-------------------------|------------|--------------|-----------------|
| HL1  | 0.15      | 16/06/2016 16:32 | 398.8                | 470.8                        | 9.09                    | 94.1       | 7.92         | 17.0            |
| HL1  | 1         | 16/06/2016 16:33 | 382.8                | 477.4                        | 9.35                    | 94.1       | 7.91         | 14.6            |
| HL1  | 2         | 16/06/2016 16:34 | 371.8                | 486.5                        | 10.11                   | 95.4       | 7.85         | 12.7            |
| HL1  | 3         | 16/06/2016 16:35 | 371.3                | 537                          | 10.04                   | 99.3       | 7.69         | 8.9             |
| HL1  | 4         | 16/06/2016 16:37 | 418.2                | 697                          | 5.34                    | 105.2      | 7.40         | 4.0             |
| HL1  | 5         | 16/06/2016 16:38 | 438.6                | 761                          | 3.19                    | 106.8      | 7.30         | 2.8             |
| HL1  | 6         | 16/06/2016 16:39 | 443.9                | 774                          | 2.38                    | 108.6      | 7.24         | 2.7             |
| HL1  | 7         | 16/06/2016 16:41 | 450.1                | 792                          | 1.47                    | 108.2      | 7.21         | 2.4             |
| HL1  | 8         | 16/06/2016 16:42 | 454.6                | 804                          | 0.96                    | 108.0      | 7.19         | 2.3             |
| HL1  | 9         | 16/06/2016 16:48 | 490.1                | 871                          | 0.23                    | -6.5       | 7.17         | 2.1             |
| HL1  | 10        | 16/06/2016 16:50 | 565                  | 1011                         | 0.21                    | -77.6      | 7.17         | 1.9             |
| HL1  | 11        | 16/06/2016 16:52 | 548                  | 982                          | 0.2                     | -85.7      | 7.19         | 1.9             |
| HL1  | 12        | 16/06/2016 16:55 | 537                  | 963                          | 0.24                    | -114.0     | 7.25         | 1.9             |
| HL1  | 13        | 16/06/2016 16:56 | 537                  | 963                          | 0.24                    | -118.6     | 7.25         | 1.9             |
| HL1  | 14        | 16/06/2016 17:00 | 538                  | 964                          | 0.14                    | -131.4     | 7.25         | 1.9             |
| HL1  | 15        | 16/06/2016 17:02 | 539                  | 964                          | 0.1                     | -135.0     | 7.25         | 1.9             |
| HL1  | 16        | 16/06/2016 17:03 | 539                  | 965                          | 0.11                    | -136.9     | 7.24         | 1.9             |
| HL2  | 0.15      | 16/06/2016 17:39 | 403                  | 467.2                        | 9.66                    | 22.3       | 7.98         | 17.8            |
| HL2  | 1         | 16/06/2016 17:42 | 397.8                | 470.9                        | 9.53                    | 27.6       | 7.94         | 16.9            |
| HL2  | 2         | 16/06/2016 17:46 | 366.6                | 499.7                        | 9.52                    | 40.7       | 7.73         | 11.0            |
| HL2  | 3         | 16/06/2016 17:50 | 359.1                | 560                          | 7.85                    | 56.4       | 7.43         | 6.2             |
| HL2  | 4         | 16/06/2016 17:55 | 435.9                | 746                          | 3.64                    | 62.1       | 7.27         | 3.2             |
| HL2  | 5         | 16/06/2016 17:57 | 441.2                | 774                          | 2.43                    | 63.3       | 7.25         | 2.5             |
| HL2  | 6         | 16/06/2016 17:58 | 447                  | 790                          | 1.35                    | 63.7       | 7.25         | 2.3             |
| HL2  | 7         | 16/06/2016 18:00 | 452.1                | 801                          | 0.85                    | 63.3       | 7.21         | 2.2             |
| HL2  | 8         | 16/06/2016 18:03 | 474.7                | 842                          | 0.18                    | 59.5       | 7.21         | 2.2             |
| HL2  | 9         | 16/06/2016 18:06 | 521                  | 925                          | 0.13                    | -58.7      | 7.19         | 2.1             |
| HL2  | 10        | 16/06/2016 18:09 | 584                  | 1042                         | 0.11                    | -76.8      | 7.19         | 2.0             |
| HL2  | 11        | 16/06/2016 18:11 | 604                  | 1084                         | 0.1                     | -80.4      | 7.19         | 1.8             |
| HL2  | 12        | 16/06/2016 18:13 | 614                  | 1103                         | 0.1                     | -83.7      | 7.18         | 1.8             |
| HL2  | 13        | 16/06/2016 18:15 | 622                  | 1121                         | 0.06                    | -87.9      | 7.21         | 1.7             |
| HL2  | 14        | 16/06/2016 18:18 | 631                  | 1138                         | 0.07                    | -89.3      | 7.25         | 1.6             |
| HL2  | 15        | 16/06/2016 18:20 | 648                  | 1177                         | 0.06                    | -92.1      | 7.21         | 1.5             |
| HL2  | 16        | 16/06/2016 18:21 | 683                  | 1249                         | 0.06                    | -96.9      | 7.22         | 1.3             |
| HL2  | 17        | 16/06/2016 18:24 | 732                  | 1346                         | 0.07                    | -100.6     | 7.21         | 1.1             |
| HL2  | 18        | 16/06/2016 18:25 | 750                  | 1383                         | 0.05                    | -102.1     | 7.20         | 1.0             |
| HL2  | 19        | 16/06/2016 18:29 | 752                  | 1387                         | 0.06                    | -104.5     | 7.20         | 1.0             |
| HL2  | 20        | 16/06/2016 18:30 | 751                  | 1386                         | 0.04                    | -105.8     | 7.20         | 1.0             |
| HL3  | 0.15      | 17/06/2016 8:39  | 393.5                | 466                          | 8.67                    | 52.7       | 7.97         | 16.9            |
| HL3  | 1         | 17/06/2016 8:42  | 392                  | 466.3                        | 9.29                    | 57.0       | 7.97         | 16.7            |
| HL3  | 2         | 17/06/2016 8:45  | 359.6                | 494.9                        | 9.01                    | 67.3       | 7.69         | 10.7            |
| HL3  | 3         | 17/06/2016 8:49  | 347.7                | 519                          | 8.27                    | 75.4       | 7.48         | 7.7             |
| HL3  | 4         | 17/06/2016 8:55  | 409.1                | 678                          | 5.44                    | 83.7       | 7.31         | 4.2             |
| HL3  | 5         | 17/06/2016 8:58  | 436.6                | 763                          | 2.44                    | 84.4       | 7.24         | 2.6             |
| HL3  | 6         | 17/06/2016 9:03  | 445.8                | 789                          | 1.31                    | 82.8       | 7.19         | 2.2             |
| HL3  | 7         | 17/06/2016 9:05  | 451.8                | 800                          | 0.72                    | 83.0       | 7.19         | 2.2             |
| HL3  | 8         | 17/06/2016 9:07  | 474.3                | 839                          | 0.2                     | 82.6       | 7.16         | 2.2             |
| HL3  | 9         | 17/06/2016 9:12  | 546                  | 964                          | 0.12                    | -73.6      | 7.18         | 2.3             |
| HL3  | 10        | 17/06/2016 9:13  | 582                  | 1030                         | 0.11                    | -81.3      | 7.18         | 2.2             |
| HL3  | 11        | 17/06/2016 9:15  | 608                  | 1085                         | 0.1                     | -86.5      | 7.16         | 2.0             |
| HL3  | 12        | 17/06/2016 9:16  | 615                  | 1103                         | 0.11                    | -87.9      | 7.15         | 1.9             |
| HL3  | 13        | 17/06/2016 9:17  | 621                  | 1116                         | 0.11                    | -87.9      | 7.16         | 1.8             |
| HL3  | 14        | 17/06/2016 9:18  | 627                  | 1129                         | 0.09                    | -88.7      | 7.15         | 1.7             |
| HL3  | 15        | 17/06/2016 9:19  | 636                  | 1150                         | 0.09                    | -89.3      | 7.14         | 1.6             |
| HL3  | 16        | 17/06/2016 9:20  | 668                  | 1218                         | 0.1                     | -93.9      | 7.14         | 1.4             |
| HL3  | 17        | 17/06/2016 9:21  | 687                  | 1255                         | 0.1                     | -95.8      | 7.14         | 1.3             |
| HL3  | 18        | 17/06/2016 9:22  | 734                  | 1350                         | 0.1                     | -98.0      | 7.13         | 1.1             |
| HL3  | 19        | 17/06/2016 9:23  | 755                  | 1390                         | 0.08                    | -100.2     | 7.13         | 1.1             |
| HL3  | 20        | 17/06/2016 9:26  | 842                  | 1558                         | 0.07                    | -104.4     | 7.12         | 0.9             |
| HL3  | 21        | 17/06/2016 9:27  | 912                  | 1696                         | 0.07                    | -105.2     | 7.09         | 0.8             |
| HL3  | 22        | 17/06/2016 9:28  | 1045                 | 1957                         | 0.08                    | -106.1     | 7.07         | 0.6             |
| HL3  | 23        | 17/06/2016 9:29  | 1137                 | 2143                         | 0.07                    | -106.0     | 7.06         | 0.4             |
| HL3  | 24        | 17/06/2016 9:30  | 1199                 | 2271                         | 0.08                    | -107.0     | 7.05         | 0.3             |
| HL3  | 25        | 17/06/2016 9:31  | 1260                 | 2396                         | 0.06                    | -109.5     | 7.04         | 0.2             |

**Appendix 4: Hudgeon Lake In-situ Monitoring Data - July 2016**

| Site | Depth (m) | Date/Time        | Conductivity (uS/cm) | Specific Conductance (uS/cm) | Dissolved Oxygen (mg/L) | Oxidation Reduction Potential (mV) | pH (pH Units) | Temperature (C) |
|------|-----------|------------------|----------------------|------------------------------|-------------------------|------------------------------------|---------------|-----------------|
| HL1  | 0.15      | 23/07/2016 12:38 | 405.8                | 500                          | 8.94                    | 25.4                               | 8.14          | 15.1            |
| HL1  | 1         | 23/07/2016 12:43 | 410.3                | 532                          | 8.58                    | 25.4                               | 8.03          | 13              |
| HL1  | 2         | 23/07/2016 12:46 | 333.7                | 454.3                        | 9.47                    | 28.9                               | 7.92          | 11.1            |
| HL1  | 3         | 23/07/2016 12:48 | 320.6                | 449                          | 9.97                    | 38                                 | 7.9           | 10              |
| HL1  | 4         | 23/07/2016 12:51 | 390.3                | 580                          | 5.1                     | 56.2                               | 7.42          | 7.9             |
| HL1  | 5         | 23/07/2016 12:53 | 448.1                | 735                          | 1.32                    | 63.1                               | 7.28          | 4.6             |
| HL1  | 6         | 23/07/2016 12:55 | 451.5                | 759                          | 0.5                     | 62.7                               | 7.28          | 3.8             |
| HL1  | 7         | 23/07/2016 12:58 | 452.9                | 764                          | 0.4                     | 61.3                               | 7.27          | 3.7             |
| HL1  | 8         | 23/07/2016 13:01 | 456.2                | 781                          | 0.11                    | 59.2                               | 7.28          | 3.2             |
| HL1  | 9         | 23/07/2016 13:09 | 516                  | 908                          | 0.07                    | -32.5                              | 7.3           | 2.4             |
| HL1  | 10        | 23/07/2016 13:11 | 574                  | 1024                         | 0.06                    | -66                                | 7.33          | 2               |
| HL1  | 10.5      | 23/07/2016 13:19 | 579                  | 1033                         | 0.08                    | -88.3                              | 7.32          | 2               |
| HL2  | 0.15      | 23/07/2016 11:09 | 409.1                | 501                          | 8.34                    | 33.2                               | 8.13          | 15.4            |
| HL2  | 1         | 23/07/2016 11:12 | 395.3                | 509                          | 8.95                    | 45.6                               | 8.04          | 13.3            |
| HL2  | 2         | 23/07/2016 11:15 | 398.7                | 535                          | 7.97                    | 56.5                               | 7.86          | 11.6            |
| HL2  | 3         | 23/07/2016 11:19 | 376.5                | 531                          | 6.86                    | 72.7                               | 7.58          | 9.7             |
| HL2  | 4         | 23/07/2016 11:24 | 407.5                | 622                          | 3.92                    | 83.2                               | 7.34          | 6.9             |
| HL2  | 5         | 23/07/2016 11:26 | 445.1                | 750                          | 0.85                    | 84.1                               | 7.27          | 3.7             |
| HL2  | 6         | 23/07/2016 11:28 | 447.6                | 764                          | 0.6                     | 82.7                               | 7.27          | 3.3             |
| HL2  | 7         | 23/07/2016 11:30 | 450.3                | 779                          | 0.19                    | 81                                 | 7.27          | 2.9             |
| HL2  | 8         | 23/07/2016 11:33 | 457.3                | 799                          | 0.08                    | 78.6                               | 7.27          | 2.6             |
| HL2  | 9         | 23/07/2016 11:43 | 519                  | 920                          | 0.09                    | -77.8                              | 7.27          | 2.2             |
| HL2  | 10        | 23/07/2016 11:47 | 577                  | 1030                         | 0.1                     | -98.9                              | 7.26          | 2               |
| HL2  | 11        | 23/07/2016 11:52 | 597                  | 1072                         | 0.13                    | -108.8                             | 7.25          | 1.8             |
| HL2  | 12        | 23/07/2016 11:54 | 604                  | 1086                         | 0.16                    | -110.6                             | 7.25          | 1.8             |
| HL2  | 13        | 23/07/2016 11:57 | 612                  | 1102                         | 0.15                    | -113.6                             | 7.24          | 1.7             |
| HL2  | 14        | 23/07/2016 11:59 | 618                  | 1115                         | 0.15                    | -115.1                             | 7.24          | 1.6             |
| HL2  | 15        | 23/07/2016 12:01 | 624                  | 1131                         | 0.15                    | -114.1                             | 7.24          | 1.6             |
| HL2  | 16        | 23/07/2016 12:04 | 667                  | 1215                         | 0.17                    | -119.3                             | 7.25          | 1.4             |
| HL2  | 17        | 23/07/2016 12:06 | 677                  | 1237                         | 0.17                    | -122.1                             | 7.25          | 1.3             |
| HL2  | 18        | 23/07/2016 12:08 | 722                  | 1327                         | 0.15                    | -124.3                             | 7.25          | 1.1             |
| HL2  | 19        | 23/07/2016 12:10 | 733                  | 1352                         | 0.16                    | -125.3                             | 7.25          | 1               |
| HL2  | 20        | 23/07/2016 12:13 | 734                  | 1355                         | 0.18                    | -130.3                             | 7.27          | 1               |
| HL3  | 0.15      | 23/07/2016 8:57  | 404.8                | 504                          | 8.12                    | 150.2                              | 8.09          | 14.7            |
| HL3  | 1         | 23/07/2016 9:00  | 405.9                | 508                          | 8.17                    | 150.1                              | 8.13          | 14.5            |
| HL3  | 2         | 23/07/2016 9:03  | 380.9                | 504                          | 7.71                    | 154.3                              | 7.78          | 12.2            |
| HL3  | 3         | 23/07/2016 9:07  | 378.6                | 524                          | 6.9                     | 157                                | 7.62          | 10.5            |
| HL3  | 4         | 23/07/2016 9:10  | 439.7                | 704                          | 2.04                    | 165.9                              | 7.26          | 5.3             |
| HL3  | 5         | 23/07/2016 9:13  | 446.9                | 761                          | 0.75                    | 167.8                              | 7.23          | 3.4             |
| HL3  | 6         | 23/07/2016 9:19  | 448.9                | 773                          | 0.37                    | 166.2                              | 7.22          | 3               |
| HL3  | 7         | 23/07/2016 9:22  | 450.3                | 784                          | 0.12                    | 165.8                              | 7.22          | 2.7             |
| HL3  | 8         | 23/07/2016 9:31  | 460.1                | 807                          | 0.11                    | 159.7                              | 7.22          | 2.5             |
| HL3  | 9         | 23/07/2016 9:45  | 512                  | 905                          | 0.1                     | -68.1                              | 7.25          | 2.2             |
| HL3  | 10        | 23/07/2016 9:55  | 568                  | 1009                         | 0.13                    | -111.4                             | 7.24          | 2.1             |
| HL3  | 11        | 23/07/2016 10:00 | 593                  | 1060                         | 0.14                    | -117                               | 7.23          | 1.9             |
| HL3  | 12        | 23/07/2016 10:04 | 603                  | 1081                         | 0.14                    | -121.5                             | 7.22          | 1.8             |
| HL3  | 13        | 23/07/2016 10:06 | 610                  | 1097                         | 0.13                    | -122.5                             | 7.22          | 1.7             |
| HL3  | 14        | 23/07/2016 10:09 | 616                  | 1109                         | 0.15                    | -121.8                             | 7.21          | 1.7             |
| HL3  | 15        | 23/07/2016 10:13 | 627                  | 1135                         | 0.17                    | -124.9                             | 7.21          | 1.6             |
| HL3  | 16        | 23/07/2016 10:16 | 670                  | 1222                         | 0.19                    | -129.8                             | 7.23          | 1.4             |
| HL3  | 17        | 23/07/2016 10:20 | 678                  | 1241                         | 0.2                     | -132.6                             | 7.23          | 1.3             |
| HL3  | 18        | 23/07/2016 10:21 | 719                  | 1322                         | 0.23                    | -133.4                             | 7.22          | 1.1             |
| HL3  | 19        | 23/07/2016 10:23 | 733                  | 1349                         | 0.21                    | -134.9                             | 7.22          | 1.1             |
| HL3  | 20        | 23/07/2016 10:27 | 821                  | 1517                         | 0.23                    | -137                               | 7.21          | 1               |
| HL3  | 21        | 23/07/2016 10:29 | 901                  | 1672                         | 0.26                    | -138.1                             | 7.2           | 0.9             |
| HL3  | 22        | 23/07/2016 10:48 | 1027                 | 1919                         | 0.3                     | -133.9                             | 7.24          | 0.7             |
| HL3  | 23        | 23/07/2016 10:52 | 1113                 | 2094                         | 0.35                    | -137                               | 7.23          | 0.5             |
| HL3  | 24        | 23/07/2016 10:54 | 1182                 | 2237                         | 0.37                    | -138.2                             | 7.22          | 0.3             |
| HL3  | 24.9      | 23/07/2016 10:57 | 1239                 | 2358                         | 0.4                     | -140.2                             | 7.21          | 0.2             |

**Appendix 4: Hudgeon Lake In-situ Monitoring Data - August 2016**

| Site | Depth (m) | Date/Time           | Conductivity (uS/cm) | Specific Conductance (uS/cm) | Dissolved Oxygen (mg/L) | ORP_1 (mV) | pH_1 (Units) | Temperature (C) | Salinity (ppt) |
|------|-----------|---------------------|----------------------|------------------------------|-------------------------|------------|--------------|-----------------|----------------|
| HL1  | 0.15      | 19/08/2016 13:06:35 | 339.2                | 443                          | 9.51                    | 27.8       | 7.9          | 12.7            | 0.21           |
| HL1  | 1         | 19/08/2016 13:13:38 | 332.8                | 441.5                        | 9.56                    | 38         | 7.88         | 12.1            | 0.21           |
| HL1  | 2         | 19/08/2016 13:19:05 | 330.7                | 469.9                        | 10.18                   | 47.2       | 7.87         | 9.5             | 0.23           |
| HL1  | 3         | 19/08/2016 13:22:32 | 334.1                | 483.6                        | 10.08                   | 52.5       | 7.89         | 8.8             | 0.23           |
| HL1  | 4         | 19/08/2016 13:32:28 | 360                  | 541                          | 6.35                    | 72.7       | 7.51         | 7.5             | 0.26           |
| HL1  | 5         | 19/08/2016 13:34:49 | 455.6                | 740                          | 0.29                    | 79.1       | 7.31         | 4.9             | 0.36           |
| HL1  | 6         | 19/08/2016 13:39:01 | 456.5                | 765                          | 0.1                     | 76.9       | 7.31         | 3.9             | 0.37           |
| HL1  | 7         | 19/08/2016 13:42:01 | 456.1                | 773                          | 0.1                     | 74.7       | 7.32         | 3.6             | 0.38           |
| HL1  | 8         | 19/08/2016 13:47:31 | 464.4                | 798                          | 0.09                    | 66.6       | 7.33         | 3.1             | 0.39           |
| HL1  | 9         | 19/08/2016 14:00:40 | 535                  | 943                          | 0.09                    | -70.4      | 7.38         | 2.4             | 0.46           |
| HL1  | 10        | 19/08/2016 14:12:13 | 579                  | 1036                         | 0.11                    | -107.2     | 7.39         | 1.9             | 0.51           |
| HL1  | 11.1      | 19/08/2016 14:14:40 | 589                  | 1058                         | 0.08                    | -110.5     | 7.39         | 1.8             | 0.52           |
| HL2  | 0.15      | 19/08/2016 11:31:40 | 344.9                | 441.3                        | 9.54                    | 83.4       | 7.89         | 13.6            | 0.21           |
| HL2  | 1         | 19/08/2016 11:36:08 | 330                  | 440.7                        | 9.03                    | 87.7       | 7.86         | 11.8            | 0.21           |
| HL2  | 2         | 19/08/2016 11:39:02 | 324.7                | 457.1                        | 9.6                     | 92.5       | 7.82         | 9.8             | 0.22           |
| HL2  | 3         | 19/08/2016 11:44:42 | 329.4                | 479.4                        | 8.94                    | 99.4       | 7.71         | 8.6             | 0.23           |
| HL2  | 4         | 19/08/2016 11:48:13 | 403                  | 622                          | 3.34                    | 108.8      | 7.39         | 6.5             | 0.3            |
| HL2  | 5         | 19/08/2016 11:51:59 | 455.9                | 742                          | 0.42                    | 110.8      | 7.32         | 4.8             | 0.36           |
| HL2  | 6         | 19/08/2016 11:55:13 | 454.5                | 766                          | 0.1                     | 109.7      | 7.33         | 3.7             | 0.37           |
| HL2  | 7         | 19/08/2016 11:57:44 | 455.8                | 778                          | 0.11                    | 107.5      | 7.33         | 3.3             | 0.38           |
| HL2  | 8         | 19/08/2016 12:03:08 | 462.3                | 796                          | 0.1                     | 102.8      | 7.34         | 3               | 0.39           |
| HL2  | 9         | 19/08/2016 12:16:56 | 530                  | 936                          | 0.09                    | -70.3      | 7.37         | 2.3             | 0.46           |
| HL2  | 10        | 19/08/2016 12:26:34 | 570                  | 1017                         | 0.09                    | -107       | 7.38         | 2               | 0.5            |
| HL2  | 11        | 19/08/2016 12:31:48 | 588                  | 1056                         | 0.1                     | -115.8     | 7.37         | 1.8             | 0.52           |
| HL2  | 12        | 19/08/2016 12:34:15 | 595                  | 1072                         | 0.11                    | -116.6     | 7.36         | 1.7             | 0.53           |
| HL2  | 13        | 19/08/2016 12:37:33 | 603                  | 1089                         | 0.11                    | -119.6     | 7.36         | 1.6             | 0.53           |
| HL2  | 14        | 19/08/2016 12:39:26 | 606                  | 1096                         | 0.12                    | -119.9     | 7.35         | 1.6             | 0.54           |
| HL2  | 15        | 19/08/2016 12:42:21 | 612                  | 1108                         | 0.14                    | -121.4     | 7.34         | 1.5             | 0.54           |
| HL2  | 16        | 19/08/2016 12:44:21 | 656                  | 1199                         | 0.17                    | -124.7     | 7.36         | 1.3             | 0.59           |
| HL2  | 17        | 19/08/2016 12:46:29 | 665                  | 1217                         | 0.2                     | -126.1     | 7.36         | 1.2             | 0.6            |
| HL2  | 18        | 19/08/2016 12:49:44 | 714                  | 1318                         | 0.27                    | -128.3     | 7.36         | 1               | 0.65           |
| HL2  | 19.25     | 19/08/2016 12:52:05 | 715                  | 1320                         | 0.34                    | -130.2     | 7.36         | 1               | 0.65           |
| HL3  | 0.15      | 19/08/2016 08:45:02 | 336                  | 439.6                        | 9.15                    | 170.8      | 7.81         | 12.7            | 0.21           |
| HL3  | 1         | 19/08/2016 08:47:54 | 336.4                | 439.9                        | 9.03                    | 171        | 7.81         | 12.7            | 0.21           |
| HL3  | 2         | 19/08/2016 08:51:25 | 323.4                | 445.4                        | 9.2                     | 175.4      | 7.76         | 10.7            | 0.22           |
| HL3  | 3         | 19/08/2016 08:55:55 | 332.6                | 486                          | 8.12                    | 179.9      | 7.62         | 8.5             | 0.24           |
| HL3  | 4         | 19/08/2016 09:01:08 | 412.8                | 639                          | 2.81                    | 184.3      | 7.31         | 6.5             | 0.31           |
| HL3  | 5         | 19/08/2016 09:03:29 | 456                  | 755                          | 0.3                     | 187.1      | 7.25         | 4.3             | 0.37           |
| HL3  | 6         | 19/08/2016 09:11:56 | 453.5                | 770                          | 0.12                    | 180.5      | 7.24         | 3.5             | 0.37           |
| HL3  | 7         | 19/08/2016 09:20:58 | 454.8                | 776                          | 0.14                    | 171.8      | 7.28         | 3.3             | 0.38           |
| HL3  | 8         | 19/08/2016 09:30:07 | 462                  | 797                          | 0.13                    | 151.9      | 7.29         | 3               | 0.39           |
| HL3  | 9         | 19/08/2016 09:43:13 | 522                  | 914                          | 0.12                    | -19.1      | 7.29         | 2.5             | 0.45           |
| HL3  | 10        | 19/08/2016 09:54:13 | 568                  | 1005                         | 0.09                    | -79.2      | 7.31         | 2.2             | 0.49           |
| HL3  | 11        | 19/08/2016 10:04:05 | 588                  | 1056                         | 0.11                    | -107.6     | 7.33         | 1.8             | 0.52           |
| HL3  | 12        | 19/08/2016 10:08:09 | 595                  | 1069                         | 0.09                    | -112.4     | 7.37         | 1.7             | 0.52           |
| HL3  | 13        | 19/08/2016 10:15:00 | 602                  | 1085                         | 0.08                    | -118.7     | 7.42         | 1.7             | 0.53           |
| HL3  | 14        | 19/08/2016 10:21:53 | 606                  | 1095                         | 0.13                    | -121.9     | 7.42         | 1.6             | 0.54           |
| HL3  | 15        | 19/08/2016 10:24:29 | 618                  | 1121                         | 0.18                    | -124.2     | 7.42         | 1.5             | 0.55           |
| HL3  | 16        | 19/08/2016 10:31:56 | 658                  | 1200                         | 0.41                    | -129.4     | 7.45         | 1.4             | 0.59           |
| HL3  | 17        | 19/08/2016 10:36:54 | 665                  | 1217                         | 0.55                    | -131.9     | 7.46         | 1.2             | 0.6            |
| HL3  | 18        | 19/08/2016 10:39:44 | 715                  | 1318                         | 0.55                    | -130.8     | 7.45         | 1.1             | 0.65           |
| HL3  | 19        | 19/08/2016 10:42:00 | 718                  | 1325                         | 0.47                    | -133.1     | 7.45         | 1               | 0.65           |
| HL3  | 20        | 19/08/2016 10:46:05 | 817                  | 1511                         | 0.39                    | -132.7     | 7.43         | 0.9             | 0.75           |
| HL3  | 21        | 19/08/2016 10:49:48 | 895                  | 1664                         | 0.33                    | -135.3     | 7.43         | 0.8             | 0.83           |
| HL3  | 22        | 19/08/2016 10:52:07 | 1019                 | 1906                         | 0.31                    | -135.8     | 7.4          | 0.6             | 0.95           |
| HL3  | 23        | 19/08/2016 10:55:11 | 1113                 | 2101                         | 0.29                    | -136.5     | 7.39         | 0.4             | 1.05           |
| HL3  | 24        | 19/08/2016 10:58:23 | 1178                 | 2235                         | 0.28                    | -139       | 7.4          | 0.2             | 1.12           |
| HL3  | 24.9      | 19/08/2016 11:00:56 | 1235                 | 2356                         | 0.28                    | -141.7     | 7.43         | 0.1             | 1.18           |

Appendix 4: Hudgeon Lake In-situ Monitoring Data - September 2016

| Timestamp        | Site | Depth (m) | Salinity (ppt) | Conductivity (uS/cm) | Specific Conductance (uS/cm) | Dissolved Oxygen (mg/L) | ORP (mV) | pH (pH Units) | Temperature (C) |
|------------------|------|-----------|----------------|----------------------|------------------------------|-------------------------|----------|---------------|-----------------|
| 23/09/2016 9:08  | HL3  | 0.15      | 0.24           | 317.2                | 500                          | 10.51                   | 185.3    | 7.77          | 5.8             |
| 23/09/2016 9:18  | HL3  | 1         | 0.24           | 318                  | 501                          | 10.38                   | 180      | 7.76          | 5.9             |
| 23/09/2016 9:23  | HL3  | 2         | 0.24           | 317.8                | 500                          | 10.14                   | 177.9    | 7.77          | 5.9             |
| 23/09/2016 9:27  | HL3  | 3         | 0.24           | 317.9                | 500                          | 10.02                   | 176.9    | 7.77          | 5.9             |
| 23/09/2016 9:31  | HL3  | 4         | 0.24           | 319                  | 502                          | 9.85                    | 172.4    | 7.73          | 5.9             |
| 23/09/2016 9:34  | HL3  | 5         | 0.26           | 342                  | 546                          | 6.9                     | 171.3    | 7.5           | 5.4             |
| 23/09/2016 9:41  | HL3  | 6         | 0.29           | 371.6                | 606                          | 2.12                    | 162.1    | 7.29          | 4.7             |
| 23/09/2016 9:46  | HL3  | 7         | 0.32           | 387.3                | 651                          | 0.28                    | 151.2    | 7.24          | 3.8             |
| 23/09/2016 9:52  | HL3  | 8         | 0.32           | 388.3                | 659                          | 0.29                    | 118.7    | 7.23          | 3.5             |
| 23/09/2016 10:04 | HL3  | 9         | 0.39           | 454                  | 797                          | 0.31                    | -67      | 7.23          | 2.5             |
| 23/09/2016 10:11 | HL3  | 10        | 0.41           | 479.3                | 851                          | 0.31                    | -92.3    | 7.22          | 2.1             |
| 23/09/2016 10:15 | HL3  | 11        | 0.42           | 482.9                | 863                          | 0.31                    | -98.4    | 7.22          | 1.9             |
| 23/09/2016 10:19 | HL3  | 12        | 0.41           | 465.7                | 836                          | 0.33                    | -100.6   | 7.22          | 1.8             |
| 23/09/2016 10:23 | HL3  | 13        | 0.41           | 463.8                | 835                          | 0.33                    | -102     | 7.21          | 1.7             |
| 23/09/2016 10:25 | HL3  | 14        | 0.41           | 470.6                | 848                          | 0.33                    | -99.9    | 7.2           | 1.7             |
| 23/09/2016 10:29 | HL3  | 15        | 0.44           | 494.9                | 897                          | 0.35                    | -99.8    | 7.21          | 1.5             |
| 23/09/2016 10:31 | HL3  | 16        | 0.46           | 516                  | 941                          | 0.34                    | -100     | 7.21          | 1.3             |
| 23/09/2016 10:35 | HL3  | 17        | 0.49           | 548                  | 1004                         | 0.35                    | -100.3   | 7.21          | 1.2             |
| 23/09/2016 10:37 | HL3  | 18        | 0.53           | 589                  | 1085                         | 0.33                    | -103.1   | 7.21          | 1.1             |
| 23/09/2016 10:39 | HL3  | 19        | 0.53           | 593                  | 1093                         | 0.36                    | -101.3   | 7.21          | 1               |
| 23/09/2016 10:41 | HL3  | 20        | 0.61           | 674                  | 1247                         | 0.36                    | -104.8   | 7.19          | 0.9             |
| 23/09/2016 10:44 | HL3  | 21        | 0.68           | 738                  | 1371                         | 0.37                    | -107.4   | 7.18          | 0.8             |
| 23/09/2016 10:47 | HL3  | 22        | 0.78           | 847                  | 1585                         | 0.4                     | -105     | 7.16          | 0.6             |
| 23/09/2016 10:50 | HL3  | 23        | 0.86           | 915                  | 1725                         | 0.54                    | -104.5   | 7.15          | 0.4             |
| 23/09/2016 10:52 | HL3  | 24        | 0.91           | 965                  | 1831                         | 0.66                    | -109.2   | 7.13          | 0.2             |
| 23/09/2016 10:54 | HL3  | 24.9      | 0.99           | 1044                 | 1995                         | 0.71                    | -110.5   | 7.13          | 0               |
| 23/09/2016 11:10 | HL2  | 0.15      | 0.24           | 313                  | 491.6                        | 10.55                   | 72.6     | 7.81          | 6               |
| 23/09/2016 11:13 | HL2  | 1         | 0.24           | 312.4                | 491                          | 10.3                    | 78       | 7.81          | 6               |
| 23/09/2016 11:16 | HL2  | 2         | 0.24           | 312.2                | 490.8                        | 10.33                   | 83.9     | 7.81          | 5.9             |
| 23/09/2016 11:18 | HL2  | 3         | 0.24           | 311.8                | 490.5                        | 10.16                   | 87       | 7.81          | 5.9             |
| 23/09/2016 11:20 | HL2  | 4         | 0.24           | 312.8                | 492.4                        | 9.87                    | 92.2     | 7.8           | 5.9             |
| 23/09/2016 11:24 | HL2  | 5         | 0.27           | 341.9                | 548                          | 6.13                    | 93.4     | 7.47          | 5.3             |
| 23/09/2016 11:26 | HL2  | 6         | 0.31           | 379.8                | 635                          | 0.86                    | 91.2     | 7.27          | 4               |
| 23/09/2016 11:29 | HL2  | 7         | 0.31           | 382.9                | 645                          | 0.36                    | 89.9     | 7.26          | 3.7             |
| 23/09/2016 11:32 | HL2  | 8         | 0.32           | 393.3                | 669                          | 0.29                    | 39.1     | 7.25          | 3.4             |
| 23/09/2016 11:37 | HL2  | 9         | 0.37           | 438                  | 765                          | 0.28                    | -40.8    | 7.25          | 2.6             |
| 23/09/2016 11:43 | HL2  | 10        | 0.41           | 474.5                | 843                          | 0.33                    | -78.7    | 7.24          | 2.1             |
| 23/09/2016 11:46 | HL2  | 11        | 0.42           | 486.9                | 872                          | 0.29                    | -82.1    | 7.23          | 1.9             |
| 23/09/2016 11:48 | HL2  | 12        | 0.43           | 492.8                | 887                          | 0.31                    | -82.8    | 7.23          | 1.7             |
| 23/09/2016 11:49 | HL2  | 13        | 0.44           | 499.9                | 904                          | 0.3                     | -83.7    | 7.22          | 1.6             |
| 23/09/2016 11:52 | HL2  | 14        | 0.44           | 502                  | 908                          | 0.31                    | -84.3    | 7.22          | 1.6             |
| 23/09/2016 11:54 | HL2  | 15        | 0.46           | 523                  | 951                          | 0.32                    | -84.7    | 7.22          | 1.4             |
| 23/09/2016 11:56 | HL2  | 16        | 0.49           | 552                  | 1009                         | 0.35                    | -87      | 7.22          | 1.3             |
| 23/09/2016 11:58 | HL2  | 17        | 0.5            | 559                  | 1024                         | 0.33                    | -88.3    | 7.22          | 1.2             |
| 23/09/2016 12:01 | HL2  | 18        | 0.53           | 594                  | 1093                         | 0.33                    | -89.6    | 7.22          | 1.1             |
| 23/09/2016 12:04 | HL2  | 19        | 0.54           | 600                  | 1107                         | 0.37                    | -90.7    | 7.23          | 1               |
| 23/09/2016 12:16 | HL1  | 0.15      | 0.24           | 316.7                | 494.6                        | 10.64                   | 64.5     | 7.84          | 6.2             |
| 23/09/2016 12:20 | HL1  | 1         | 0.24           | 315.4                | 495                          | 10.69                   | 77.5     | 7.84          | 6               |
| 23/09/2016 12:24 | HL1  | 2         | 0.24           | 316.5                | 498.5                        | 10.02                   | 82       | 7.84          | 5.9             |
| 23/09/2016 12:27 | HL1  | 3         | 0.24           | 319                  | 503                          | 9.58                    | 87.6     | 7.79          | 5.9             |
| 23/09/2016 12:30 | HL1  | 4         | 0.26           | 336.9                | 534                          | 7.49                    | 96.1     | 7.56          | 5.7             |
| 23/09/2016 12:33 | HL1  | 5         | 0.28           | 356.4                | 575                          | 4.61                    | 96.8     | 7.39          | 5.1             |
| 23/09/2016 12:36 | HL1  | 6         | 0.3            | 375.1                | 618                          | 2.08                    | 96.2     | 7.3           | 4.4             |
| 23/09/2016 12:38 | HL1  | 7         | 0.32           | 386.8                | 650                          | 0.43                    | 99       | 7.26          | 3.8             |
| 23/09/2016 12:42 | HL1  | 8         | 0.32           | 389.2                | 657                          | 0.28                    | 83.6     | 7.25          | 3.6             |
| 23/09/2016 12:48 | HL1  | 9         | 0.36           | 434.4                | 751                          | 0.26                    | -22.6    | 7.25          | 2.9             |
| 23/09/2016 12:53 | HL1  | 10        | 0.41           | 480                  | 849                          | 0.3                     | -63.7    | 7.24          | 2.2             |
| 23/09/2016 12:56 | HL1  | 10.15     | 0.42           | 483.8                | 857                          | 0.27                    | -71.5    | 7.24          | 2.2             |

## **APPENDIX 5**

### **Hydrological Monitoring Data Summaries**



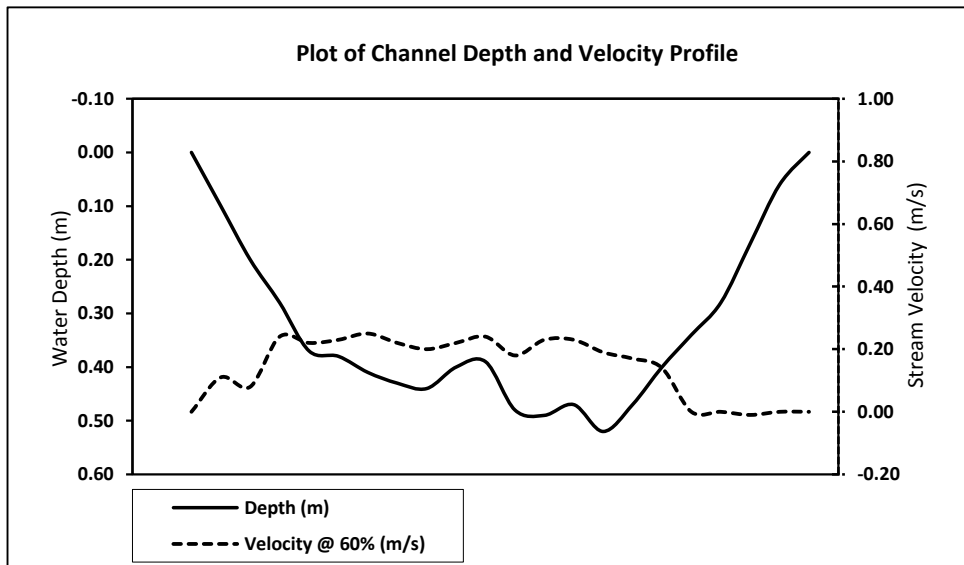
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |       |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.2           |  |       |
| Site / Location:      | Clinton Creek Site |                                                                                     |       |
| Stream Name:          | Clinton Creek      |                                                                                     |       |
| Station Name:         | E1(H)              |                                                                                     |       |
| Date and Time:        | Jun.13/2016, 13:45 |                                                                                     |       |
| Staff:                | AN,CH              |                                                                                     |       |
| UTM Coordinates:      | 512800. 7147438    |                                                                                     |       |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 2     |
| Temp., Water/Air (°C) | 14.9/~8            | Right Bank                                                                          | 12.44 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 10.44 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.00         | 0.250             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.50         | 0.500             | 0.10      | 0.11                 | 0.050                        | 0.0055                              |
| 2           | 3.00         | 0.650             | 0.20      | 0.08                 | 0.130                        | 0.0104                              |
| 3           | 3.80         | 0.500             | 0.28      | 0.24                 | 0.140                        | 0.0336                              |
| 4           | 4.00         | 0.350             | 0.37      | 0.22                 | 0.130                        | 0.0285                              |
| 5           | 4.50         | 0.500             | 0.38      | 0.23                 | 0.190                        | 0.0437                              |
| 6           | 5.00         | 0.500             | 0.41      | 0.25                 | 0.205                        | 0.0513                              |
| 7           | 5.50         | 0.500             | 0.43      | 0.22                 | 0.215                        | 0.0473                              |
| 8           | 6.00         | 0.500             | 0.44      | 0.20                 | 0.220                        | 0.0440                              |
| 9           | 6.50         | 0.500             | 0.40      | 0.22                 | 0.200                        | 0.0440                              |
| 10          | 7.00         | 0.500             | 0.39      | 0.24                 | 0.195                        | 0.0468                              |
| 11          | 7.50         | 0.500             | 0.48      | 0.18                 | 0.240                        | 0.0432                              |
| 12          | 8.00         | 0.500             | 0.49      | 0.23                 | 0.245                        | 0.0564                              |
| 13          | 8.50         | 0.500             | 0.47      | 0.23                 | 0.235                        | 0.0541                              |
| 14          | 9.00         | 0.500             | 0.52      | 0.19                 | 0.260                        | 0.0494                              |
| 15          | 9.50         | 0.500             | 0.47      | 0.17                 | 0.235                        | 0.0400                              |
| 16          | 10.00        | 0.500             | 0.40      | 0.14                 | 0.200                        | 0.0280                              |
| 17          | 10.50        | 0.500             | 0.34      | 0.00                 | 0.170                        | 0.0000                              |
| 18          | 11.00        | 0.500             | 0.28      | 0.00                 | 0.140                        | 0.0000                              |
| 19          | 11.50        | 0.500             | 0.17      | -0.01                | 0.085                        | -0.0009                             |
| 20          | 12.00        | 0.470             | 0.06      | 0.00                 | 0.028                        | 0.0000                              |
| 21          | 12.44        | 0.220             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 12.44        |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.32 |
| Mean Velocity (m/s) | 0.14 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.6251 |
|-------------------------------|--------|



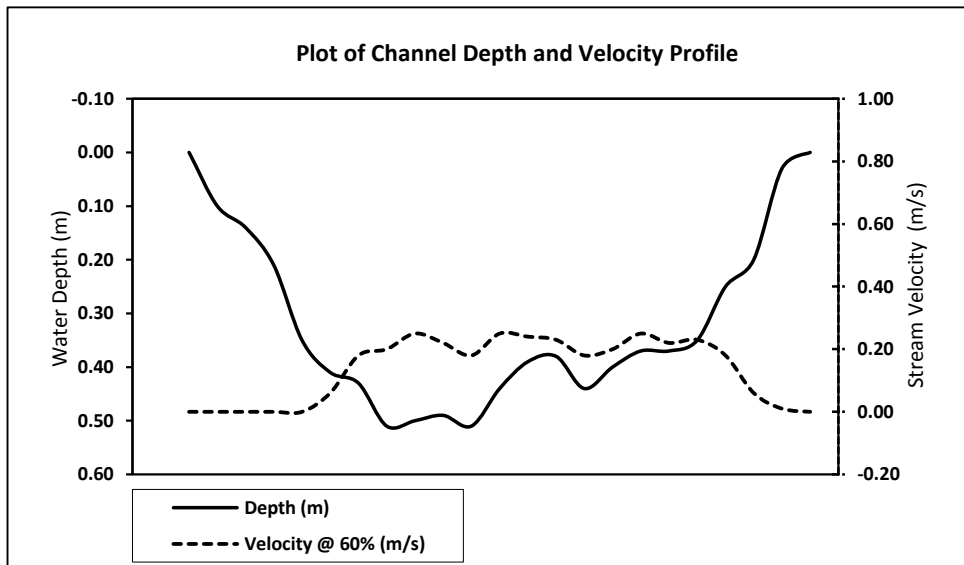
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |       |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.2           |  |       |
| Site / Location:      | Clinton Creek Site |                                                                                     |       |
| Stream Name:          | Clinton Creek      |                                                                                     |       |
| Station Name:         | E1(H)              |                                                                                     |       |
| Date and Time:        | Jun.13/2016, 13:45 |                                                                                     |       |
| Staff:                | AN,CH              |                                                                                     |       |
| UTM Coordinates:      | 512800. 7147438    |                                                                                     |       |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 2     |
| Temp., Water/Air (°C) | 14.9/~8            | Right Bank                                                                          | 12.44 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 10.44 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 12.44        | 0.095             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 12.25        | 0.345             | 0.10      | 0.00                 | 0.035                        | 0.0000                              |
| 2           | 11.75        | 0.500             | 0.14      | 0.00                 | 0.070                        | 0.0000                              |
| 3           | 11.25        | 0.500             | 0.21      | 0.00                 | 0.105                        | 0.0000                              |
| 4           | 10.75        | 0.500             | 0.35      | 0.00                 | 0.175                        | 0.0000                              |
| 5           | 10.25        | 0.500             | 0.41      | 0.06                 | 0.205                        | 0.0123                              |
| 6           | 9.75         | 0.500             | 0.43      | 0.18                 | 0.215                        | 0.0387                              |
| 7           | 9.25         | 0.500             | 0.51      | 0.20                 | 0.255                        | 0.0510                              |
| 8           | 8.75         | 0.500             | 0.50      | 0.25                 | 0.250                        | 0.0625                              |
| 9           | 8.25         | 0.500             | 0.49      | 0.22                 | 0.245                        | 0.0539                              |
| 10          | 7.75         | 0.500             | 0.51      | 0.18                 | 0.255                        | 0.0459                              |
| 11          | 7.25         | 0.500             | 0.44      | 0.25                 | 0.220                        | 0.0550                              |
| 12          | 6.75         | 0.500             | 0.39      | 0.24                 | 0.195                        | 0.0468                              |
| 13          | 6.25         | 0.500             | 0.38      | 0.23                 | 0.190                        | 0.0437                              |
| 14          | 5.75         | 0.500             | 0.44      | 0.18                 | 0.220                        | 0.0396                              |
| 15          | 5.25         | 0.500             | 0.40      | 0.20                 | 0.200                        | 0.0400                              |
| 16          | 4.75         | 0.500             | 0.37      | 0.25                 | 0.185                        | 0.0463                              |
| 17          | 4.25         | 0.500             | 0.37      | 0.22                 | 0.185                        | 0.0407                              |
| 18          | 3.75         | 0.500             | 0.35      | 0.23                 | 0.175                        | 0.0403                              |
| 19          | 3.25         | 0.500             | 0.25      | 0.18                 | 0.125                        | 0.0225                              |
| 20          | 2.75         | 0.500             | 0.20      | 0.06                 | 0.100                        | 0.0060                              |
| 21          | 2.25         | 0.375             | 0.03      | 0.01                 | 0.011                        | 0.0001                              |
| 22          | 2.00         | 0.125             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.00         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.32 |
| Mean Velocity (m/s) | 0.14 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.6452 |
|-------------------------------|--------|



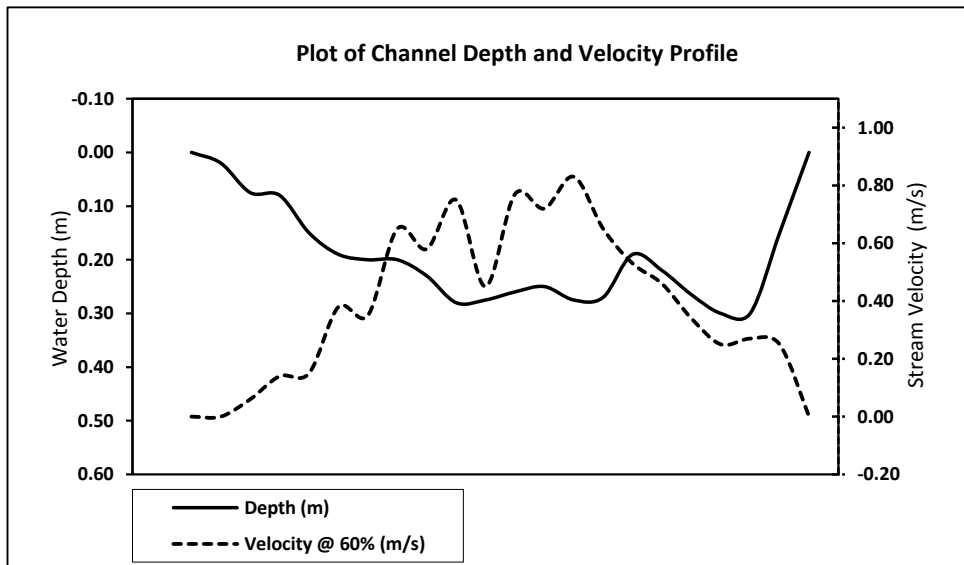
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Clinton Creek      |                                                                                     |      |
| Station Name:         | E2                 |                                                                                     |      |
| Date and Time:        | Jun.15/2016, 11:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 514149. 7147189    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 1.4  |
| Temp., Water/Air (°C) | 13.6/~15           | Right Bank                                                                          | 7.75 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 6.35 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.40         | 0.150             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.70         | 0.300             | 0.02      | 0.00                 | 0.006                        | 0.0000                              |
| 2           | 2.00         | 0.300             | 0.08      | 0.06                 | 0.023                        | 0.0014                              |
| 3           | 2.30         | 0.300             | 0.08      | 0.14                 | 0.024                        | 0.0034                              |
| 4           | 2.60         | 0.300             | 0.15      | 0.15                 | 0.045                        | 0.0068                              |
| 5           | 2.90         | 0.300             | 0.19      | 0.38                 | 0.057                        | 0.0217                              |
| 6           | 3.20         | 0.300             | 0.20      | 0.35                 | 0.060                        | 0.0210                              |
| 7           | 3.50         | 0.300             | 0.20      | 0.65                 | 0.060                        | 0.0390                              |
| 8           | 3.80         | 0.300             | 0.23      | 0.58                 | 0.069                        | 0.0400                              |
| 9           | 4.10         | 0.300             | 0.28      | 0.75                 | 0.084                        | 0.0630                              |
| 10          | 4.40         | 0.300             | 0.28      | 0.45                 | 0.083                        | 0.0371                              |
| 11          | 4.70         | 0.300             | 0.26      | 0.77                 | 0.078                        | 0.0601                              |
| 12          | 5.00         | 0.300             | 0.25      | 0.72                 | 0.075                        | 0.0540                              |
| 13          | 5.30         | 0.300             | 0.28      | 0.83                 | 0.083                        | 0.0685                              |
| 14          | 5.60         | 0.300             | 0.27      | 0.65                 | 0.081                        | 0.0527                              |
| 15          | 5.90         | 0.300             | 0.19      | 0.53                 | 0.057                        | 0.0302                              |
| 16          | 6.20         | 0.300             | 0.22      | 0.46                 | 0.066                        | 0.0304                              |
| 17          | 6.50         | 0.300             | 0.27      | 0.34                 | 0.080                        | 0.0270                              |
| 18          | 6.80         | 0.300             | 0.30      | 0.25                 | 0.090                        | 0.0225                              |
| 19          | 7.10         | 0.300             | 0.30      | 0.27                 | 0.090                        | 0.0243                              |
| 20          | 7.40         | 0.325             | 0.15      | 0.25                 | 0.049                        | 0.0122                              |
| 21          | 7.75         | 0.175             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 7.75         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.19 |
| Mean Velocity (m/s) | 0.39 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.6150 |
|-------------------------------|--------|



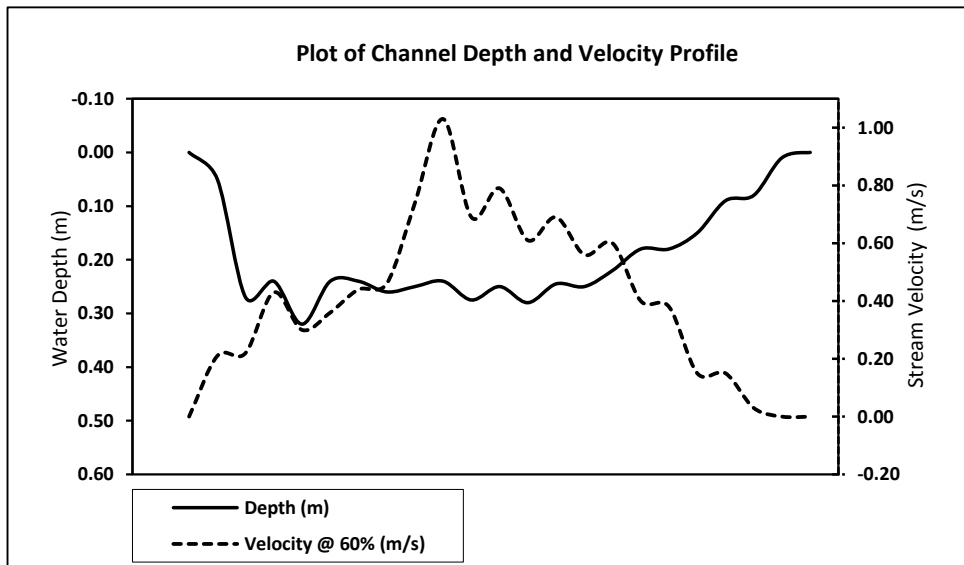
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Clinton Creek      |                                                                                     |      |
| Station Name:         | E2                 |                                                                                     |      |
| Date and Time:        | Jun.15/2016, 11:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 514149. 7147189    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 1.4  |
| Temp., Water/Air (°C) | 13.6/~15           | Right Bank                                                                          | 7.75 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 6.35 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 7.75         | 0.075             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 7.60         | 0.225             | 0.05      | 0.21                 | 0.011                        | 0.0024                              |
| 2           | 7.30         | 0.300             | 0.27      | 0.22                 | 0.081                        | 0.0178                              |
| 3           | 7.00         | 0.300             | 0.24      | 0.43                 | 0.072                        | 0.0310                              |
| 4           | 6.70         | 0.300             | 0.32      | 0.30                 | 0.096                        | 0.0288                              |
| 5           | 6.40         | 0.300             | 0.24      | 0.36                 | 0.072                        | 0.0259                              |
| 6           | 6.10         | 0.300             | 0.24      | 0.44                 | 0.072                        | 0.0317                              |
| 7           | 5.80         | 0.300             | 0.26      | 0.46                 | 0.078                        | 0.0359                              |
| 8           | 5.50         | 0.300             | 0.25      | 0.74                 | 0.075                        | 0.0555                              |
| 9           | 5.20         | 0.300             | 0.24      | 1.03                 | 0.072                        | 0.0742                              |
| 10          | 4.90         | 0.300             | 0.28      | 0.69                 | 0.083                        | 0.0569                              |
| 11          | 4.60         | 0.300             | 0.25      | 0.79                 | 0.075                        | 0.0593                              |
| 12          | 4.30         | 0.300             | 0.28      | 0.61                 | 0.084                        | 0.0512                              |
| 13          | 4.00         | 0.300             | 0.25      | 0.69                 | 0.074                        | 0.0507                              |
| 14          | 3.70         | 0.300             | 0.25      | 0.56                 | 0.075                        | 0.0420                              |
| 15          | 3.40         | 0.300             | 0.22      | 0.60                 | 0.066                        | 0.0396                              |
| 16          | 3.10         | 0.300             | 0.18      | 0.40                 | 0.054                        | 0.0216                              |
| 17          | 2.80         | 0.300             | 0.18      | 0.38                 | 0.054                        | 0.0205                              |
| 18          | 2.50         | 0.300             | 0.15      | 0.15                 | 0.045                        | 0.0068                              |
| 19          | 2.20         | 0.300             | 0.09      | 0.15                 | 0.027                        | 0.0041                              |
| 20          | 1.90         | 0.300             | 0.08      | 0.03                 | 0.024                        | 0.0007                              |
| 21          | 1.60         | 0.250             | 0.01      | 0.00                 | 0.003                        | 0.0000                              |
| 22          | 1.40         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.40         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.19 |
| Mean Velocity (m/s) | 0.40 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.6565 |
|-------------------------------|--------|



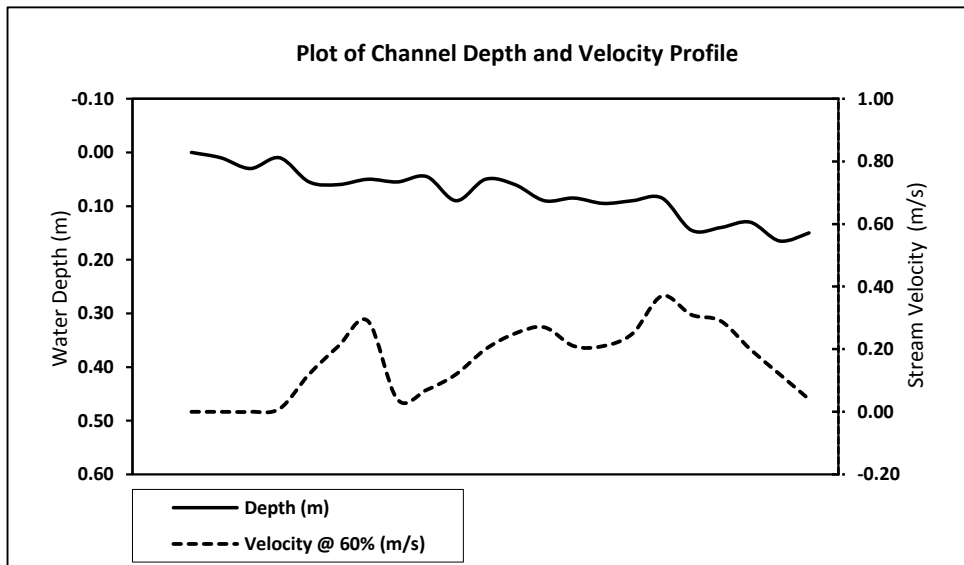
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Wolverine Creek    |                                                                                     |      |
| Station Name:         | E3(H)              |                                                                                     |      |
| Date and Time:        | Jun.18/2016, 9:00  |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 514170. 7147608    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 3.94 |
| Temp., Water/Air (°C) | not measured/~10   | Right Bank                                                                          | 0.58 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 3.36 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 3.94         | 0.075             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 3.80         | 0.145             | 0.01      | 0.00                 | 0.001                        | 0.0000                              |
| 2           | 3.65         | 0.150             | 0.03      | 0.00                 | 0.005                        | 0.0000                              |
| 3           | 3.50         | 0.150             | 0.01      | 0.01                 | 0.002                        | 0.0000                              |
| 4           | 3.35         | 0.150             | 0.06      | 0.12                 | 0.008                        | 0.0010                              |
| 5           | 3.20         | 0.150             | 0.06      | 0.21                 | 0.009                        | 0.0019                              |
| 6           | 3.05         | 0.150             | 0.05      | 0.29                 | 0.008                        | 0.0022                              |
| 7           | 2.90         | 0.150             | 0.06      | 0.04                 | 0.008                        | 0.0003                              |
| 8           | 2.75         | 0.150             | 0.05      | 0.07                 | 0.007                        | 0.0005                              |
| 9           | 2.60         | 0.150             | 0.09      | 0.12                 | 0.014                        | 0.0016                              |
| 10          | 2.45         | 0.150             | 0.05      | 0.20                 | 0.008                        | 0.0015                              |
| 11          | 2.30         | 0.150             | 0.06      | 0.25                 | 0.009                        | 0.0023                              |
| 12          | 2.15         | 0.150             | 0.09      | 0.27                 | 0.014                        | 0.0036                              |
| 13          | 2.00         | 0.150             | 0.09      | 0.21                 | 0.013                        | 0.0027                              |
| 14          | 1.85         | 0.150             | 0.10      | 0.21                 | 0.014                        | 0.0030                              |
| 15          | 1.70         | 0.150             | 0.09      | 0.25                 | 0.014                        | 0.0034                              |
| 16          | 1.55         | 0.150             | 0.09      | 0.37                 | 0.013                        | 0.0047                              |
| 17          | 1.40         | 0.150             | 0.15      | 0.31                 | 0.022                        | 0.0067                              |
| 18          | 1.25         | 0.150             | 0.14      | 0.29                 | 0.021                        | 0.0061                              |
| 19          | 1.10         | 0.150             | 0.13      | 0.20                 | 0.020                        | 0.0039                              |
| 20          | 0.95         | 0.260             | 0.17      | 0.12                 | 0.043                        | 0.0051                              |
| 21          | 0.58         | 0.185             | 0.15      | 0.04                 | 0.028                        | 0.0011                              |
| end         | 0.58         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.08 |
| Mean Velocity (m/s) | 0.16 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0516 |
|-------------------------------|--------|



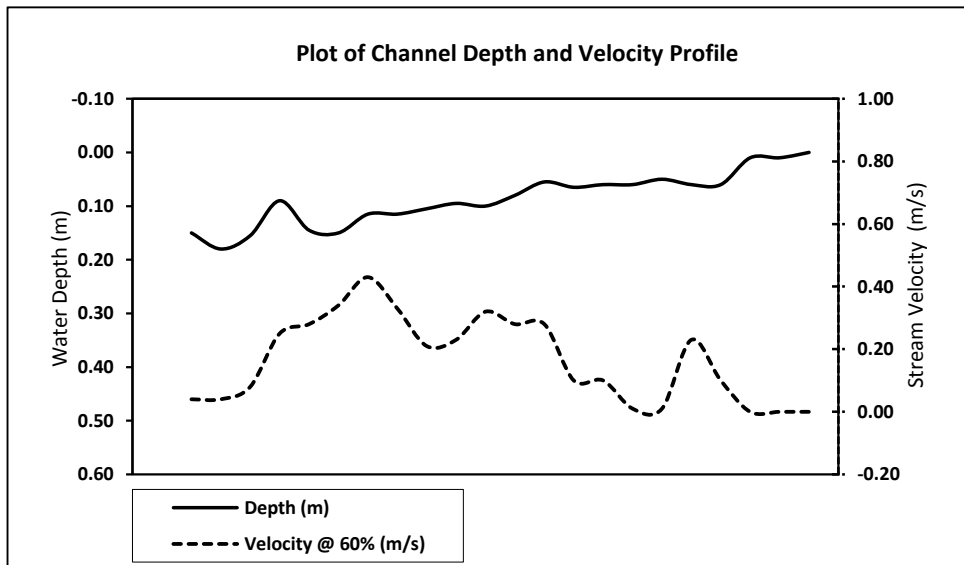
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Wolverine Creek    |                                                                                     |      |
| Station Name:         | E3(H)              |                                                                                     |      |
| Date and Time:        | Jun.18/2016, 9:00  |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 514170. 7147608    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 3.94 |
| Temp., Water/Air (°C) | not measured/~10   | Right Bank                                                                          | 0.58 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 3.36 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.58         | 0.085             | 0.15      | 0.04                 | 0.013                        | 0.0005                              |
| 1           | 0.75         | 0.160             | 0.18      | 0.04                 | 0.029                        | 0.0012                              |
| 2           | 0.90         | 0.150             | 0.16      | 0.08                 | 0.023                        | 0.0019                              |
| 3           | 1.05         | 0.150             | 0.09      | 0.25                 | 0.014                        | 0.0034                              |
| 4           | 1.20         | 0.150             | 0.15      | 0.28                 | 0.022                        | 0.0061                              |
| 5           | 1.35         | 0.150             | 0.15      | 0.34                 | 0.023                        | 0.0077                              |
| 6           | 1.50         | 0.150             | 0.12      | 0.43                 | 0.017                        | 0.0074                              |
| 7           | 1.65         | 0.150             | 0.12      | 0.33                 | 0.017                        | 0.0057                              |
| 8           | 1.80         | 0.150             | 0.11      | 0.21                 | 0.016                        | 0.0033                              |
| 9           | 1.95         | 0.150             | 0.10      | 0.23                 | 0.014                        | 0.0033                              |
| 10          | 2.10         | 0.150             | 0.10      | 0.32                 | 0.015                        | 0.0048                              |
| 11          | 2.25         | 0.150             | 0.08      | 0.28                 | 0.012                        | 0.0034                              |
| 12          | 2.40         | 0.150             | 0.06      | 0.28                 | 0.008                        | 0.0023                              |
| 13          | 2.55         | 0.150             | 0.07      | 0.10                 | 0.010                        | 0.0010                              |
| 14          | 2.70         | 0.150             | 0.06      | 0.10                 | 0.009                        | 0.0009                              |
| 15          | 2.85         | 0.150             | 0.06      | 0.01                 | 0.009                        | 0.0001                              |
| 16          | 3.00         | 0.150             | 0.05      | 0.01                 | 0.008                        | 0.0001                              |
| 17          | 3.15         | 0.150             | 0.06      | 0.23                 | 0.009                        | 0.0021                              |
| 18          | 3.30         | 0.150             | 0.06      | 0.10                 | 0.009                        | 0.0009                              |
| 19          | 3.45         | 0.150             | 0.01      | 0.00                 | 0.002                        | 0.0000                              |
| 20          | 3.60         | 0.245             | 0.01      | 0.00                 | 0.002                        | 0.0000                              |
| 21          | 3.94         | 0.170             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 3.94         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.09 |
| Mean Velocity (m/s) | 0.17 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0558 |
|-------------------------------|--------|



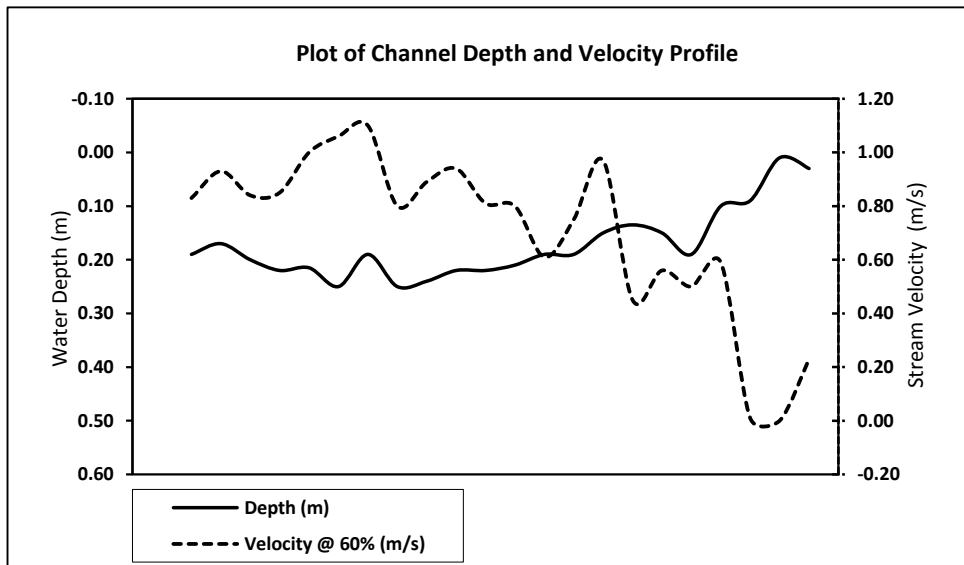
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |     |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2           |  |     |
| Site / Location:      | Clinton Creek Site |                                                                                     |     |
| Stream Name:          | Clinton Creek      |                                                                                     |     |
| Station Name:         | E4                 |                                                                                     |     |
| Date and Time:        | Jun.15/2016, 13:30 |                                                                                     |     |
| Staff:                | AN,CH              |                                                                                     |     |
| UTM Coordinates:      | 515950. 7145287    |                                                                                     |     |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.2 |
| Temp., Water/Air (°C) | 13.4/~12           | Right Bank                                                                          | 6.5 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 6.3 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.20         | 0.150             | 0.19      | 0.83                 | 0.029                        | 0.0237                              |
| 1           | 0.50         | 0.300             | 0.17      | 0.93                 | 0.051                        | 0.0474                              |
| 2           | 0.80         | 0.300             | 0.20      | 0.84                 | 0.060                        | 0.0504                              |
| 3           | 1.10         | 0.300             | 0.22      | 0.85                 | 0.066                        | 0.0561                              |
| 4           | 1.40         | 0.300             | 0.22      | 1.00                 | 0.065                        | 0.0645                              |
| 5           | 1.70         | 0.300             | 0.25      | 1.06                 | 0.075                        | 0.0795                              |
| 6           | 2.00         | 0.300             | 0.19      | 1.10                 | 0.057                        | 0.0627                              |
| 7           | 2.30         | 0.300             | 0.25      | 0.80                 | 0.075                        | 0.0600                              |
| 8           | 2.60         | 0.300             | 0.24      | 0.89                 | 0.072                        | 0.0641                              |
| 9           | 2.90         | 0.300             | 0.22      | 0.94                 | 0.066                        | 0.0620                              |
| 10          | 3.20         | 0.300             | 0.22      | 0.81                 | 0.066                        | 0.0535                              |
| 11          | 3.50         | 0.300             | 0.21      | 0.80                 | 0.063                        | 0.0504                              |
| 12          | 3.80         | 0.300             | 0.19      | 0.61                 | 0.057                        | 0.0348                              |
| 13          | 4.10         | 0.300             | 0.19      | 0.75                 | 0.057                        | 0.0428                              |
| 14          | 4.40         | 0.300             | 0.15      | 0.97                 | 0.045                        | 0.0437                              |
| 15          | 4.70         | 0.300             | 0.14      | 0.45                 | 0.041                        | 0.0182                              |
| 16          | 5.00         | 0.300             | 0.15      | 0.56                 | 0.045                        | 0.0252                              |
| 17          | 5.30         | 0.300             | 0.19      | 0.50                 | 0.057                        | 0.0285                              |
| 18          | 5.60         | 0.300             | 0.10      | 0.59                 | 0.030                        | 0.0177                              |
| 19          | 5.90         | 0.250             | 0.09      | 0.01                 | 0.023                        | 0.0002                              |
| 20          | 6.10         | 0.300             | 0.01      | 0.00                 | 0.003                        | 0.0000                              |
| 21          | 6.50         | 0.200             | 0.03      | 0.23                 | 0.006                        | 0.0014                              |
| end         | 6.50         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.17 |
| Mean Velocity (m/s) | 0.71 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.8867 |
|-------------------------------|--------|



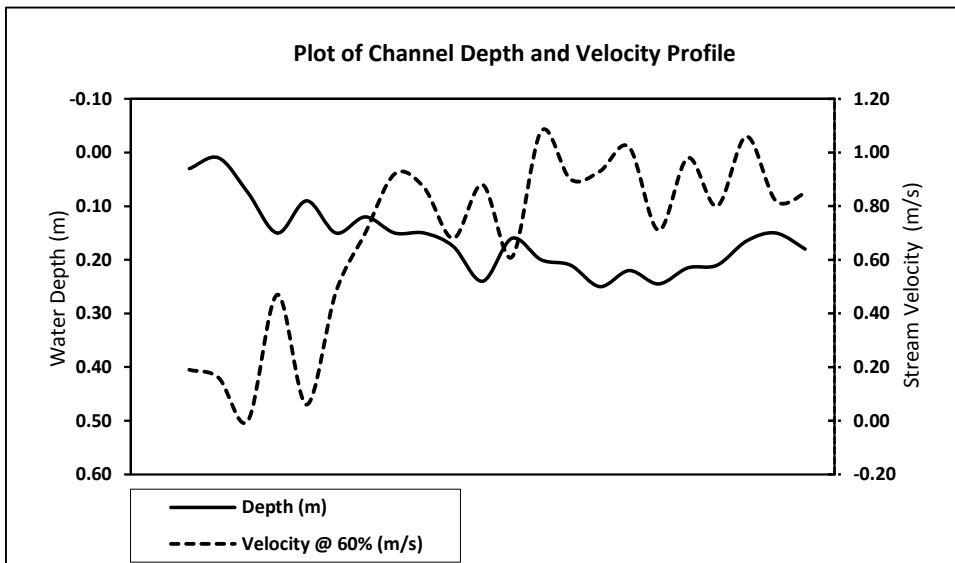
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |     |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2           |  |     |
| Site / Location:      | Clinton Creek Site |                                                                                     |     |
| Stream Name:          | Clinton Creek      |                                                                                     |     |
| Station Name:         | E4                 |                                                                                     |     |
| Date and Time:        | Jun.15/2016, 13:30 |                                                                                     |     |
| Staff:                | AN,CH              |                                                                                     |     |
| UTM Coordinates:      | 515950. 7145287    |                                                                                     |     |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.4 |
| Temp., Water/Air (°C) | 13.4/~12           | Right Bank                                                                          | 6.5 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 6.1 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 6.50         | 0.100             | 0.03      | 0.19                 | 0.003                        | 0.0006                              |
| 1           | 6.30         | 0.250             | 0.01      | 0.16                 | 0.003                        | 0.0004                              |
| 2           | 6.00         | 0.300             | 0.08      | 0.00                 | 0.023                        | 0.0000                              |
| 3           | 5.70         | 0.300             | 0.15      | 0.47                 | 0.045                        | 0.0212                              |
| 4           | 5.40         | 0.300             | 0.09      | 0.06                 | 0.027                        | 0.0016                              |
| 5           | 5.10         | 0.300             | 0.15      | 0.48                 | 0.045                        | 0.0216                              |
| 6           | 4.80         | 0.300             | 0.12      | 0.70                 | 0.036                        | 0.0252                              |
| 7           | 4.50         | 0.300             | 0.15      | 0.92                 | 0.045                        | 0.0414                              |
| 8           | 4.20         | 0.300             | 0.15      | 0.87                 | 0.045                        | 0.0392                              |
| 9           | 3.90         | 0.300             | 0.18      | 0.68                 | 0.053                        | 0.0357                              |
| 10          | 3.60         | 0.300             | 0.24      | 0.88                 | 0.072                        | 0.0634                              |
| 11          | 3.30         | 0.300             | 0.16      | 0.61                 | 0.048                        | 0.0293                              |
| 12          | 3.00         | 0.300             | 0.20      | 1.08                 | 0.060                        | 0.0648                              |
| 13          | 2.70         | 0.300             | 0.21      | 0.90                 | 0.063                        | 0.0567                              |
| 14          | 2.40         | 0.300             | 0.25      | 0.93                 | 0.075                        | 0.0698                              |
| 15          | 2.10         | 0.300             | 0.22      | 1.02                 | 0.066                        | 0.0673                              |
| 16          | 1.80         | 0.300             | 0.25      | 0.71                 | 0.074                        | 0.0522                              |
| 17          | 1.50         | 0.300             | 0.22      | 0.98                 | 0.065                        | 0.0632                              |
| 18          | 1.20         | 0.300             | 0.21      | 0.80                 | 0.063                        | 0.0504                              |
| 19          | 0.90         | 0.300             | 0.17      | 1.06                 | 0.050                        | 0.0525                              |
| 20          | 0.60         | 0.250             | 0.15      | 0.82                 | 0.038                        | 0.0308                              |
| 21          | 0.40         | 0.100             | 0.18      | 0.85                 | 0.018                        | 0.0153                              |
| end         | 0.40         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.16 |
| Mean Velocity (m/s) | 0.69 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.8023 |
|-------------------------------|--------|





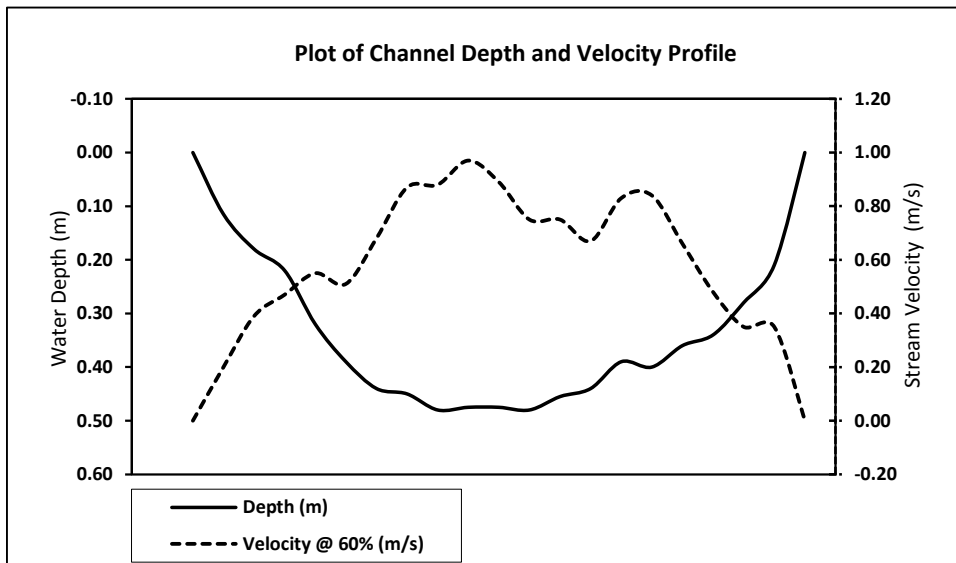
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |     |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2           |  |     |
| Site / Location:      | Clinton Creek Site |                                                                                     |     |
| Stream Name:          | Clinton Creek      |                                                                                     |     |
| Station Name:         | E7                 |                                                                                     |     |
| Date and Time:        | Jun.15/2016, 15:15 |                                                                                     |     |
| Staff:                | AN,CH              |                                                                                     |     |
| UTM Coordinates:      | 519400. 7142042    |                                                                                     |     |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.5 |
| Temp., Water/Air (°C) | 11.8/~15           | Right Bank                                                                          | 4.6 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 4.1 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 4.60         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 4.40         | 0.200             | 0.12      | 0.20                 | 0.023                        | 0.0046                              |
| 2           | 4.20         | 0.200             | 0.18      | 0.39                 | 0.036                        | 0.0140                              |
| 3           | 4.00         | 0.200             | 0.22      | 0.47                 | 0.044                        | 0.0207                              |
| 4           | 3.80         | 0.200             | 0.32      | 0.55                 | 0.064                        | 0.0352                              |
| 5           | 3.60         | 0.200             | 0.39      | 0.51                 | 0.078                        | 0.0398                              |
| 6           | 3.40         | 0.200             | 0.44      | 0.68                 | 0.088                        | 0.0598                              |
| 7           | 3.20         | 0.200             | 0.45      | 0.87                 | 0.090                        | 0.0783                              |
| 8           | 3.00         | 0.200             | 0.48      | 0.88                 | 0.096                        | 0.0845                              |
| 9           | 2.80         | 0.200             | 0.48      | 0.97                 | 0.095                        | 0.0922                              |
| 10          | 2.60         | 0.200             | 0.48      | 0.89                 | 0.095                        | 0.0846                              |
| 11          | 2.40         | 0.200             | 0.48      | 0.75                 | 0.096                        | 0.0720                              |
| 12          | 2.20         | 0.200             | 0.46      | 0.75                 | 0.091                        | 0.0683                              |
| 13          | 2.00         | 0.200             | 0.44      | 0.67                 | 0.088                        | 0.0590                              |
| 14          | 1.80         | 0.200             | 0.39      | 0.83                 | 0.078                        | 0.0647                              |
| 15          | 1.60         | 0.200             | 0.40      | 0.84                 | 0.080                        | 0.0672                              |
| 16          | 1.40         | 0.200             | 0.36      | 0.66                 | 0.072                        | 0.0475                              |
| 17          | 1.20         | 0.200             | 0.34      | 0.48                 | 0.068                        | 0.0326                              |
| 18          | 1.00         | 0.200             | 0.28      | 0.35                 | 0.056                        | 0.0196                              |
| 19          | 0.80         | 0.250             | 0.21      | 0.35                 | 0.053                        | 0.0184                              |
| 20          | 0.50         | 0.150             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.50         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.33 |
| Mean Velocity (m/s) | 0.58 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.9629 |
|-------------------------------|--------|



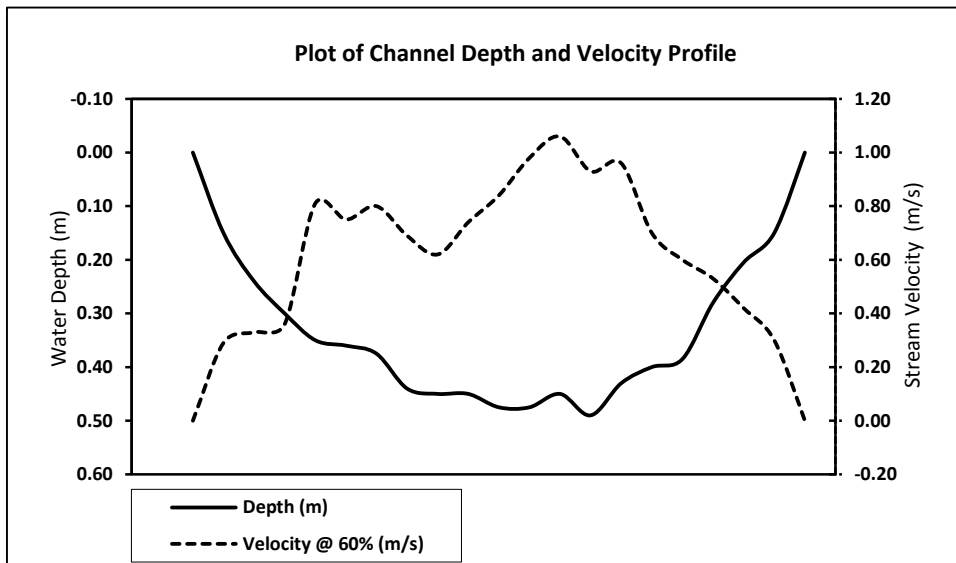
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |     |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2           |  |     |
| Site / Location:      | Clinton Creek Site |                                                                                     |     |
| Stream Name:          | Clinton Creek      |                                                                                     |     |
| Station Name:         | E7                 |                                                                                     |     |
| Date and Time:        | Jun.15/2016, 15:15 |                                                                                     |     |
| Staff:                | AN,CH              |                                                                                     |     |
| UTM Coordinates:      | 519400. 7142042    |                                                                                     |     |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.5 |
| Temp., Water/Air (°C) | 11.8/~15           | Right Bank                                                                          | 4.6 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 4.1 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.50         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.70         | 0.200             | 0.15      | 0.29                 | 0.030                        | 0.0087                              |
| 2           | 0.90         | 0.200             | 0.24      | 0.33                 | 0.048                        | 0.0158                              |
| 3           | 1.10         | 0.200             | 0.30      | 0.36                 | 0.060                        | 0.0216                              |
| 4           | 1.30         | 0.200             | 0.35      | 0.81                 | 0.070                        | 0.0567                              |
| 5           | 1.50         | 0.200             | 0.36      | 0.75                 | 0.072                        | 0.0540                              |
| 6           | 1.70         | 0.200             | 0.38      | 0.80                 | 0.075                        | 0.0600                              |
| 7           | 1.90         | 0.200             | 0.44      | 0.69                 | 0.088                        | 0.0607                              |
| 8           | 2.10         | 0.200             | 0.45      | 0.62                 | 0.090                        | 0.0558                              |
| 9           | 2.30         | 0.200             | 0.45      | 0.74                 | 0.090                        | 0.0666                              |
| 10          | 2.50         | 0.200             | 0.48      | 0.84                 | 0.095                        | 0.0798                              |
| 11          | 2.70         | 0.200             | 0.48      | 0.98                 | 0.095                        | 0.0931                              |
| 12          | 2.90         | 0.200             | 0.45      | 1.06                 | 0.090                        | 0.0954                              |
| 13          | 3.10         | 0.200             | 0.49      | 0.93                 | 0.098                        | 0.0911                              |
| 14          | 3.30         | 0.200             | 0.43      | 0.96                 | 0.086                        | 0.0826                              |
| 15          | 3.50         | 0.200             | 0.40      | 0.70                 | 0.080                        | 0.0560                              |
| 16          | 3.70         | 0.200             | 0.39      | 0.60                 | 0.077                        | 0.0462                              |
| 17          | 3.90         | 0.200             | 0.28      | 0.53                 | 0.056                        | 0.0297                              |
| 18          | 4.10         | 0.200             | 0.21      | 0.42                 | 0.041                        | 0.0172                              |
| 19          | 4.30         | 0.250             | 0.15      | 0.30                 | 0.038                        | 0.0113                              |
| 20          | 4.60         | 0.150             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 4.60         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.33 |
| Mean Velocity (m/s) | 0.61 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 1.0023 |
|-------------------------------|--------|



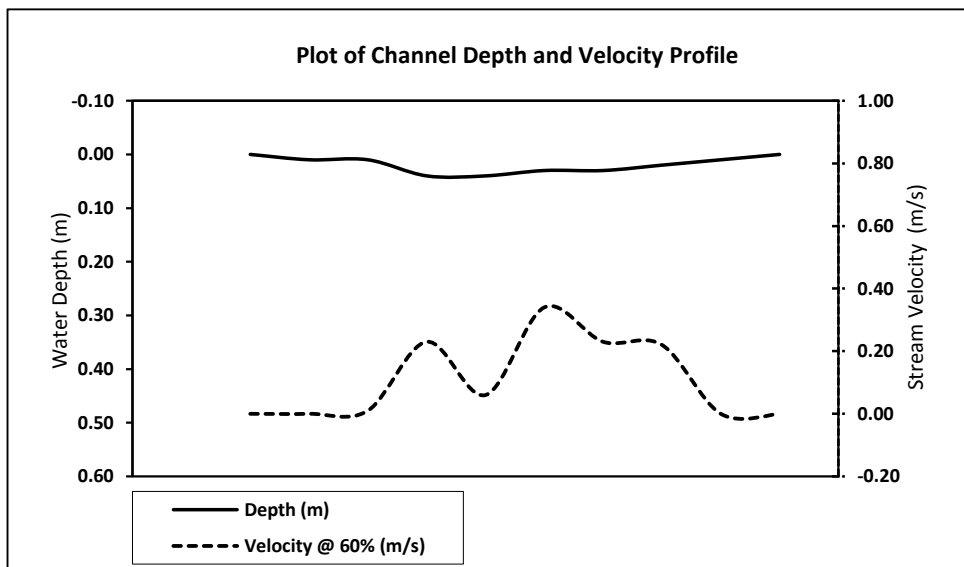


|                       |                    |                                                                                     |     |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2           |  |     |
| Site / Location:      | Clinton Creek Site |                                                                                     |     |
| Stream Name:          | Groundwater Seep   |                                                                                     |     |
| Station Name:         | GWCC-5             |                                                                                     |     |
| Date and Time:        | Jun.13/2016, 16:35 |                                                                                     |     |
| Staff:                | AN,CH              |                                                                                     |     |
| UTM Coordinates:      | 513984. 7147127    |                                                                                     |     |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 1.3 |
| Temp., Water/Air (°C) | 9.5/~8             | Right Bank                                                                          | 2.2 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.9 |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.02 |
| Mean Velocity (m/s) | 0.11 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0033 |
|-------------------------------|--------|





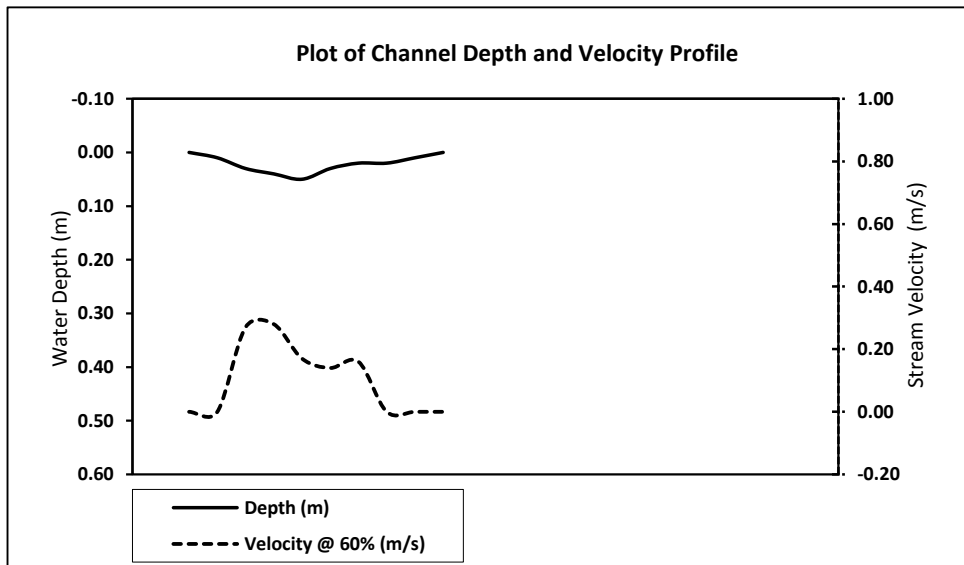
Ecological Logistics  
& Research Ltd.

|                       |                    |                                                                                     |     |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2           |  |     |
| Site / Location:      | Clinton Creek Site |                                                                                     |     |
| Stream Name:          | Groundwater Seep   |                                                                                     |     |
| Station Name:         | GWCC-5             |                                                                                     |     |
| Date and Time:        | Jun.13/2016, 16:35 |                                                                                     |     |
| Staff:                | AN,CH              |                                                                                     |     |
| UTM Coordinates:      | 513984. 7147127    |                                                                                     |     |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 1.3 |
| Temp., Water/Air (°C) | 9.5/~8             | Right Bank                                                                          | 2.2 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 0.9 |

| <b>Station No.</b> | <b>Distance<br/>(m)</b> | <b>Station<br/>Width (m)</b> | <b>Depth (m)</b> | <b>Velocity @<br/>60% (m/s)</b> | <b>Panel Area<br/>(m²)</b> | <b>Panel<br/>Discharge<br/>(m³/s)</b> |
|--------------------|-------------------------|------------------------------|------------------|---------------------------------|----------------------------|---------------------------------------|
| 0                  | 2.20                    | 0.050                        | 0.00             | 0.00                            | 0.000                      | 0.0000                                |
| 1                  | 2.10                    | 0.100                        | 0.01             | 0.00                            | 0.001                      | 0.0000                                |
| 2                  | 2.00                    | 0.100                        | 0.03             | 0.27                            | 0.003                      | 0.0008                                |
| 3                  | 1.90                    | 0.100                        | 0.04             | 0.28                            | 0.004                      | 0.0011                                |
| 4                  | 1.80                    | 0.100                        | 0.05             | 0.17                            | 0.005                      | 0.0009                                |
| 5                  | 1.70                    | 0.100                        | 0.03             | 0.14                            | 0.003                      | 0.0004                                |
| 6                  | 1.60                    | 0.100                        | 0.02             | 0.16                            | 0.002                      | 0.0003                                |
| 7                  | 1.50                    | 0.100                        | 0.02             | 0.00                            | 0.002                      | 0.0000                                |
| 8                  | 1.40                    | 0.100                        | 0.01             | 0.00                            | 0.001                      | 0.0000                                |
| 9                  | 1.30                    | 0.050                        | 0.00             | 0.00                            | 0.000                      | 0.0000                                |
| end                | 1.30                    |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
|                    |                         |                              |                  |                                 |                            |                                       |
| end                |                         |                              |                  |                                 |                            |                                       |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.02 |
| Mean Velocity (m/s) | 0.10 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0035 |
|-------------------------------|--------|



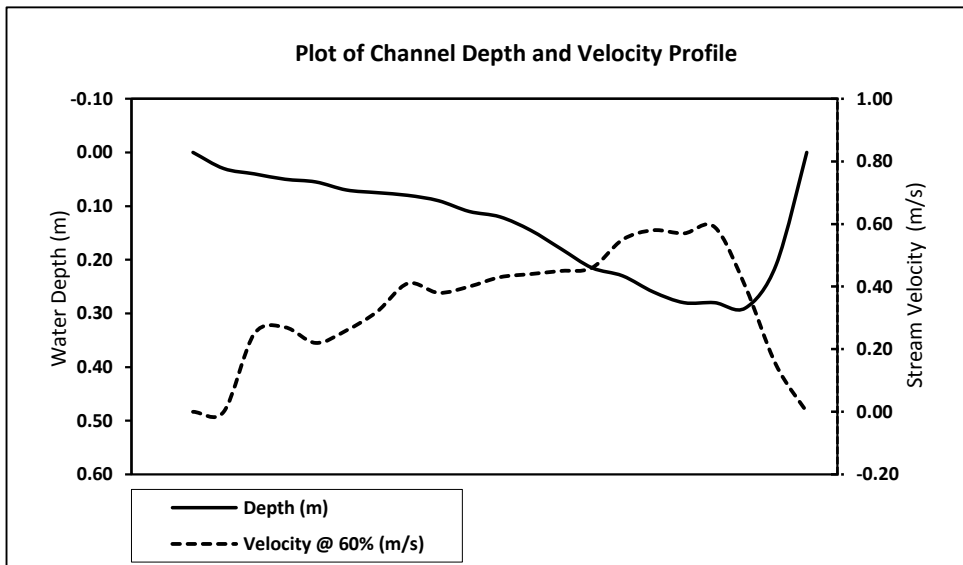
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |     |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2            |  |     |
| Site / Location:      | Clinton Creek Site  |                                                                                     |     |
| Stream Name:          | Upper Clinton Creek |                                                                                     |     |
| Station Name:         | R1                  |                                                                                     |     |
| Date and Time:        | Jun.16/2016, 15:15  |                                                                                     |     |
| Staff:                | AN,CH               |                                                                                     |     |
| UTM Coordinates:      | 510718. 7147525     |                                                                                     |     |
| Technique:            | Swoffer Flow Meter  |                                                                                     |     |
| Temp., Water/Air (°C) | 9.3/~15             | Left Bank                                                                           | 0.2 |
| Crossing Number       | 1                   | Right Bank                                                                          | 6.3 |
|                       |                     | Wet.Width                                                                           | 6.1 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 6.30         | 0.150             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 6.00         | 0.300             | 0.03      | 0.00                 | 0.009                        | 0.0000                              |
| 2           | 5.70         | 0.300             | 0.04      | 0.25                 | 0.012                        | 0.0030                              |
| 3           | 5.40         | 0.300             | 0.05      | 0.27                 | 0.015                        | 0.0041                              |
| 4           | 5.10         | 0.300             | 0.06      | 0.22                 | 0.017                        | 0.0036                              |
| 5           | 4.80         | 0.300             | 0.07      | 0.26                 | 0.021                        | 0.0055                              |
| 6           | 4.50         | 0.300             | 0.08      | 0.32                 | 0.023                        | 0.0072                              |
| 7           | 4.20         | 0.300             | 0.08      | 0.41                 | 0.024                        | 0.0098                              |
| 8           | 3.90         | 0.300             | 0.09      | 0.38                 | 0.027                        | 0.0103                              |
| 9           | 3.60         | 0.300             | 0.11      | 0.40                 | 0.033                        | 0.0132                              |
| 10          | 3.30         | 0.300             | 0.12      | 0.43                 | 0.036                        | 0.0155                              |
| 11          | 3.00         | 0.300             | 0.15      | 0.44                 | 0.044                        | 0.0191                              |
| 12          | 2.70         | 0.300             | 0.18      | 0.45                 | 0.054                        | 0.0243                              |
| 13          | 2.40         | 0.300             | 0.22      | 0.46                 | 0.065                        | 0.0297                              |
| 14          | 2.10         | 0.300             | 0.23      | 0.55                 | 0.069                        | 0.0380                              |
| 15          | 1.80         | 0.300             | 0.26      | 0.58                 | 0.078                        | 0.0452                              |
| 16          | 1.50         | 0.300             | 0.28      | 0.57                 | 0.084                        | 0.0479                              |
| 17          | 1.20         | 0.300             | 0.28      | 0.59                 | 0.084                        | 0.0496                              |
| 18          | 0.90         | 0.300             | 0.29      | 0.40                 | 0.087                        | 0.0348                              |
| 19          | 0.60         | 0.350             | 0.21      | 0.15                 | 0.074                        | 0.0110                              |
| 20          | 0.20         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.20         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.13 |
| Mean Velocity (m/s) | 0.34 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.3717 |
|-------------------------------|--------|



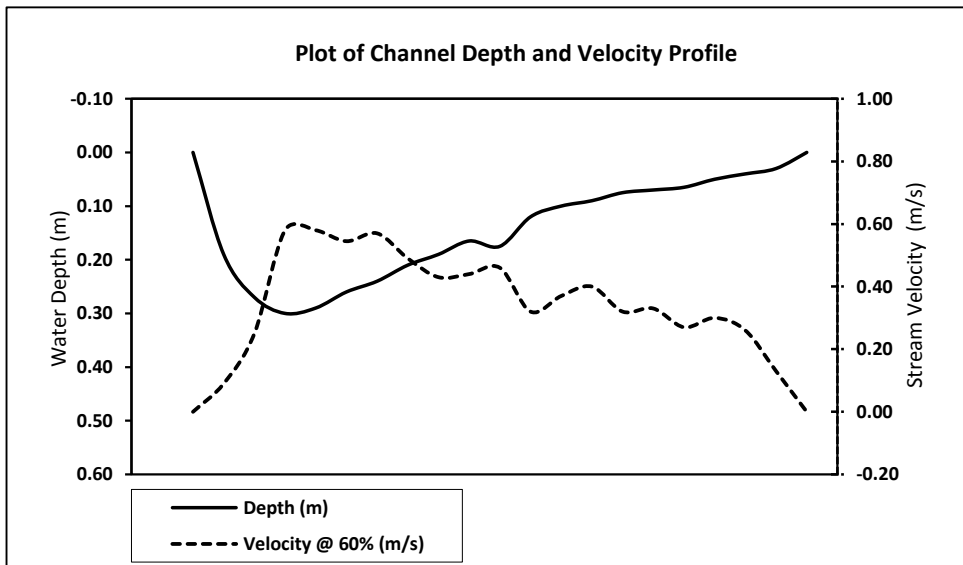
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |     |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.2            |  |     |
| Site / Location:      | Clinton Creek Site  |                                                                                     |     |
| Stream Name:          | Upper Clinton Creek |                                                                                     |     |
| Station Name:         | R1                  |                                                                                     |     |
| Date and Time:        | Jun.16/2016, 15:15  |                                                                                     |     |
| Staff:                | AN,CH               |                                                                                     |     |
| UTM Coordinates:      | 510718. 7147525     |                                                                                     |     |
| Technique:            | Swoffer Flow Meter  | Left Bank                                                                           | 0.2 |
| Temp., Water/Air (°C) | 9.3/~15             | Right Bank                                                                          | 6.3 |
| Crossing Number       | 2                   | Wet.Width                                                                           | 6.1 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.20         | 0.150             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.50         | 0.300             | 0.19      | 0.09                 | 0.057                        | 0.0051                              |
| 2           | 0.80         | 0.300             | 0.27      | 0.25                 | 0.081                        | 0.0203                              |
| 3           | 1.10         | 0.300             | 0.30      | 0.58                 | 0.090                        | 0.0522                              |
| 4           | 1.40         | 0.300             | 0.29      | 0.58                 | 0.087                        | 0.0505                              |
| 5           | 1.70         | 0.300             | 0.26      | 0.55                 | 0.078                        | 0.0425                              |
| 6           | 2.00         | 0.300             | 0.24      | 0.57                 | 0.072                        | 0.0410                              |
| 7           | 2.30         | 0.300             | 0.21      | 0.49                 | 0.063                        | 0.0309                              |
| 8           | 2.60         | 0.300             | 0.19      | 0.43                 | 0.057                        | 0.0245                              |
| 9           | 2.90         | 0.300             | 0.17      | 0.44                 | 0.050                        | 0.0218                              |
| 10          | 3.20         | 0.300             | 0.18      | 0.46                 | 0.053                        | 0.0242                              |
| 11          | 3.50         | 0.300             | 0.12      | 0.32                 | 0.036                        | 0.0115                              |
| 12          | 3.80         | 0.300             | 0.10      | 0.37                 | 0.030                        | 0.0111                              |
| 13          | 4.10         | 0.300             | 0.09      | 0.40                 | 0.027                        | 0.0108                              |
| 14          | 4.40         | 0.300             | 0.08      | 0.32                 | 0.023                        | 0.0072                              |
| 15          | 4.70         | 0.300             | 0.07      | 0.33                 | 0.021                        | 0.0069                              |
| 16          | 5.00         | 0.300             | 0.07      | 0.27                 | 0.020                        | 0.0053                              |
| 17          | 5.30         | 0.300             | 0.05      | 0.30                 | 0.015                        | 0.0045                              |
| 18          | 5.60         | 0.300             | 0.04      | 0.26                 | 0.012                        | 0.0031                              |
| 19          | 5.90         | 0.350             | 0.03      | 0.13                 | 0.011                        | 0.0014                              |
| 20          | 6.30         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 6.30         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.14 |
| Mean Velocity (m/s) | 0.34 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.3747 |
|-------------------------------|--------|



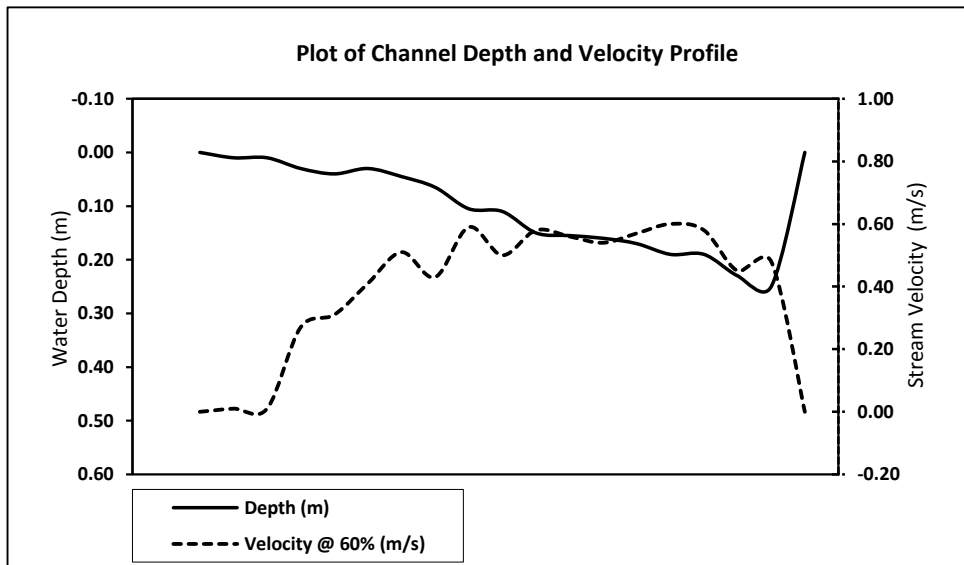
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Easter Creek       |                                                                                     |      |
| Station Name:         | R2                 |                                                                                     |      |
| Date and Time:        | Jun.16/2016, 13:30 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 512023. 7148061    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 2.1  |
| Temp., Water/Air (°C) | 6.9/~15            | Right Bank                                                                          | 0.43 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 1.67 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.43         | 0.045             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.52         | 0.090             | 0.01      | 0.01                 | 0.001                        | 0.0000                              |
| 2           | 0.61         | 0.090             | 0.01      | 0.01                 | 0.001                        | 0.0000                              |
| 3           | 0.70         | 0.090             | 0.03      | 0.27                 | 0.003                        | 0.0007                              |
| 4           | 0.79         | 0.090             | 0.04      | 0.31                 | 0.004                        | 0.0011                              |
| 5           | 0.88         | 0.090             | 0.03      | 0.41                 | 0.003                        | 0.0011                              |
| 6           | 0.97         | 0.090             | 0.05      | 0.51                 | 0.004                        | 0.0021                              |
| 7           | 1.06         | 0.090             | 0.07      | 0.43                 | 0.006                        | 0.0025                              |
| 8           | 1.15         | 0.090             | 0.11      | 0.59                 | 0.009                        | 0.0056                              |
| 9           | 1.24         | 0.090             | 0.11      | 0.50                 | 0.010                        | 0.0050                              |
| 10          | 1.33         | 0.090             | 0.15      | 0.58                 | 0.014                        | 0.0078                              |
| 11          | 1.42         | 0.090             | 0.16      | 0.56                 | 0.014                        | 0.0078                              |
| 12          | 1.51         | 0.090             | 0.16      | 0.54                 | 0.014                        | 0.0078                              |
| 13          | 1.60         | 0.090             | 0.17      | 0.57                 | 0.015                        | 0.0087                              |
| 14          | 1.69         | 0.090             | 0.19      | 0.60                 | 0.017                        | 0.0103                              |
| 15          | 1.78         | 0.090             | 0.19      | 0.58                 | 0.017                        | 0.0099                              |
| 16          | 1.87         | 0.090             | 0.23      | 0.45                 | 0.021                        | 0.0093                              |
| 17          | 1.96         | 0.115             | 0.25      | 0.48                 | 0.029                        | 0.0138                              |
| 18          | 2.10         | 0.070             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.10         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.10 |
| Mean Velocity (m/s) | 0.39 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0935 |
|-------------------------------|--------|



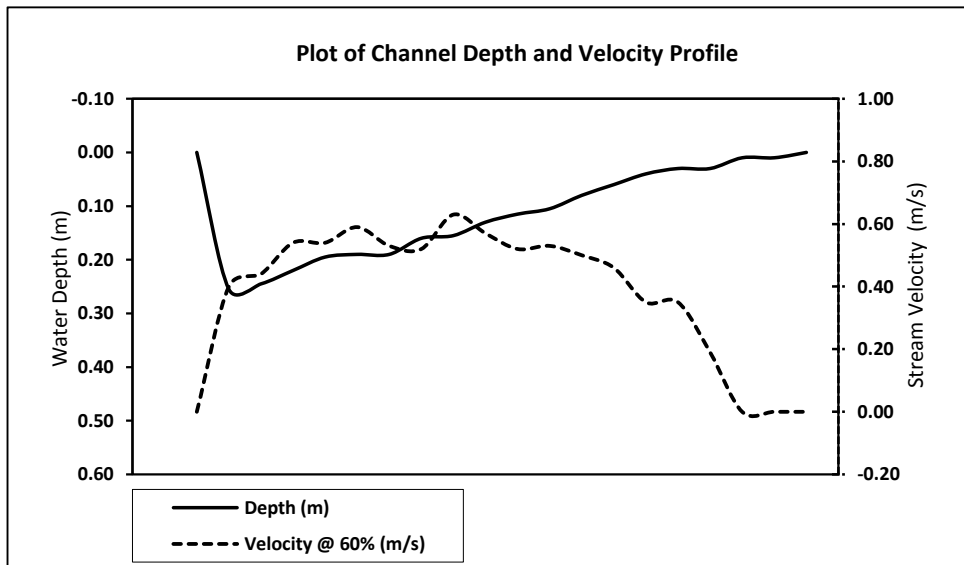
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Easter Creek       |                                                                                     |      |
| Station Name:         | R2                 |                                                                                     |      |
| Date and Time:        | Jun.16/2016, 13:30 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 512023. 7148061    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 2.1  |
| Temp., Water/Air (°C) | 6.9/~15            | Right Bank                                                                          | 0.43 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 1.67 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.10         | 0.045             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.01         | 0.090             | 0.26      | 0.40                 | 0.023                        | 0.0092                              |
| 2           | 1.92         | 0.090             | 0.25      | 0.44                 | 0.022                        | 0.0097                              |
| 3           | 1.83         | 0.090             | 0.22      | 0.54                 | 0.020                        | 0.0107                              |
| 4           | 1.74         | 0.090             | 0.20      | 0.54                 | 0.018                        | 0.0095                              |
| 5           | 1.65         | 0.090             | 0.19      | 0.59                 | 0.017                        | 0.0101                              |
| 6           | 1.56         | 0.090             | 0.19      | 0.53                 | 0.017                        | 0.0091                              |
| 7           | 1.47         | 0.090             | 0.16      | 0.52                 | 0.014                        | 0.0075                              |
| 8           | 1.38         | 0.090             | 0.16      | 0.63                 | 0.014                        | 0.0088                              |
| 9           | 1.29         | 0.090             | 0.13      | 0.57                 | 0.012                        | 0.0067                              |
| 10          | 1.20         | 0.090             | 0.12      | 0.52                 | 0.010                        | 0.0054                              |
| 11          | 1.11         | 0.090             | 0.11      | 0.53                 | 0.009                        | 0.0050                              |
| 12          | 1.02         | 0.090             | 0.08      | 0.50                 | 0.007                        | 0.0036                              |
| 13          | 0.93         | 0.090             | 0.06      | 0.46                 | 0.005                        | 0.0025                              |
| 14          | 0.84         | 0.090             | 0.04      | 0.35                 | 0.004                        | 0.0013                              |
| 15          | 0.75         | 0.090             | 0.03      | 0.35                 | 0.003                        | 0.0009                              |
| 16          | 0.66         | 0.090             | 0.03      | 0.19                 | 0.003                        | 0.0005                              |
| 17          | 0.57         | 0.100             | 0.01      | 0.00                 | 0.001                        | 0.0000                              |
| 18          | 0.46         | 0.070             | 0.01      | 0.00                 | 0.001                        | 0.0000                              |
| 19          | 0.43         | 0.015             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.43         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.11 |
| Mean Velocity (m/s) | 0.38 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.1003 |
|-------------------------------|--------|





## Stream Flow & Discharge Calculation

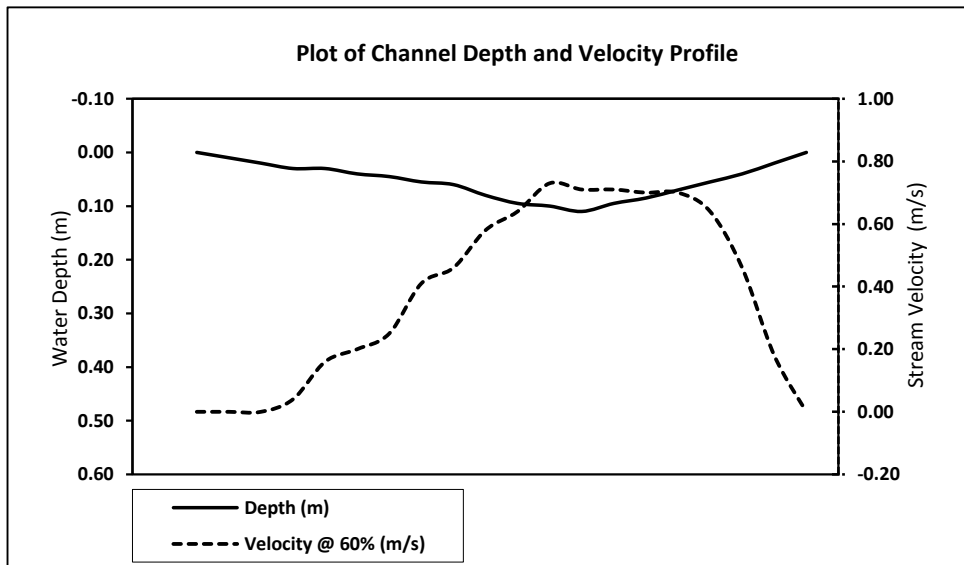


|                       |                    |            |      |
|-----------------------|--------------------|------------|------|
| ELR Project No.       | 16-240.2           |            |      |
| Site / Location:      | Clinton Creek Site |            |      |
| Stream Name:          | Wolverine Creek    |            |      |
| Station Name:         | R3                 |            |      |
| Date and Time:        | Jun.17/2016, 17:05 |            |      |
| Staff:                | AN,CH              |            |      |
| UTM Coordinates:      | 513952. 7148677    |            |      |
| Technique:            | Swoffer Flow Meter | Left Bank  | 0.4  |
| Temp., Water/Air (°C) | 9.6/~25            | Right Bank | 1.96 |
| Crossing Number       | 1                  | Wet.Width  | 1.56 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.96         | 0.040             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.88         | 0.080             | 0.01      | 0.00                 | 0.001                        | 0.0000                              |
| 2           | 1.80         | 0.080             | 0.02      | 0.00                 | 0.002                        | 0.0000                              |
| 3           | 1.72         | 0.080             | 0.03      | 0.04                 | 0.002                        | 0.0001                              |
| 4           | 1.64         | 0.080             | 0.03      | 0.16                 | 0.002                        | 0.0004                              |
| 5           | 1.56         | 0.080             | 0.04      | 0.20                 | 0.003                        | 0.0006                              |
| 6           | 1.48         | 0.080             | 0.05      | 0.25                 | 0.004                        | 0.0009                              |
| 7           | 1.40         | 0.080             | 0.06      | 0.41                 | 0.004                        | 0.0018                              |
| 8           | 1.32         | 0.080             | 0.06      | 0.46                 | 0.005                        | 0.0022                              |
| 9           | 1.24         | 0.080             | 0.08      | 0.58                 | 0.006                        | 0.0037                              |
| 10          | 1.16         | 0.080             | 0.10      | 0.64                 | 0.008                        | 0.0049                              |
| 11          | 1.08         | 0.080             | 0.10      | 0.73                 | 0.008                        | 0.0058                              |
| 12          | 1.00         | 0.080             | 0.11      | 0.71                 | 0.009                        | 0.0062                              |
| 13          | 0.92         | 0.080             | 0.10      | 0.71                 | 0.008                        | 0.0054                              |
| 14          | 0.84         | 0.080             | 0.09      | 0.70                 | 0.007                        | 0.0048                              |
| 15          | 0.76         | 0.080             | 0.07      | 0.70                 | 0.006                        | 0.0039                              |
| 16          | 0.68         | 0.080             | 0.06      | 0.64                 | 0.004                        | 0.0028                              |
| 17          | 0.60         | 0.080             | 0.04      | 0.46                 | 0.003                        | 0.0015                              |
| 18          | 0.52         | 0.100             | 0.02      | 0.18                 | 0.002                        | 0.0004                              |
| 19          | 0.40         | 0.060             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.40         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.05 |
| Mean Velocity (m/s) | 0.38 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0454 |
|-------------------------------|--------|



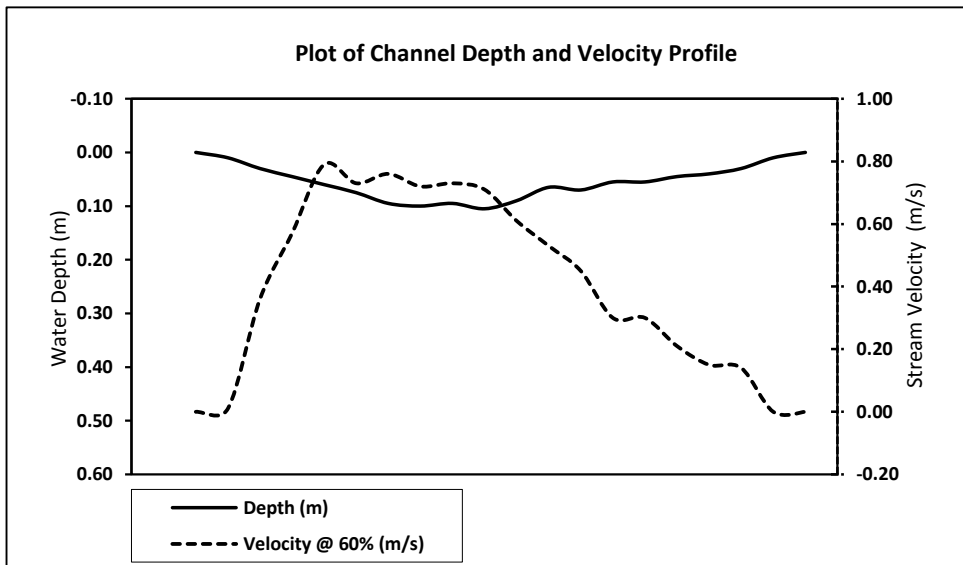
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Wolverine Creek    |                                                                                     |      |
| Station Name:         | R3                 |                                                                                     |      |
| Date and Time:        | Jun.17/2016, 17:05 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 513952. 7148677    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.4  |
| Temp., Water/Air (°C) | 9.6/~25            | Right Bank                                                                          | 1.96 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 1.56 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.40         | 0.040             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.48         | 0.080             | 0.01      | 0.01                 | 0.001                        | 0.0000                              |
| 2           | 0.56         | 0.080             | 0.03      | 0.36                 | 0.002                        | 0.0009                              |
| 3           | 0.64         | 0.080             | 0.05      | 0.57                 | 0.004                        | 0.0021                              |
| 4           | 0.72         | 0.080             | 0.06      | 0.79                 | 0.005                        | 0.0038                              |
| 5           | 0.80         | 0.080             | 0.08      | 0.73                 | 0.006                        | 0.0044                              |
| 6           | 0.88         | 0.080             | 0.10      | 0.76                 | 0.008                        | 0.0058                              |
| 7           | 0.96         | 0.080             | 0.10      | 0.72                 | 0.008                        | 0.0058                              |
| 8           | 1.04         | 0.080             | 0.10      | 0.73                 | 0.008                        | 0.0055                              |
| 9           | 1.12         | 0.080             | 0.11      | 0.71                 | 0.008                        | 0.0060                              |
| 10          | 1.20         | 0.080             | 0.09      | 0.61                 | 0.007                        | 0.0044                              |
| 11          | 1.28         | 0.080             | 0.07      | 0.53                 | 0.005                        | 0.0028                              |
| 12          | 1.36         | 0.080             | 0.07      | 0.45                 | 0.006                        | 0.0025                              |
| 13          | 1.44         | 0.080             | 0.06      | 0.30                 | 0.004                        | 0.0013                              |
| 14          | 1.52         | 0.080             | 0.06      | 0.30                 | 0.004                        | 0.0013                              |
| 15          | 1.60         | 0.080             | 0.05      | 0.21                 | 0.004                        | 0.0008                              |
| 16          | 1.68         | 0.080             | 0.04      | 0.15                 | 0.003                        | 0.0005                              |
| 17          | 1.76         | 0.080             | 0.03      | 0.14                 | 0.002                        | 0.0003                              |
| 18          | 1.84         | 0.100             | 0.01      | 0.00                 | 0.001                        | 0.0000                              |
| 19          | 1.96         | 0.060             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.96         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.05 |
| Mean Velocity (m/s) | 0.40 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0480 |
|-------------------------------|--------|

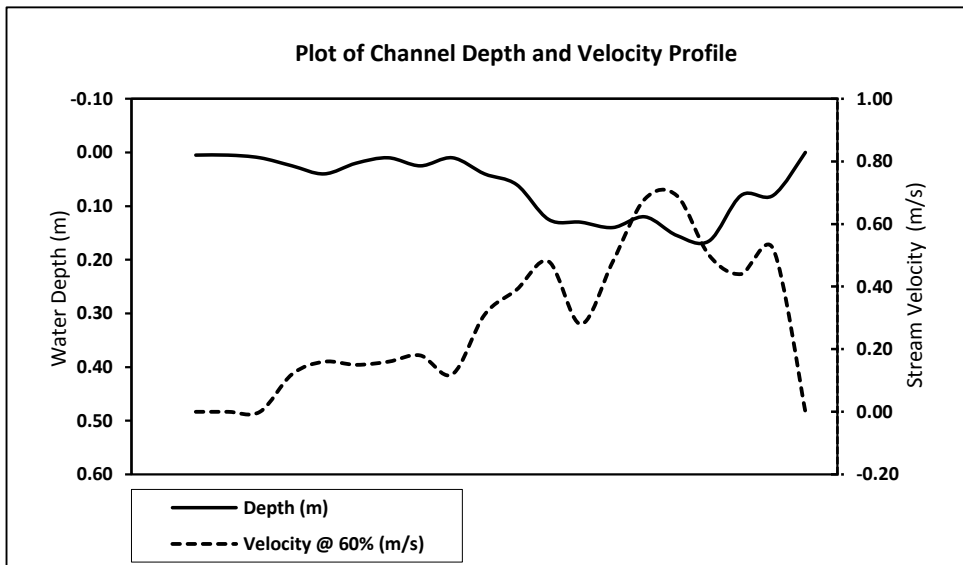


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Eagle Creek        |                                                                                     |      |
| Station Name:         | R4                 |                                                                                     |      |
| Date and Time:        | Jun.15/2016, 12:40 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 515981. 7145344    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter |                                                                                     |      |
| Temp., Water/Air (°C) | 5.2/~15            | Left Bank                                                                           | 0.24 |
| Crossing Number       | 1                  | Right Bank                                                                          | 2.1  |
|                       |                    | Wet.Width                                                                           | 1.86 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.24         | 0.030             | 0.01      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.30         | 0.080             | 0.01      | 0.00                 | 0.000                        | 0.0000                              |
| 2           | 0.40         | 0.100             | 0.01      | 0.00                 | 0.001                        | 0.0000                              |
| 3           | 0.50         | 0.100             | 0.03      | 0.12                 | 0.003                        | 0.0003                              |
| 4           | 0.60         | 0.100             | 0.04      | 0.16                 | 0.004                        | 0.0006                              |
| 5           | 0.70         | 0.100             | 0.02      | 0.15                 | 0.002                        | 0.0003                              |
| 6           | 0.80         | 0.100             | 0.01      | 0.16                 | 0.001                        | 0.0002                              |
| 7           | 0.90         | 0.100             | 0.03      | 0.18                 | 0.003                        | 0.0005                              |
| 8           | 1.00         | 0.100             | 0.01      | 0.12                 | 0.001                        | 0.0001                              |
| 9           | 1.10         | 0.100             | 0.04      | 0.31                 | 0.004                        | 0.0012                              |
| 10          | 1.20         | 0.100             | 0.06      | 0.39                 | 0.006                        | 0.0023                              |
| 11          | 1.30         | 0.100             | 0.13      | 0.48                 | 0.013                        | 0.0060                              |
| 12          | 1.40         | 0.100             | 0.13      | 0.28                 | 0.013                        | 0.0036                              |
| 13          | 1.50         | 0.100             | 0.14      | 0.48                 | 0.014                        | 0.0067                              |
| 14          | 1.60         | 0.100             | 0.12      | 0.68                 | 0.012                        | 0.0082                              |
| 15          | 1.70         | 0.100             | 0.16      | 0.69                 | 0.016                        | 0.0107                              |
| 16          | 1.80         | 0.100             | 0.17      | 0.50                 | 0.017                        | 0.0083                              |
| 17          | 1.90         | 0.100             | 0.08      | 0.44                 | 0.008                        | 0.0035                              |
| 18          | 2.00         | 0.100             | 0.08      | 0.52                 | 0.008                        | 0.0042                              |
| 19          | 2.10         | 0.050             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.10         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.06 | Discharge (m <sup>3</sup> /s) | 0.0567 |
| Mean Velocity (m/s) | 0.28 |                               |        |



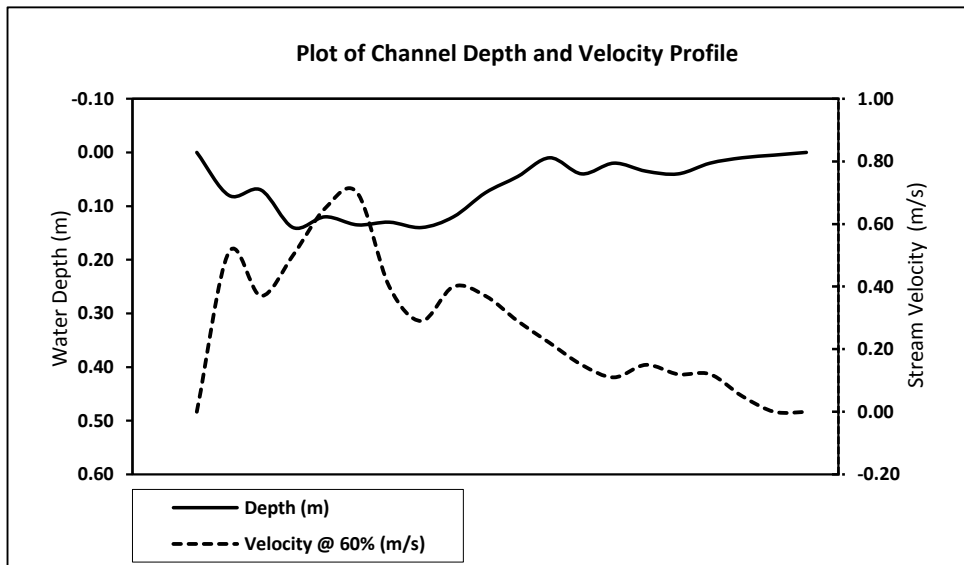
## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Eagle Creek        |                                                                                     |      |
| Station Name:         | R4                 |                                                                                     |      |
| Date and Time:        | Jun.15/2016, 12:40 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 515981. 7145344    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter |                                                                                     |      |
| Temp., Water/Air (°C) | 5.2/~15            | Left Bank                                                                           | 0.24 |
| Crossing Number       | 2                  | Right Bank                                                                          | 2.1  |
|                       |                    | Wet.Width                                                                           | 1.86 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.10         | 0.050             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.00         | 0.100             | 0.08      | 0.51                 | 0.008                        | 0.0041                              |
| 2           | 1.90         | 0.100             | 0.07      | 0.37                 | 0.007                        | 0.0026                              |
| 3           | 1.80         | 0.100             | 0.14      | 0.50                 | 0.014                        | 0.0070                              |
| 4           | 1.70         | 0.100             | 0.12      | 0.65                 | 0.012                        | 0.0078                              |
| 5           | 1.60         | 0.100             | 0.14      | 0.70                 | 0.014                        | 0.0095                              |
| 6           | 1.50         | 0.100             | 0.13      | 0.40                 | 0.013                        | 0.0052                              |
| 7           | 1.40         | 0.100             | 0.14      | 0.29                 | 0.014                        | 0.0041                              |
| 8           | 1.30         | 0.100             | 0.12      | 0.40                 | 0.012                        | 0.0048                              |
| 9           | 1.20         | 0.100             | 0.08      | 0.37                 | 0.008                        | 0.0028                              |
| 10          | 1.10         | 0.100             | 0.05      | 0.29                 | 0.005                        | 0.0013                              |
| 11          | 1.00         | 0.100             | 0.01      | 0.22                 | 0.001                        | 0.0002                              |
| 12          | 0.90         | 0.100             | 0.04      | 0.15                 | 0.004                        | 0.0006                              |
| 13          | 0.80         | 0.100             | 0.02      | 0.11                 | 0.002                        | 0.0002                              |
| 14          | 0.70         | 0.100             | 0.04      | 0.15                 | 0.004                        | 0.0005                              |
| 15          | 0.60         | 0.100             | 0.04      | 0.12                 | 0.004                        | 0.0005                              |
| 16          | 0.50         | 0.100             | 0.02      | 0.12                 | 0.002                        | 0.0002                              |
| 17          | 0.40         | 0.100             | 0.01      | 0.05                 | 0.001                        | 0.0001                              |
| 18          | 0.30         | 0.080             | 0.01      | 0.00                 | 0.000                        | 0.0000                              |
| 19          | 0.24         | 0.030             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.24         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.06 |
| Mean Velocity (m/s) | 0.27 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0514 |
|-------------------------------|--------|



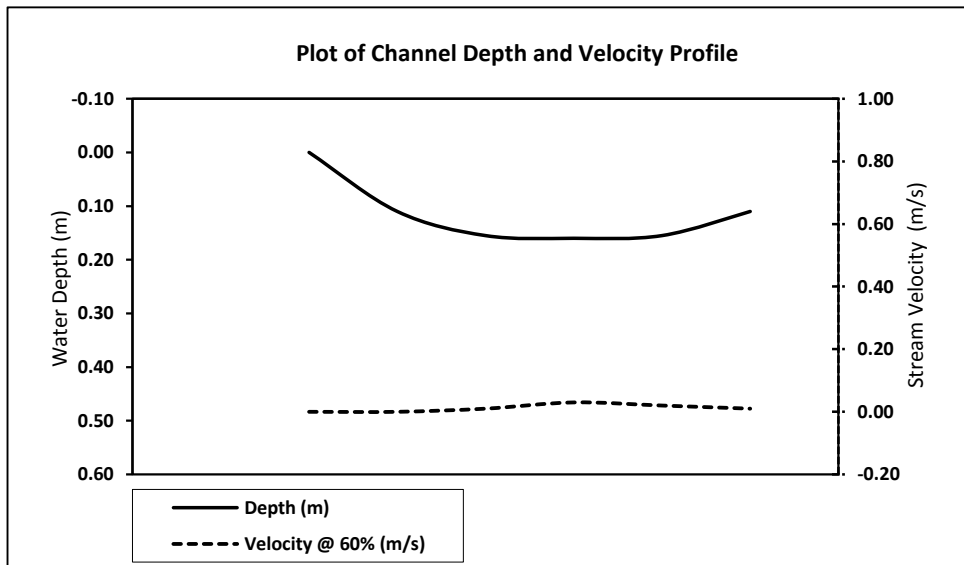


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|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Porcupine Creek    |                                                                                     |      |
| Station Name:         | R7                 |                                                                                     |      |
| Date and Time:        | Jun.17/2016, 13:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 513026. 7145669    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.5  |
| Temp., Water/Air (°C) | 6.7/~20            | Right Bank                                                                          | 0.12 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.38 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.12 | Discharge (m <sup>3</sup> /s) | 0.0008 |
| Mean Velocity (m/s) | 0.01 |                               |        |

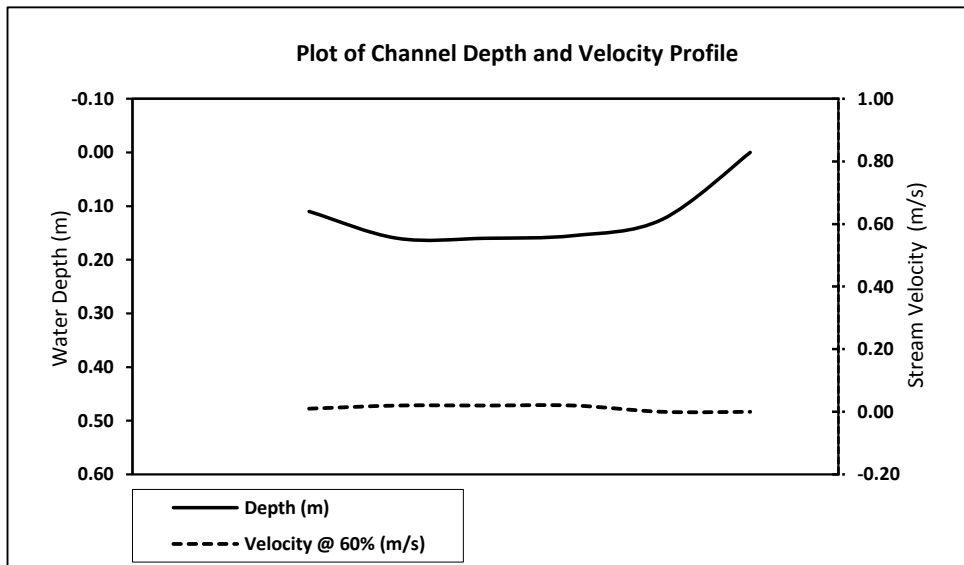




|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Porcupine Creek    |                                                                                     |      |
| Station Name:         | R7                 |                                                                                     |      |
| Date and Time:        | Jun.17/2016, 13:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 513026. 7145669    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.5  |
| Temp., Water/Air (°C) | 6.7/~20            | Right Bank                                                                          | 0.12 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 0.38 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.12 | Discharge (m <sup>3</sup> /s) | 0.0008 |
| Mean Velocity (m/s) | 0.01 |                               |        |





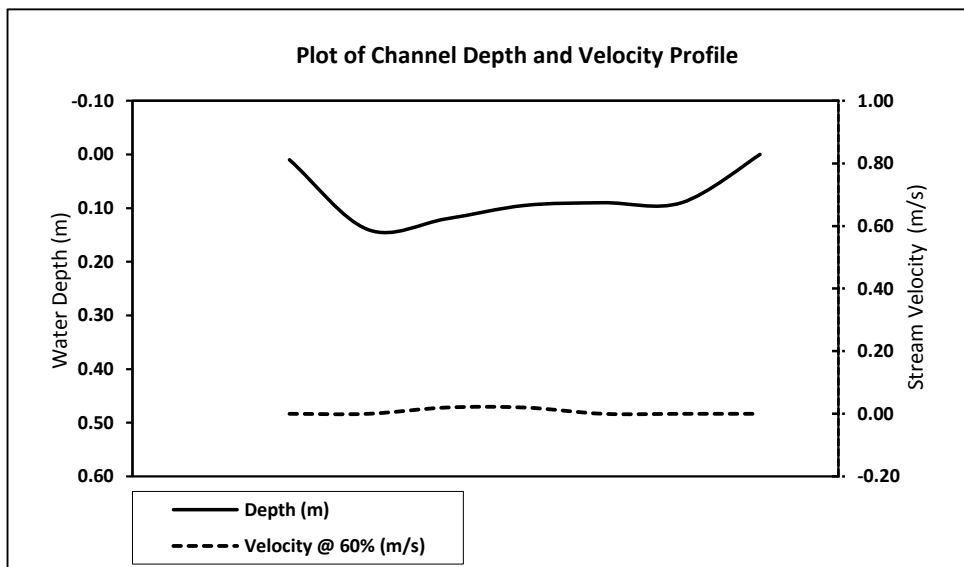
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|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Unnamed Creek      |                                                                                     |      |
| Station Name:         | R8                 |                                                                                     |      |
| Date and Time:        | Jun.16/2016, 13:10 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 511885. 7147805    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.19 |
| Temp., Water/Air (°C) | 6.4/~15            | Right Bank                                                                          | 0.78 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.59 |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.08 |
| Mean Velocity (m/s) | 0.01 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0004 |
|-------------------------------|--------|



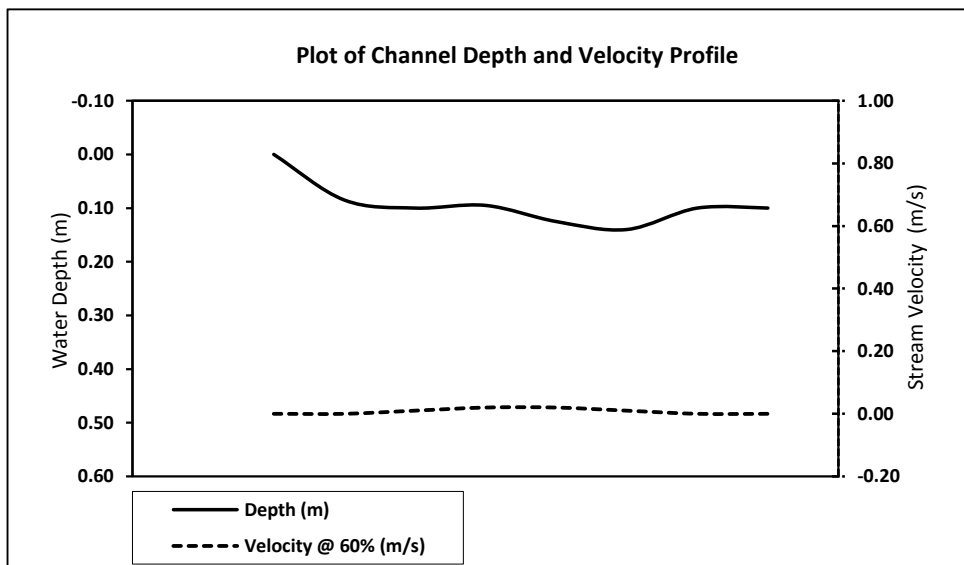


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|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Unnamed Creek      |                                                                                     |      |
| Station Name:         | R8                 |                                                                                     |      |
| Date and Time:        | Jun.16/2016, 13:10 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 511885. 7147805    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.19 |
| Temp., Water/Air (°C) | 6.4/~15            | Right Bank                                                                          | 0.78 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 0.59 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.09 | Discharge (m <sup>3</sup> /s) | 0.0007 |
| Mean Velocity (m/s) | 0.01 |                               |        |





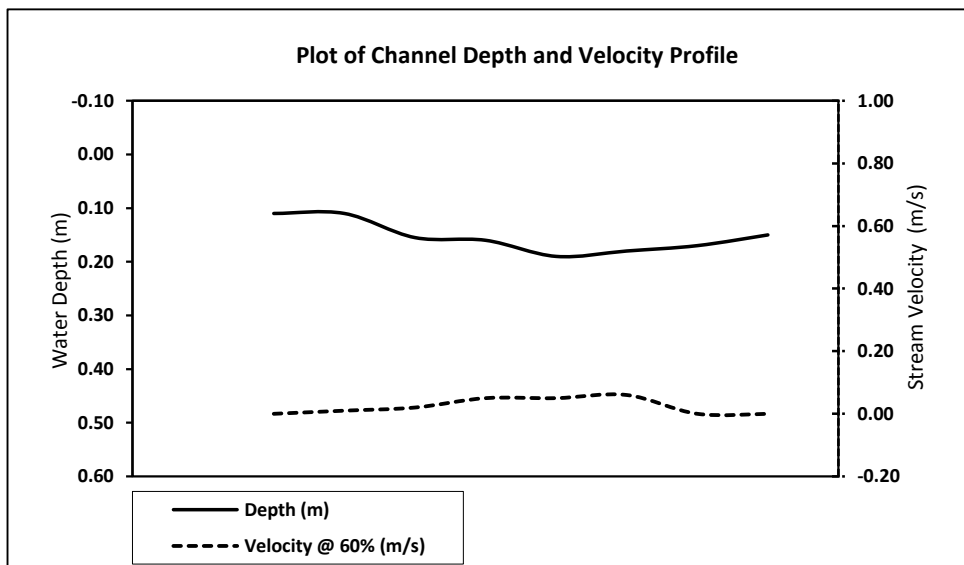


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|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Unnamed Creek      |                                                                                     |      |
| Station Name:         | R9                 |                                                                                     |      |
| Date and Time:        | Jun.17/2016, 10:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 512343. 7146753    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 1.05 |
| Temp., Water/Air (°C) | 5.6/~10            | Right Bank                                                                          | 0.38 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.67 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.15 | Discharge (m <sup>3</sup> /s) | 0.0033 |
| Mean Velocity (m/s) | 0.02 |                               |        |

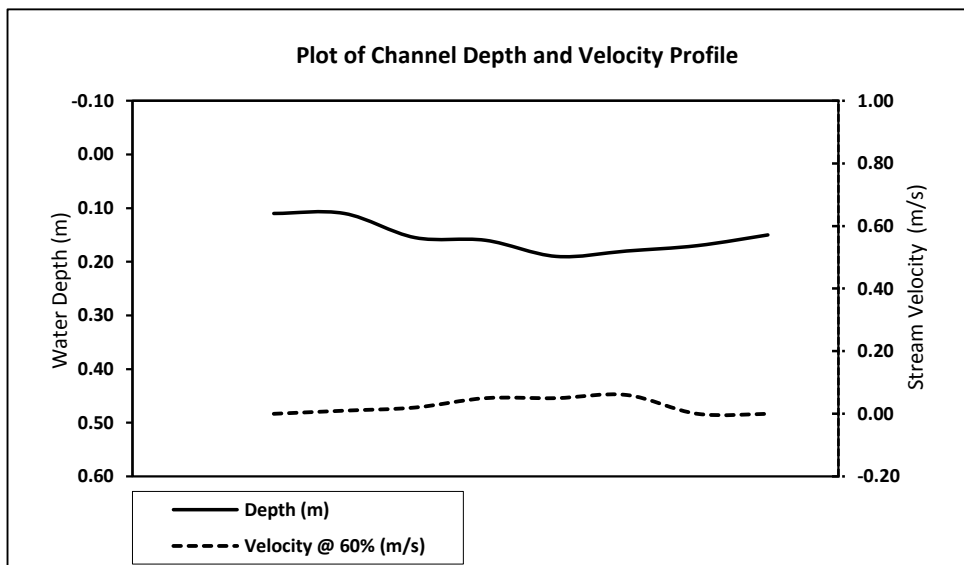




|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Unnamed Creek      |                                                                                     |      |
| Station Name:         | R9                 |                                                                                     |      |
| Date and Time:        | Jun.17/2016, 10:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 512343. 7146753    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 1.05 |
| Temp., Water/Air (°C) | 5.6/~10            | Right Bank                                                                          | 0.38 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.67 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.15 | Discharge (m <sup>3</sup> /s) | 0.0033 |
| Mean Velocity (m/s) | 0.02 |                               |        |

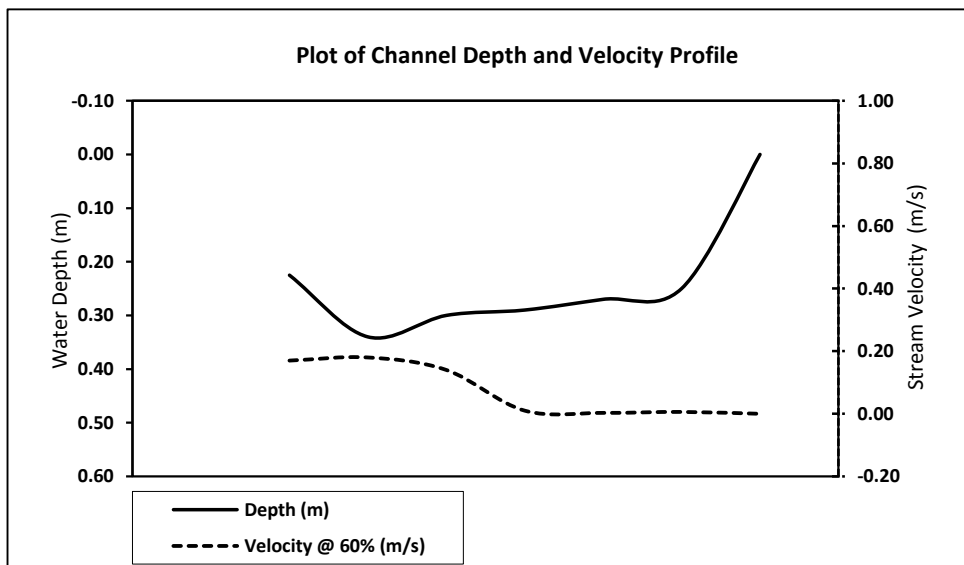




|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Unnamed Creek      |                                                                                     |      |
| Station Name:         | R11                |                                                                                     |      |
| Date and Time:        | Jun.17/2016, 18:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 514165. 7147732    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.5  |
| Temp., Water/Air (°C) | 6.7/~20            | Right Bank                                                                          | -0.1 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.6  |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.24 | Discharge (m <sup>3</sup> /s) | 0.0128 |
| Mean Velocity (m/s) | 0.07 |                               |        |

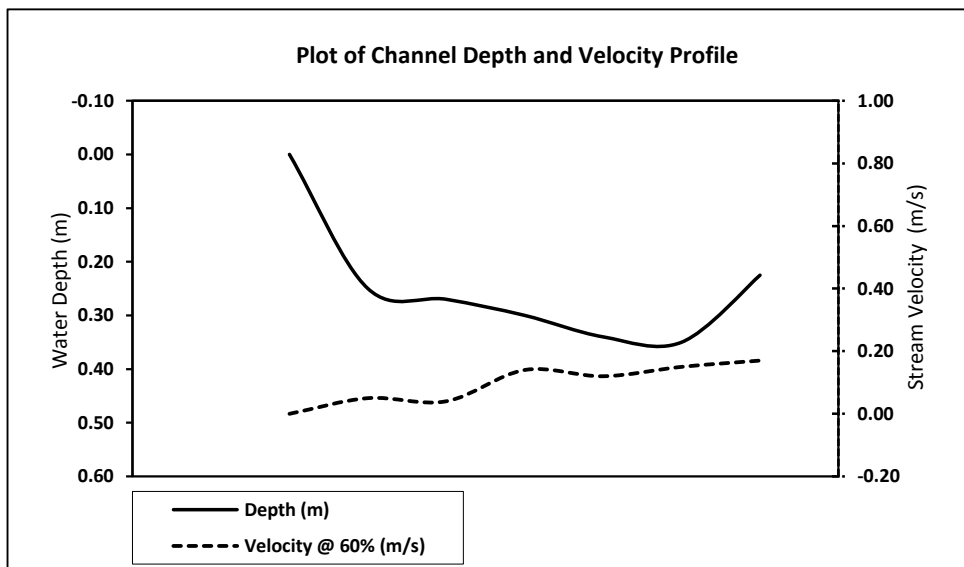




|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.2           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Unnamed Creek      |                                                                                     |      |
| Station Name:         | R11                |                                                                                     |      |
| Date and Time:        | Jun.17/2016, 18:20 |                                                                                     |      |
| Staff:                | AN,CH              |                                                                                     |      |
| UTM Coordinates:      | 514165. 7147732    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 0.5  |
| Temp., Water/Air (°C) | 6.7/~20            | Right Bank                                                                          | -0.1 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 6    |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.25 | Discharge (m <sup>3</sup> /s) | 0.0178 |
| Mean Velocity (m/s) | 0.10 |                               |        |

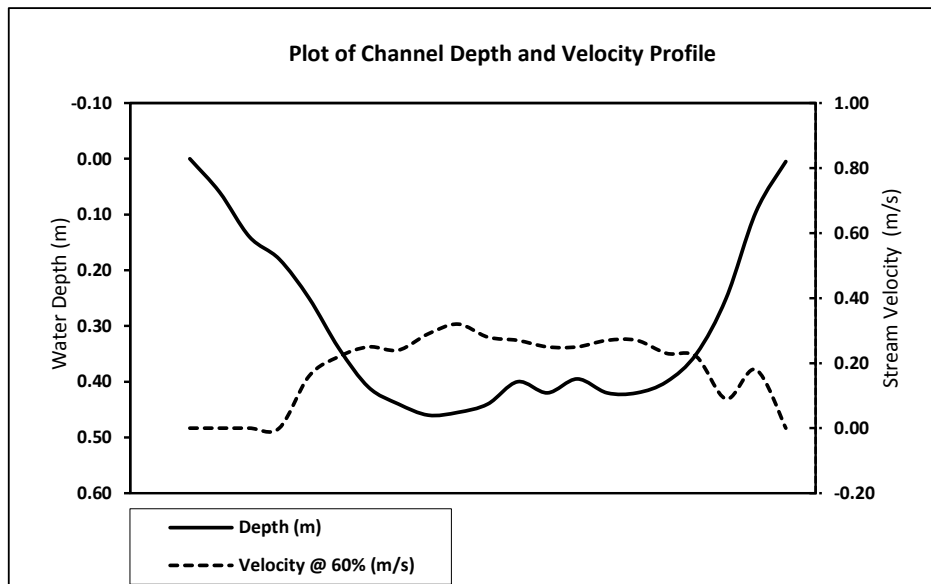


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |       |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.3           |  |       |
| Site / Location:      | Clinton Creek Site |                                                                                     |       |
| Stream Name:          | Clinton Creek      |                                                                                     |       |
| Station Name:         | E1(H)              |                                                                                     |       |
| Date and Time:        | Jul.22/2016, 11:57 |                                                                                     |       |
| Staff:                | GR,NB              |                                                                                     |       |
| UTM Coordinates:      | 512800. 7147438    |                                                                                     |       |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 11.83 |
| Temp., Water/Air (°C) | 14.3/~11           | Right Bank                                                                          | 0.77  |
| Crossing Number       | 1                  | Wet.Width                                                                           | 11.06 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.77         | 0.275             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.32         | 0.550             | 0.06      | 0.00                 | 0.033                        | 0.0000                              |
| 2           | 1.87         | 0.550             | 0.14      | 0.00                 | 0.077                        | 0.0000                              |
| 3           | 2.42         | 0.550             | 0.18      | 0.00                 | 0.099                        | 0.0000                              |
| 4           | 2.97         | 0.555             | 0.25      | 0.16                 | 0.139                        | 0.0222                              |
| 5           | 3.53         | 0.555             | 0.34      | 0.22                 | 0.189                        | 0.0415                              |
| 6           | 4.08         | 0.550             | 0.41      | 0.25                 | 0.226                        | 0.0564                              |
| 7           | 4.63         | 0.550             | 0.44      | 0.24                 | 0.242                        | 0.0581                              |
| 8           | 5.18         | 0.550             | 0.46      | 0.29                 | 0.253                        | 0.0734                              |
| 9           | 5.73         | 0.550             | 0.46      | 0.32                 | 0.250                        | 0.0801                              |
| 10          | 6.28         | 0.555             | 0.44      | 0.28                 | 0.244                        | 0.0684                              |
| 11          | 6.84         | 0.555             | 0.40      | 0.27                 | 0.222                        | 0.0599                              |
| 12          | 7.39         | 0.555             | 0.42      | 0.25                 | 0.233                        | 0.0583                              |
| 13          | 7.95         | 0.550             | 0.40      | 0.25                 | 0.217                        | 0.0543                              |
| 14          | 8.49         | 0.550             | 0.42      | 0.27                 | 0.231                        | 0.0624                              |
| 15          | 9.05         | 0.555             | 0.42      | 0.27                 | 0.233                        | 0.0629                              |
| 16          | 9.60         | 0.550             | 0.40      | 0.23                 | 0.220                        | 0.0506                              |
| 17          | 10.15        | 0.475             | 0.35      | 0.22                 | 0.166                        | 0.0366                              |
| 18          | 10.55        | 0.545             | 0.25      | 0.09                 | 0.136                        | 0.0123                              |
| 19          | 11.24        | 0.640             | 0.10      | 0.18                 | 0.061                        | 0.0109                              |
| 20          | 11.83        | 0.295             | 0.01      | 0.00                 | 0.001                        | 0.0000                              |
| end         | 11.83        |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.30 | Discharge (m <sup>3</sup> /s) | 0.8082 |
| Mean Velocity (m/s) | 0.18 |                               |        |

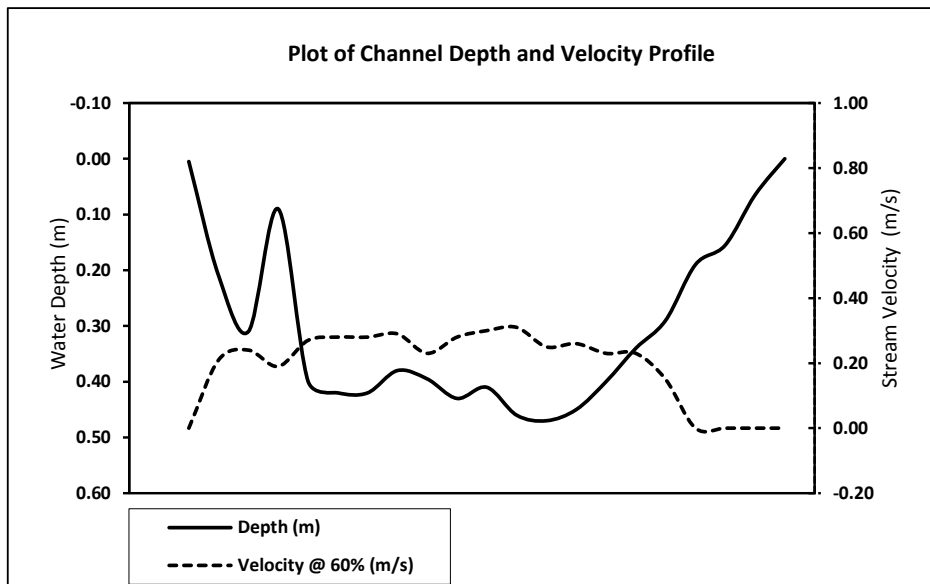


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |       |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.3           |  |       |
| Site / Location:      | Clinton Creek Site |                                                                                     |       |
| Stream Name:          | Clinton Creek      |                                                                                     |       |
| Station Name:         | E1(H)              |                                                                                     |       |
| Date and Time:        | Jul.22/2016, 11:57 |                                                                                     |       |
| Staff:                | GR,NB              |                                                                                     |       |
| UTM Coordinates:      | 512800. 7147438    |                                                                                     |       |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 11.83 |
| Temp., Water/Air (°C) | 14.3/~11           | Right Bank                                                                          | 0.77  |
| Crossing Number       | 2                  | Wet.Width                                                                           | 11.06 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 11.83        | 0.015             | 0.01      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 11.80        | 0.285             | 0.21      | 0.21                 | 0.060                        | 0.0126                              |
| 2           | 11.26        | 0.300             | 0.31      | 0.24                 | 0.093                        | 0.0223                              |
| 3           | 11.20        | 0.770             | 0.09      | 0.19                 | 0.069                        | 0.0132                              |
| 4           | 9.72         | 1.025             | 0.40      | 0.27                 | 0.409                        | 0.1104                              |
| 5           | 9.15         | 0.555             | 0.42      | 0.28                 | 0.233                        | 0.0653                              |
| 6           | 8.61         | 0.550             | 0.42      | 0.28                 | 0.231                        | 0.0647                              |
| 7           | 8.05         | 0.550             | 0.38      | 0.29                 | 0.209                        | 0.0606                              |
| 8           | 7.51         | 0.550             | 0.40      | 0.23                 | 0.217                        | 0.0500                              |
| 9           | 6.95         | 0.560             | 0.43      | 0.28                 | 0.241                        | 0.0674                              |
| 10          | 6.39         | 0.550             | 0.41      | 0.30                 | 0.226                        | 0.0677                              |
| 11          | 5.85         | 0.555             | 0.46      | 0.31                 | 0.255                        | 0.0791                              |
| 12          | 5.28         | 0.540             | 0.47      | 0.25                 | 0.254                        | 0.0635                              |
| 13          | 4.77         | 0.540             | 0.45      | 0.26                 | 0.243                        | 0.0632                              |
| 14          | 4.20         | 0.560             | 0.40      | 0.23                 | 0.224                        | 0.0515                              |
| 15          | 3.65         | 0.550             | 0.34      | 0.23                 | 0.187                        | 0.0430                              |
| 16          | 3.10         | 0.550             | 0.29      | 0.15                 | 0.160                        | 0.0239                              |
| 17          | 2.55         | 0.550             | 0.19      | 0.00                 | 0.105                        | 0.0000                              |
| 18          | 2.00         | 0.565             | 0.16      | 0.00                 | 0.088                        | 0.0000                              |
| 19          | 1.42         | 0.615             | 0.07      | 0.00                 | 0.040                        | 0.0000                              |
| 20          | 0.77         | 0.325             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.77         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.30 | Discharge (m <sup>3</sup> /s) | 0.8583 |
| Mean Velocity (m/s) | 0.19 |                               |        |

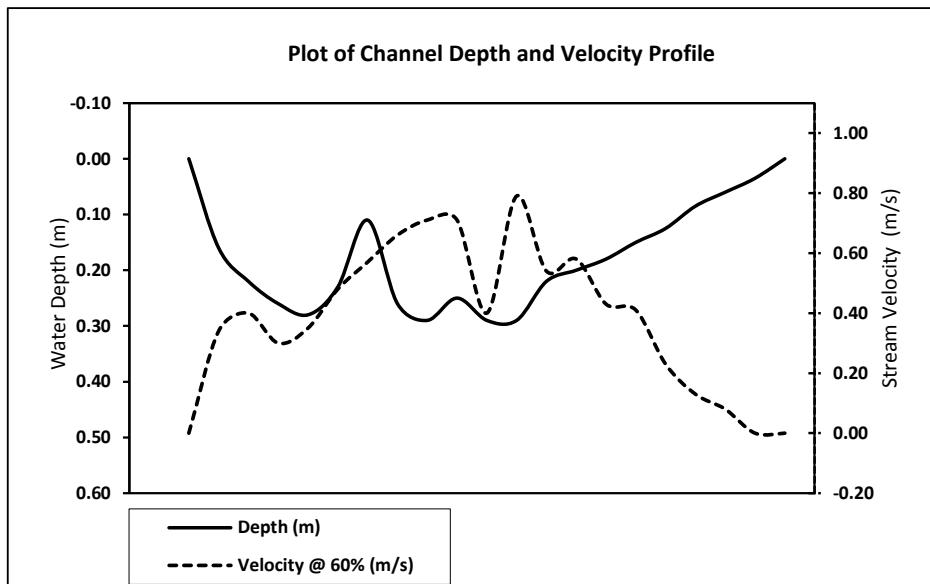


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Clinton Creek      |                                                                                     |      |
| Station Name:         | E2                 |                                                                                     |      |
| Date and Time:        | Jul.21/2016, 18:19 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 514149. 7147189    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 7.53 |
| Temp., Water/Air (°C) | 14.4/~14           | Right Bank                                                                          | 0.86 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 6.67 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.86         | 0.165             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.19         | 0.330             | 0.16      | 0.34                 | 0.053                        | 0.0180                              |
| 2           | 1.52         | 0.330             | 0.22      | 0.40                 | 0.073                        | 0.0290                              |
| 3           | 1.85         | 0.320             | 0.26      | 0.30                 | 0.083                        | 0.0250                              |
| 4           | 2.16         | 0.320             | 0.28      | 0.35                 | 0.090                        | 0.0314                              |
| 5           | 2.49         | 0.340             | 0.23      | 0.48                 | 0.078                        | 0.0375                              |
| 6           | 2.84         | 0.340             | 0.11      | 0.57                 | 0.037                        | 0.0213                              |
| 7           | 3.17         | 0.330             | 0.26      | 0.66                 | 0.086                        | 0.0566                              |
| 8           | 3.50         | 0.355             | 0.29      | 0.71                 | 0.103                        | 0.0731                              |
| 9           | 3.88         | 0.355             | 0.25      | 0.71                 | 0.089                        | 0.0630                              |
| 10          | 4.21         | 0.330             | 0.29      | 0.40                 | 0.096                        | 0.0383                              |
| 11          | 4.54         | 0.330             | 0.29      | 0.79                 | 0.096                        | 0.0756                              |
| 12          | 4.87         | 0.330             | 0.22      | 0.54                 | 0.073                        | 0.0392                              |
| 13          | 5.20         | 0.330             | 0.20      | 0.58                 | 0.066                        | 0.0383                              |
| 14          | 5.53         | 0.330             | 0.18      | 0.43                 | 0.059                        | 0.0255                              |
| 15          | 5.86         | 0.330             | 0.15      | 0.41                 | 0.050                        | 0.0203                              |
| 16          | 6.19         | 0.330             | 0.13      | 0.23                 | 0.041                        | 0.0095                              |
| 17          | 6.52         | 0.330             | 0.09      | 0.13                 | 0.028                        | 0.0036                              |
| 18          | 6.85         | 0.305             | 0.06      | 0.08                 | 0.018                        | 0.0015                              |
| 19          | 7.13         | 0.340             | 0.04      | 0.00                 | 0.012                        | 0.0000                              |
| 20          | 7.53         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 7.53         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.18 | Discharge (m <sup>3</sup> /s) | 0.6067 |
| Mean Velocity (m/s) | 0.39 |                               |        |

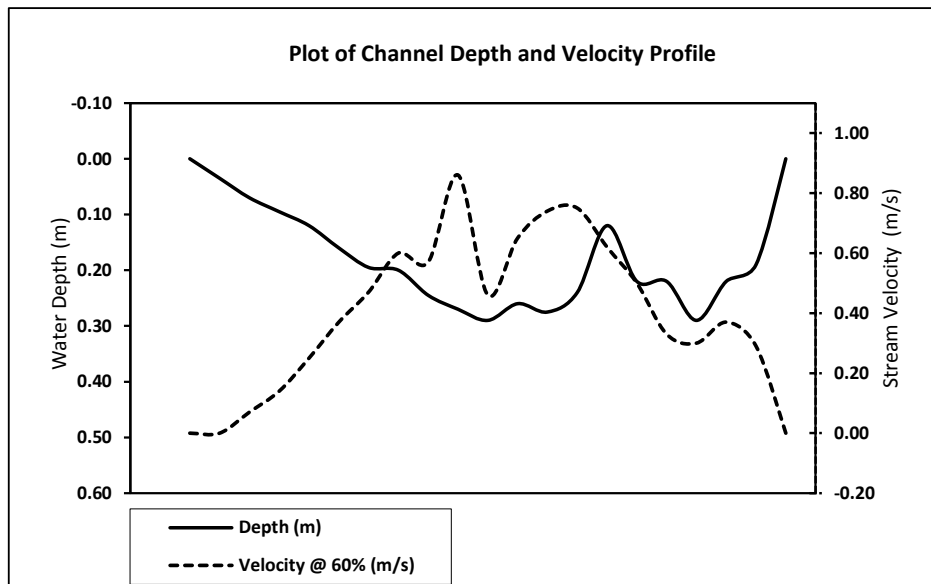


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Clinton Creek      |                                                                                     |      |
| Station Name:         | E2                 |                                                                                     |      |
| Date and Time:        | Jul.21/2016, 18:19 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 514149. 7147189    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 7.53 |
| Temp., Water/Air (°C) | 14.4/~14           | Right Bank                                                                          | 0.86 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 6.67 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 7.53         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 7.13         | 0.345             | 0.04      | 0.00                 | 0.012                        | 0.0000                              |
| 2           | 6.84         | 0.310             | 0.07      | 0.07                 | 0.022                        | 0.0015                              |
| 3           | 6.51         | 0.330             | 0.10      | 0.14                 | 0.031                        | 0.0044                              |
| 4           | 6.18         | 0.335             | 0.12      | 0.25                 | 0.040                        | 0.0101                              |
| 5           | 5.84         | 0.335             | 0.16      | 0.37                 | 0.054                        | 0.0198                              |
| 6           | 5.51         | 0.325             | 0.20      | 0.47                 | 0.063                        | 0.0298                              |
| 7           | 5.19         | 0.325             | 0.20      | 0.60                 | 0.065                        | 0.0390                              |
| 8           | 4.86         | 0.325             | 0.25      | 0.57                 | 0.080                        | 0.0454                              |
| 9           | 4.54         | 0.320             | 0.27      | 0.86                 | 0.086                        | 0.0743                              |
| 10          | 4.22         | 0.335             | 0.29      | 0.46                 | 0.097                        | 0.0447                              |
| 11          | 3.87         | 0.340             | 0.26      | 0.65                 | 0.088                        | 0.0575                              |
| 12          | 3.54         | 0.325             | 0.28      | 0.74                 | 0.089                        | 0.0661                              |
| 13          | 3.22         | 0.345             | 0.24      | 0.75                 | 0.083                        | 0.0621                              |
| 14          | 2.85         | 0.360             | 0.12      | 0.62                 | 0.043                        | 0.0268                              |
| 15          | 2.50         | 0.340             | 0.22      | 0.50                 | 0.075                        | 0.0374                              |
| 16          | 2.17         | 0.330             | 0.22      | 0.33                 | 0.073                        | 0.0240                              |
| 17          | 1.84         | 0.330             | 0.29      | 0.30                 | 0.096                        | 0.0287                              |
| 18          | 1.51         | 0.330             | 0.22      | 0.37                 | 0.073                        | 0.0269                              |
| 19          | 1.18         | 0.325             | 0.19      | 0.29                 | 0.062                        | 0.0179                              |
| 20          | 0.86         | 0.160             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.86         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.18 | Discharge (m <sup>3</sup> /s) | 0.6163 |
| Mean Velocity (m/s) | 0.40 |                               |        |



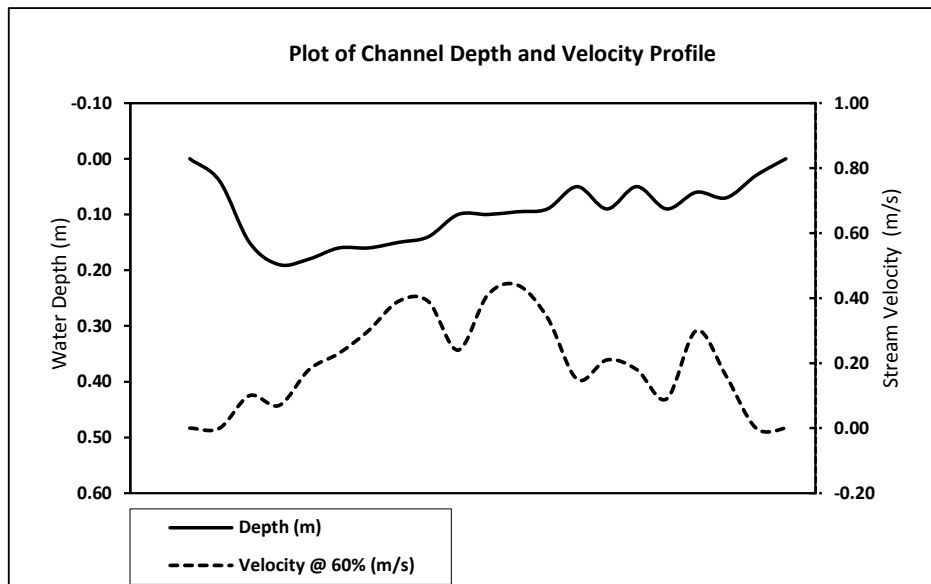


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Wolverine Creek    |                                                                                     |      |
| Station Name:         | E3(H)              |                                                                                     |      |
| Date and Time:        | Jul.19/2016, 11:43 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 514170. 7147608    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 4.38 |
| Temp., Water/Air (°C) | 8.2/~15            | Right Bank                                                                          | 0.7  |
| Crossing Number       | 1                  | Wet.Width                                                                           | 3.68 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.70         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.90         | 0.185             | 0.04      | 0.00                 | 0.007                        | 0.0000                              |
| 2           | 1.07         | 0.170             | 0.15      | 0.10                 | 0.026                        | 0.0026                              |
| 3           | 1.24         | 0.175             | 0.19      | 0.07                 | 0.033                        | 0.0023                              |
| 4           | 1.42         | 0.180             | 0.18      | 0.18                 | 0.032                        | 0.0058                              |
| 5           | 1.60         | 0.190             | 0.16      | 0.23                 | 0.030                        | 0.0070                              |
| 6           | 1.80         | 0.175             | 0.16      | 0.30                 | 0.028                        | 0.0084                              |
| 7           | 1.95         | 0.165             | 0.15      | 0.39                 | 0.025                        | 0.0097                              |
| 8           | 2.13         | 0.170             | 0.14      | 0.39                 | 0.024                        | 0.0093                              |
| 9           | 2.29         | 0.170             | 0.10      | 0.24                 | 0.017                        | 0.0041                              |
| 10          | 2.47         | 0.115             | 0.10      | 0.41                 | 0.012                        | 0.0047                              |
| 11          | 2.52         | 0.105             | 0.10      | 0.44                 | 0.010                        | 0.0044                              |
| 12          | 2.68         | 0.175             | 0.09      | 0.34                 | 0.016                        | 0.0054                              |
| 13          | 2.87         | 0.185             | 0.05      | 0.15                 | 0.009                        | 0.0014                              |
| 14          | 3.05         | 0.175             | 0.09      | 0.21                 | 0.016                        | 0.0033                              |
| 15          | 3.22         | 0.165             | 0.05      | 0.18                 | 0.008                        | 0.0015                              |
| 16          | 3.38         | 0.180             | 0.09      | 0.09                 | 0.016                        | 0.0015                              |
| 17          | 3.58         | 0.195             | 0.06      | 0.30                 | 0.012                        | 0.0035                              |
| 18          | 3.77         | 0.255             | 0.07      | 0.16                 | 0.018                        | 0.0029                              |
| 19          | 4.09         | 0.305             | 0.03      | 0.00                 | 0.009                        | 0.0000                              |
| 20          | 4.38         | 0.145             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 4.38         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.10 | Discharge (m <sup>3</sup> /s) | 0.0776 |
| Mean Velocity (m/s) | 0.20 |                               |        |

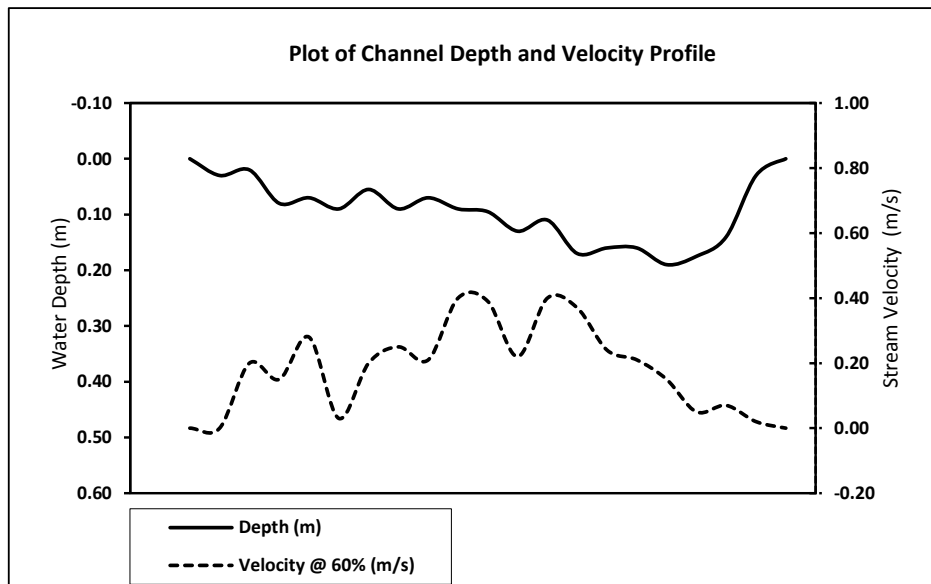


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Wolverine Creek    |                                                                                     |      |
| Station Name:         | E3(H)              |                                                                                     |      |
| Date and Time:        | Jul.19/2016, 11:43 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 514170. 7147608    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 4.38 |
| Temp., Water/Air (°C) | 8.2/~15            | Right Bank                                                                          | 0.7  |
| Crossing Number       | 2                  | Wet.Width                                                                           | 3.68 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 4.38         | 0.125             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 4.13         | 0.225             | 0.03      | 0.00                 | 0.007                        | 0.0000                              |
| 2           | 3.93         | 0.190             | 0.02      | 0.20                 | 0.004                        | 0.0008                              |
| 3           | 3.75         | 0.175             | 0.08      | 0.15                 | 0.014                        | 0.0021                              |
| 4           | 3.58         | 0.180             | 0.07      | 0.28                 | 0.013                        | 0.0035                              |
| 5           | 3.39         | 0.190             | 0.09      | 0.03                 | 0.017                        | 0.0005                              |
| 6           | 3.20         | 0.185             | 0.06      | 0.20                 | 0.010                        | 0.0020                              |
| 7           | 3.02         | 0.180             | 0.09      | 0.25                 | 0.016                        | 0.0041                              |
| 8           | 2.84         | 0.185             | 0.07      | 0.21                 | 0.013                        | 0.0027                              |
| 9           | 2.65         | 0.190             | 0.09      | 0.40                 | 0.017                        | 0.0068                              |
| 10          | 2.46         | 0.185             | 0.10      | 0.39                 | 0.018                        | 0.0069                              |
| 11          | 2.28         | 0.175             | 0.13      | 0.22                 | 0.023                        | 0.0050                              |
| 12          | 2.11         | 0.170             | 0.11      | 0.40                 | 0.019                        | 0.0075                              |
| 13          | 1.94         | 0.180             | 0.17      | 0.37                 | 0.031                        | 0.0113                              |
| 14          | 1.75         | 0.180             | 0.16      | 0.24                 | 0.029                        | 0.0069                              |
| 15          | 1.58         | 0.175             | 0.16      | 0.21                 | 0.028                        | 0.0059                              |
| 16          | 1.40         | 0.170             | 0.19      | 0.15                 | 0.032                        | 0.0048                              |
| 17          | 1.24         | 0.140             | 0.18      | 0.05                 | 0.025                        | 0.0012                              |
| 18          | 1.12         | 0.170             | 0.14      | 0.07                 | 0.024                        | 0.0017                              |
| 19          | 0.90         | 0.210             | 0.03      | 0.02                 | 0.006                        | 0.0001                              |
| 20          | 0.70         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.70         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.09 | Discharge (m <sup>3</sup> /s) | 0.0739 |
| Mean Velocity (m/s) | 0.18 |                               |        |

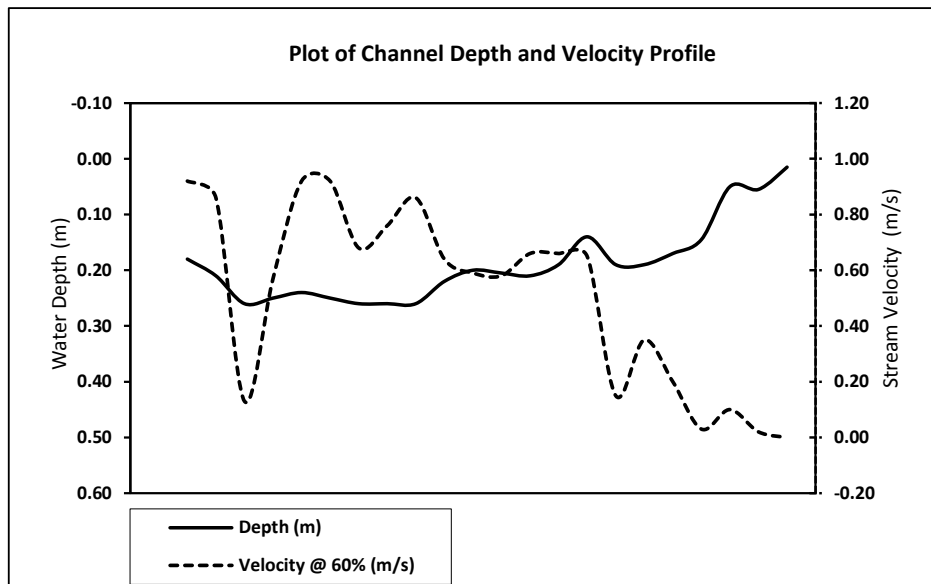


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Clinton Creek      |                                                                                     |      |
| Station Name:         | E4                 |                                                                                     |      |
| Date and Time:        | Jul.24/2016, 16:25 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 515950. 7145287    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 7.38 |
| Temp., Water/Air (°C) | 13.0/~14           | Right Bank                                                                          | 1.03 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 6.35 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 7.38         | 0.155             | 0.18      | 0.92                 | 0.028                        | 0.0257                              |
| 1           | 7.07         | 0.305             | 0.21      | 0.86                 | 0.064                        | 0.0551                              |
| 2           | 6.77         | 0.305             | 0.26      | 0.13                 | 0.079                        | 0.0103                              |
| 3           | 6.46         | 0.310             | 0.25      | 0.57                 | 0.077                        | 0.0442                              |
| 4           | 6.15         | 0.315             | 0.24      | 0.92                 | 0.076                        | 0.0696                              |
| 5           | 5.83         | 0.315             | 0.25      | 0.92                 | 0.079                        | 0.0725                              |
| 6           | 5.52         | 0.305             | 0.26      | 0.68                 | 0.079                        | 0.0539                              |
| 7           | 5.22         | 0.310             | 0.26      | 0.76                 | 0.081                        | 0.0613                              |
| 8           | 4.90         | 0.315             | 0.26      | 0.86                 | 0.082                        | 0.0704                              |
| 9           | 4.59         | 0.310             | 0.22      | 0.64                 | 0.068                        | 0.0436                              |
| 10          | 4.28         | 0.310             | 0.20      | 0.59                 | 0.062                        | 0.0366                              |
| 11          | 3.97         | 0.310             | 0.21      | 0.58                 | 0.064                        | 0.0369                              |
| 12          | 3.66         | 0.310             | 0.21      | 0.66                 | 0.065                        | 0.0430                              |
| 13          | 3.35         | 0.310             | 0.19      | 0.66                 | 0.059                        | 0.0389                              |
| 14          | 3.04         | 0.310             | 0.14      | 0.65                 | 0.043                        | 0.0282                              |
| 15          | 2.73         | 0.300             | 0.19      | 0.15                 | 0.057                        | 0.0086                              |
| 16          | 2.44         | 0.300             | 0.19      | 0.35                 | 0.057                        | 0.0200                              |
| 17          | 2.13         | 0.305             | 0.17      | 0.20                 | 0.052                        | 0.0104                              |
| 18          | 1.83         | 0.315             | 0.15      | 0.03                 | 0.046                        | 0.0014                              |
| 19          | 1.50         | 0.315             | 0.05      | 0.10                 | 0.016                        | 0.0016                              |
| 20          | 1.20         | 0.235             | 0.06      | 0.02                 | 0.013                        | 0.0003                              |
| 21          | 1.03         | 0.085             | 0.02      | 0.00                 | 0.001                        | 0.0000                              |
| end         | 1.03         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.19 | Discharge (m <sup>3</sup> /s) | 0.7321 |
| Mean Velocity (m/s) | 0.51 |                               |        |

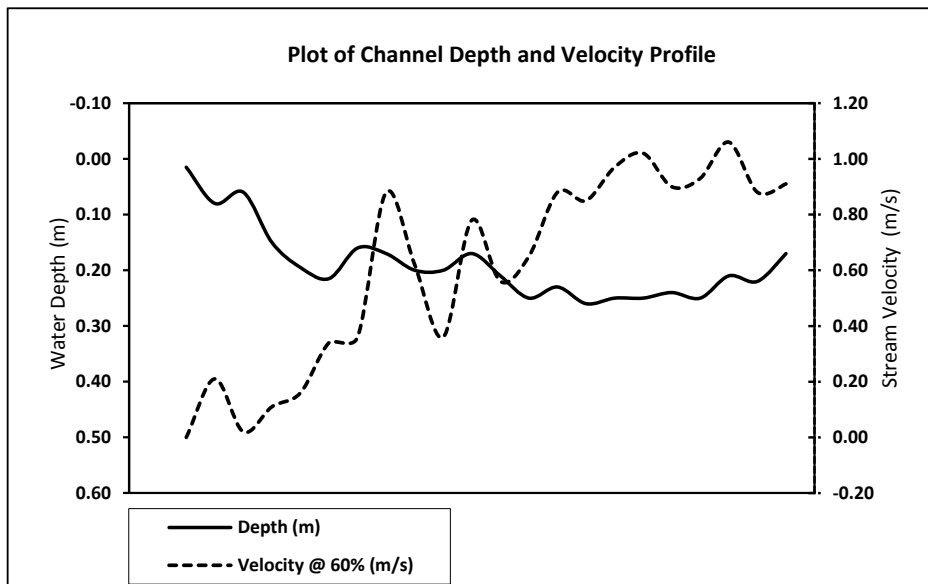


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Clinton Creek      |                                                                                     |      |
| Station Name:         | E4                 |                                                                                     |      |
| Date and Time:        | Jul.24/2016, 16:25 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 515950. 7145287    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 7.38 |
| Temp., Water/Air (°C) | 13.0/~14           | Right Bank                                                                          | 1.03 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 6.35 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.03         | 0.155             | 0.02      | 0.00                 | 0.002                        | 0.0000                              |
| 1           | 1.34         | 0.310             | 0.08      | 0.21                 | 0.025                        | 0.0052                              |
| 2           | 1.65         | 0.310             | 0.06      | 0.02                 | 0.019                        | 0.0004                              |
| 3           | 1.96         | 0.315             | 0.15      | 0.11                 | 0.047                        | 0.0052                              |
| 4           | 2.28         | 0.310             | 0.20      | 0.16                 | 0.060                        | 0.0097                              |
| 5           | 2.58         | 0.305             | 0.22      | 0.34                 | 0.066                        | 0.0223                              |
| 6           | 2.89         | 0.310             | 0.16      | 0.36                 | 0.050                        | 0.0179                              |
| 7           | 3.20         | 0.310             | 0.17      | 0.88                 | 0.053                        | 0.0464                              |
| 8           | 3.51         | 0.310             | 0.20      | 0.62                 | 0.062                        | 0.0384                              |
| 9           | 3.82         | 0.305             | 0.20      | 0.36                 | 0.061                        | 0.0220                              |
| 10          | 4.12         | 0.310             | 0.17      | 0.78                 | 0.053                        | 0.0411                              |
| 11          | 4.44         | 0.315             | 0.21      | 0.56                 | 0.066                        | 0.0370                              |
| 12          | 4.75         | 0.310             | 0.25      | 0.65                 | 0.077                        | 0.0504                              |
| 13          | 5.06         | 0.310             | 0.23      | 0.88                 | 0.071                        | 0.0627                              |
| 14          | 5.37         | 0.310             | 0.26      | 0.85                 | 0.081                        | 0.0685                              |
| 15          | 5.68         | 0.310             | 0.25      | 0.97                 | 0.078                        | 0.0752                              |
| 16          | 5.99         | 0.310             | 0.25      | 1.02                 | 0.078                        | 0.0791                              |
| 17          | 6.30         | 0.310             | 0.24      | 0.90                 | 0.074                        | 0.0670                              |
| 18          | 6.61         | 0.305             | 0.25      | 0.93                 | 0.076                        | 0.0709                              |
| 19          | 6.91         | 0.295             | 0.21      | 1.06                 | 0.062                        | 0.0657                              |
| 20          | 7.20         | 0.235             | 0.22      | 0.88                 | 0.052                        | 0.0455                              |
| 21          | 7.38         | 0.090             | 0.17      | 0.91                 | 0.015                        | 0.0139                              |
| end         | 7.38         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.19 | Discharge (m <sup>3</sup> /s) | 0.8443 |
| Mean Velocity (m/s) | 0.61 |                               |        |

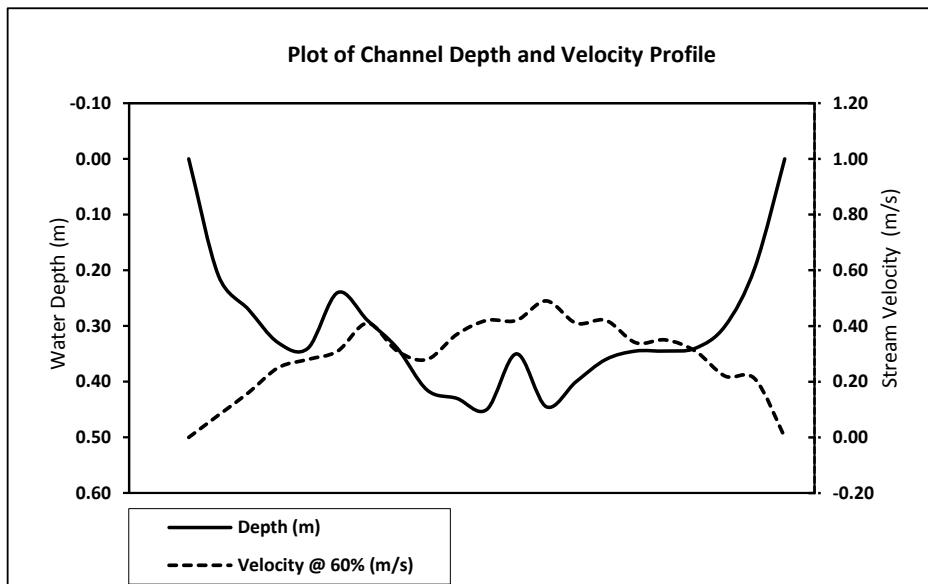


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |       |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.3           |  |       |
| Site / Location:      | Clinton Creek Site |                                                                                     |       |
| Stream Name:          | Clinton Creek      |                                                                                     |       |
| Station Name:         | E7                 |                                                                                     |       |
| Date and Time:        | Jul.22/2016, 16:32 |                                                                                     |       |
| Staff:                | GR,NB              |                                                                                     |       |
| UTM Coordinates:      | 519400. 7142042    |                                                                                     |       |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 13.94 |
| Temp., Water/Air (°C) | 11.7/~14           | Right Bank                                                                          | 1.2   |
| Crossing Number       | 1                  | Wet.Width                                                                           | 12.74 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.20         | 0.315             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.83         | 0.635             | 0.21      | 0.08                 | 0.133                        | 0.0107                              |
| 2           | 2.47         | 0.635             | 0.27      | 0.16                 | 0.171                        | 0.0274                              |
| 3           | 3.10         | 0.630             | 0.33      | 0.25                 | 0.208                        | 0.0520                              |
| 4           | 3.73         | 0.640             | 0.34      | 0.28                 | 0.218                        | 0.0609                              |
| 5           | 4.38         | 0.650             | 0.24      | 0.31                 | 0.156                        | 0.0484                              |
| 6           | 5.03         | 0.640             | 0.29      | 0.41                 | 0.186                        | 0.0761                              |
| 7           | 5.66         | 0.630             | 0.34      | 0.31                 | 0.214                        | 0.0664                              |
| 8           | 6.29         | 0.620             | 0.42      | 0.28                 | 0.257                        | 0.0720                              |
| 9           | 6.90         | 0.625             | 0.43      | 0.37                 | 0.269                        | 0.0994                              |
| 10          | 7.54         | 0.640             | 0.45      | 0.42                 | 0.288                        | 0.1210                              |
| 11          | 8.18         | 0.630             | 0.35      | 0.42                 | 0.221                        | 0.0926                              |
| 12          | 8.80         | 0.630             | 0.45      | 0.49                 | 0.280                        | 0.1374                              |
| 13          | 9.44         | 0.635             | 0.40      | 0.41                 | 0.254                        | 0.1041                              |
| 14          | 10.07        | 0.630             | 0.36      | 0.42                 | 0.227                        | 0.0953                              |
| 15          | 10.70        | 0.630             | 0.35      | 0.34                 | 0.217                        | 0.0739                              |
| 16          | 11.33        | 0.630             | 0.35      | 0.35                 | 0.217                        | 0.0761                              |
| 17          | 11.96        | 0.625             | 0.34      | 0.31                 | 0.213                        | 0.0659                              |
| 18          | 12.58        | 0.620             | 0.30      | 0.22                 | 0.186                        | 0.0409                              |
| 19          | 13.20        | 0.680             | 0.20      | 0.21                 | 0.133                        | 0.0278                              |
| 20          | 13.94        | 0.370             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 13.94        |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.30 | Discharge (m <sup>3</sup> /s) | 1.3483 |
| Mean Velocity (m/s) | 0.29 |                               |        |

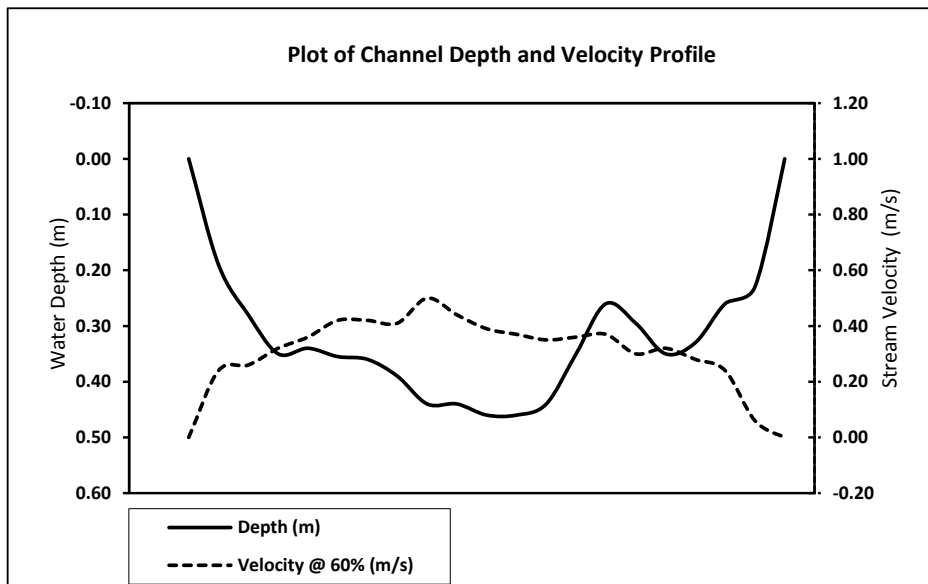


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |       |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.3           |  |       |
| Site / Location:      | Clinton Creek Site |                                                                                     |       |
| Stream Name:          | Clinton Creek      |                                                                                     |       |
| Station Name:         | E7                 |                                                                                     |       |
| Date and Time:        | Jul.22/2016, 16:32 |                                                                                     |       |
| Staff:                | GR,NB              |                                                                                     |       |
| UTM Coordinates:      | 519400. 7142042    |                                                                                     |       |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 13.94 |
| Temp., Water/Air (°C) | 11.7/~14           | Right Bank                                                                          | 1.2   |
| Crossing Number       | 2                  | Wet.Width                                                                           | 12.74 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 13.94        | 0.315             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 13.31        | 0.630             | 0.19      | 0.24                 | 0.120                        | 0.0287                              |
| 2           | 12.68        | 0.635             | 0.28      | 0.26                 | 0.178                        | 0.0462                              |
| 3           | 12.04        | 0.635             | 0.35      | 0.32                 | 0.222                        | 0.0711                              |
| 4           | 11.41        | 0.630             | 0.34      | 0.36                 | 0.214                        | 0.0771                              |
| 5           | 10.78        | 0.630             | 0.36      | 0.42                 | 0.224                        | 0.0939                              |
| 6           | 10.15        | 0.630             | 0.36      | 0.42                 | 0.227                        | 0.0953                              |
| 7           | 9.52         | 0.640             | 0.39      | 0.41                 | 0.250                        | 0.1023                              |
| 8           | 8.87         | 0.635             | 0.44      | 0.50                 | 0.279                        | 0.1397                              |
| 9           | 8.25         | 0.625             | 0.44      | 0.44                 | 0.275                        | 0.1210                              |
| 10          | 7.62         | 0.630             | 0.46      | 0.39                 | 0.290                        | 0.1130                              |
| 11          | 6.99         | 0.630             | 0.46      | 0.37                 | 0.290                        | 0.1072                              |
| 12          | 6.36         | 0.630             | 0.44      | 0.35                 | 0.277                        | 0.0970                              |
| 13          | 5.73         | 0.635             | 0.35      | 0.36                 | 0.222                        | 0.0800                              |
| 14          | 5.09         | 0.635             | 0.26      | 0.37                 | 0.165                        | 0.0611                              |
| 15          | 4.46         | 0.630             | 0.30      | 0.30                 | 0.186                        | 0.0558                              |
| 16          | 3.83         | 0.630             | 0.35      | 0.32                 | 0.221                        | 0.0706                              |
| 17          | 3.20         | 0.630             | 0.33      | 0.28                 | 0.208                        | 0.0582                              |
| 18          | 2.57         | 0.630             | 0.26      | 0.24                 | 0.164                        | 0.0393                              |
| 19          | 1.94         | 0.685             | 0.23      | 0.06                 | 0.158                        | 0.0095                              |
| 20          | 1.20         | 0.370             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.20         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.31 | Discharge (m <sup>3</sup> /s) | 1.4671 |
| Mean Velocity (m/s) | 0.31 |                               |        |



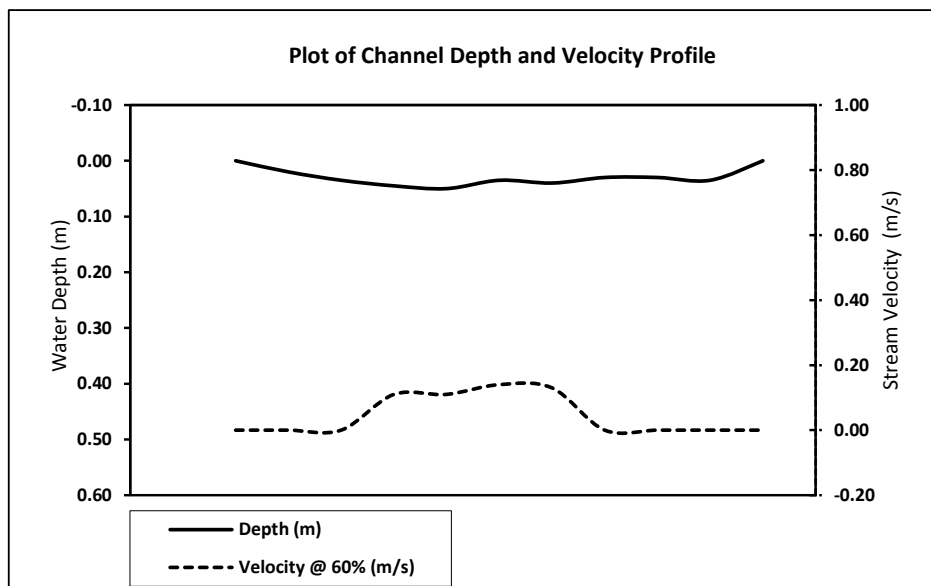


Ecological Logistics  
& Research Ltd.

|                              |                    |                                                                                                                                |      |
|------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| <b>Site / Location:</b>      | Clinton Creek Site |                                                                                                                                |      |
| <b>Stream Name:</b>          | Groundwater Seep   |                                                                                                                                |      |
| <b>Station Name:</b>         | GWCC-5             |                                                                                                                                |      |
| <b>Date and Time:</b>        | Jul.22/2016, 9:32  |                                                                                                                                |      |
| <b>Staff:</b>                | GR,NB              |                                                                                                                                |      |
| <b>UTM Coordinates:</b>      | 513984. 7147127    |                                                                                                                                |      |
| <b>Technique:</b>            | Swoffer Flow Meter | <b>Left Bank</b>                                                                                                               | 2.9  |
| <b>Temp., Water/Air (°C)</b> | 9.1/~13            | <b>Right Bank</b>                                                                                                              | 1.06 |
| <b>Crossing Number</b>       | 1                  | <b>Wet.Width</b>                                                                                                               | 1.84 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.03 | Discharge (m <sup>3</sup> /s) | 0.0041 |
| Mean Velocity (m/s) | 0.04 |                               |        |

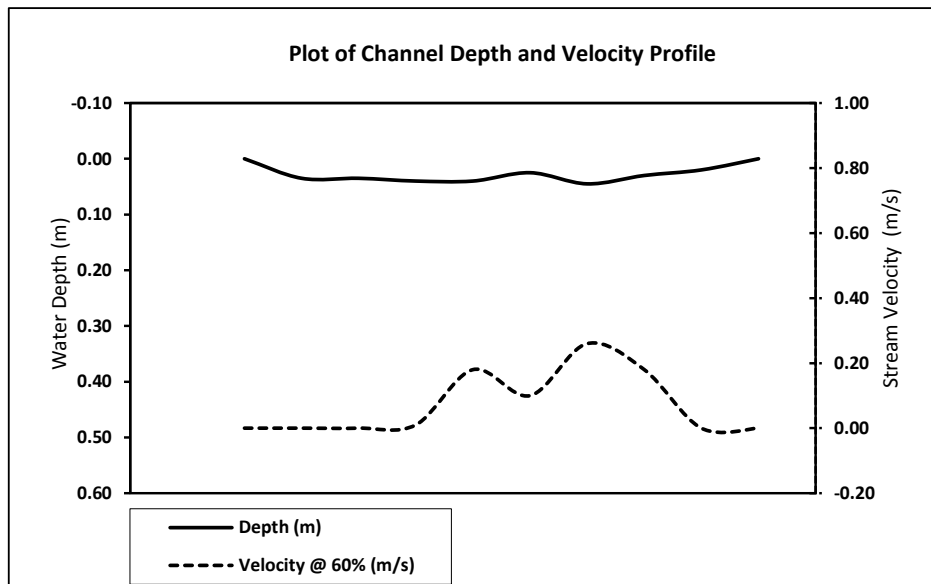




|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Groundwater Seep   |                                                                                                                                |      |
| Station Name:         | GWCC-5             |                                                                                                                                |      |
| Date and Time:        | Jul.22/2016, 9:32  |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 513984. 7147127    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                                                                      | 2.9  |
| Temp., Water/Air (°C) | 9.1/~13            | Right Bank                                                                                                                     | 1.06 |
| Crossing Number       | 2                  | Wet.Width                                                                                                                      | 1.84 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.03 | Discharge (m <sup>3</sup> /s) | 0.0052 |
| Mean Velocity (m/s) | 0.07 |                               |        |



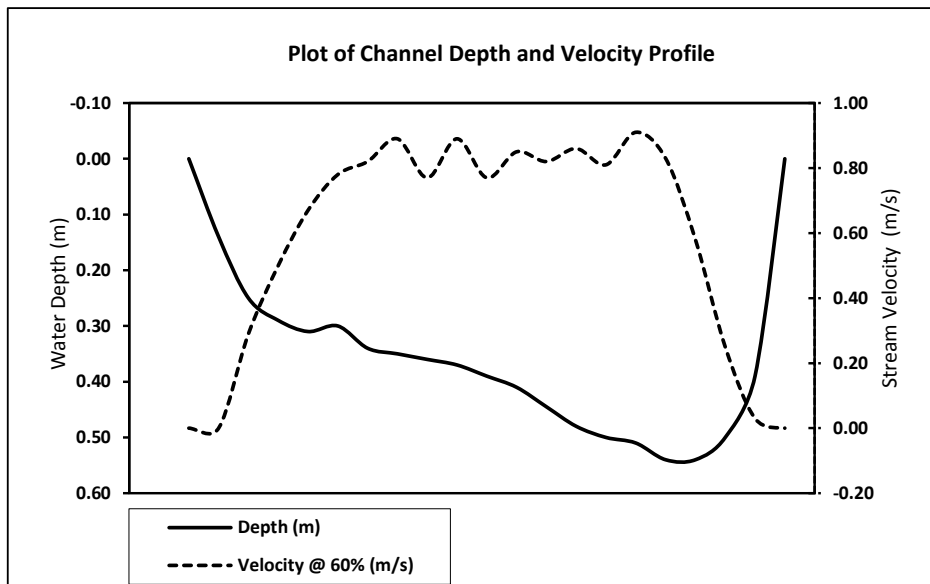


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |     |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.3            |  |     |
| Site / Location:      | Clinton Creek Site  |                                                                                     |     |
| Stream Name:          | Upper Clinton Creek |                                                                                     |     |
| Station Name:         | R1                  |                                                                                     |     |
| Date and Time:        | Jul.23/2016, 15:15  |                                                                                     |     |
| Staff:                | GR,NB               |                                                                                     |     |
| UTM Coordinates:      | 510718. 7147525     |                                                                                     |     |
| Technique:            | Swoffer Flow Meter  | Left Bank                                                                           | 8.4 |
| Temp., Water/Air (°C) | 6.0/~19             | Right Bank                                                                          | 0.6 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 7.8 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.60         | 0.195             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.99         | 0.385             | 0.14      | 0.00                 | 0.054                        | 0.0000                              |
| 2           | 1.37         | 0.380             | 0.25      | 0.29                 | 0.095                        | 0.0276                              |
| 3           | 1.75         | 0.385             | 0.29      | 0.50                 | 0.112                        | 0.0558                              |
| 4           | 2.14         | 0.390             | 0.31      | 0.67                 | 0.121                        | 0.0810                              |
| 5           | 2.53         | 0.390             | 0.30      | 0.78                 | 0.117                        | 0.0913                              |
| 6           | 2.92         | 0.385             | 0.34      | 0.82                 | 0.131                        | 0.1073                              |
| 7           | 3.30         | 0.385             | 0.35      | 0.89                 | 0.135                        | 0.1199                              |
| 8           | 3.69         | 0.390             | 0.36      | 0.77                 | 0.140                        | 0.1081                              |
| 9           | 4.08         | 0.385             | 0.37      | 0.89                 | 0.142                        | 0.1268                              |
| 10          | 4.46         | 0.380             | 0.39      | 0.77                 | 0.148                        | 0.1141                              |
| 11          | 4.84         | 0.380             | 0.41      | 0.85                 | 0.156                        | 0.1324                              |
| 12          | 5.22         | 0.380             | 0.45      | 0.82                 | 0.169                        | 0.1387                              |
| 13          | 5.60         | 0.380             | 0.48      | 0.86                 | 0.182                        | 0.1569                              |
| 14          | 5.98         | 0.385             | 0.50      | 0.81                 | 0.193                        | 0.1559                              |
| 15          | 6.37         | 0.385             | 0.51      | 0.91                 | 0.196                        | 0.1787                              |
| 16          | 6.75         | 0.380             | 0.54      | 0.83                 | 0.205                        | 0.1703                              |
| 17          | 7.13         | 0.380             | 0.54      | 0.58                 | 0.205                        | 0.1190                              |
| 18          | 7.51         | 0.365             | 0.50      | 0.25                 | 0.183                        | 0.0456                              |
| 19          | 7.86         | 0.445             | 0.39      | 0.03                 | 0.174                        | 0.0052                              |
| 20          | 8.40         | 0.270             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 8.40         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.35 | Discharge (m <sup>3</sup> /s) | 1.9346 |
| Mean Velocity (m/s) | 0.59 |                               |        |

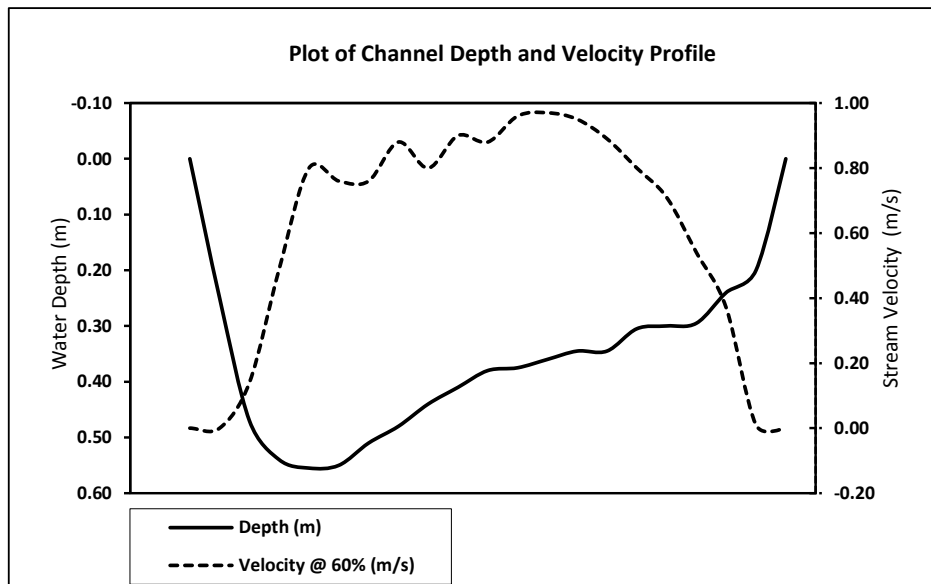


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |     |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.3            |  |     |
| Site / Location:      | Clinton Creek Site  |                                                                                     |     |
| Stream Name:          | Upper Clinton Creek |                                                                                     |     |
| Station Name:         | R1                  |                                                                                     |     |
| Date and Time:        | Jul.23/2016, 15:15  |                                                                                     |     |
| Staff:                | GR,NB               |                                                                                     |     |
| UTM Coordinates:      | 510718. 7147525     |                                                                                     |     |
| Technique:            | Swoffer Flow Meter  | Left Bank                                                                           | 8.4 |
| Temp., Water/Air (°C) | 6.0/~19             | Right Bank                                                                          | 0.6 |
| Crossing Number       | 2                   | Wet.Width                                                                           | 7.8 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 8.40         | 0.120             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 8.16         | 0.400             | 0.25      | 0.00                 | 0.100                        | 0.0000                              |
| 2           | 7.60         | 0.470             | 0.47      | 0.14                 | 0.221                        | 0.0309                              |
| 3           | 7.22         | 0.380             | 0.54      | 0.49                 | 0.205                        | 0.1005                              |
| 4           | 6.84         | 0.380             | 0.56      | 0.80                 | 0.211                        | 0.1687                              |
| 5           | 6.46         | 0.380             | 0.55      | 0.76                 | 0.209                        | 0.1588                              |
| 6           | 6.08         | 0.380             | 0.51      | 0.76                 | 0.194                        | 0.1473                              |
| 7           | 5.70         | 0.385             | 0.48      | 0.88                 | 0.185                        | 0.1626                              |
| 8           | 5.31         | 0.390             | 0.44      | 0.80                 | 0.172                        | 0.1373                              |
| 9           | 4.92         | 0.385             | 0.41      | 0.90                 | 0.158                        | 0.1421                              |
| 10          | 4.54         | 0.380             | 0.38      | 0.88                 | 0.144                        | 0.1271                              |
| 11          | 4.16         | 0.385             | 0.38      | 0.96                 | 0.144                        | 0.1386                              |
| 12          | 3.77         | 0.390             | 0.36      | 0.97                 | 0.140                        | 0.1362                              |
| 13          | 3.38         | 0.385             | 0.35      | 0.95                 | 0.133                        | 0.1262                              |
| 14          | 3.00         | 0.380             | 0.35      | 0.89                 | 0.131                        | 0.1167                              |
| 15          | 2.62         | 0.380             | 0.31      | 0.80                 | 0.116                        | 0.0927                              |
| 16          | 2.24         | 0.380             | 0.30      | 0.71                 | 0.114                        | 0.0809                              |
| 17          | 1.86         | 0.380             | 0.30      | 0.54                 | 0.112                        | 0.0605                              |
| 18          | 1.48         | 0.380             | 0.24      | 0.37                 | 0.091                        | 0.0337                              |
| 19          | 1.10         | 0.440             | 0.20      | 0.01                 | 0.088                        | 0.0009                              |
| 20          | 0.60         | 0.250             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.60         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.35 | Discharge (m <sup>3</sup> /s) | 1.9618 |
| Mean Velocity (m/s) | 0.60 |                               |        |

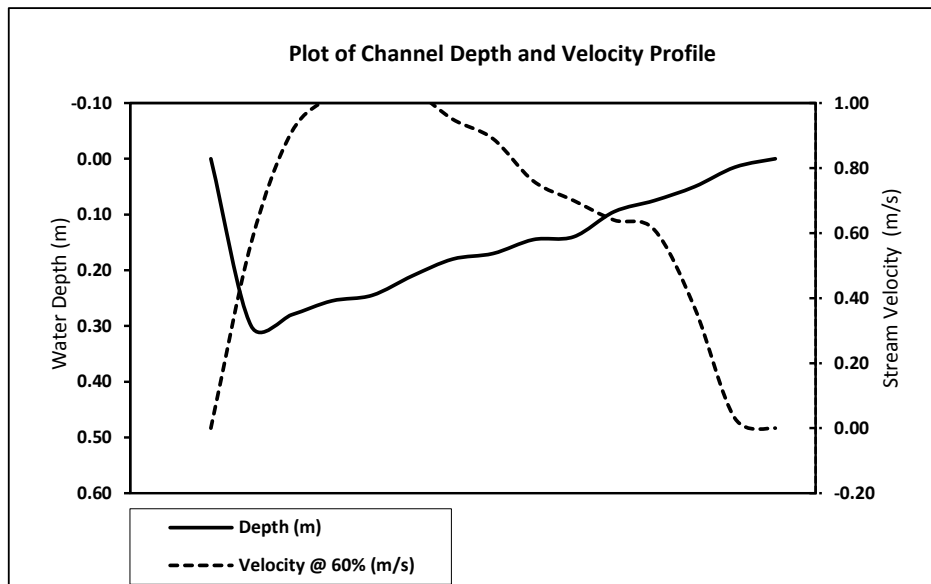




|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Easter Creek       |                                                                                                                                |      |
| Station Name:         | R2                 |                                                                                                                                |      |
| Date and Time:        | Jul.23/2016, 16:46 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 512023. 7148061    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter |                                                                                                                                |      |
| Temp., Water/Air (°C) | 8.2/~19            | Right Bank                                                                                                                     | 0.54 |
| Crossing Number       | 1                  | Wet.Width                                                                                                                      | 2.43 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.14 | Discharge (m <sup>3</sup> /s) | 0.3087 |
| Mean Velocity (m/s) | 0.64 |                               |        |



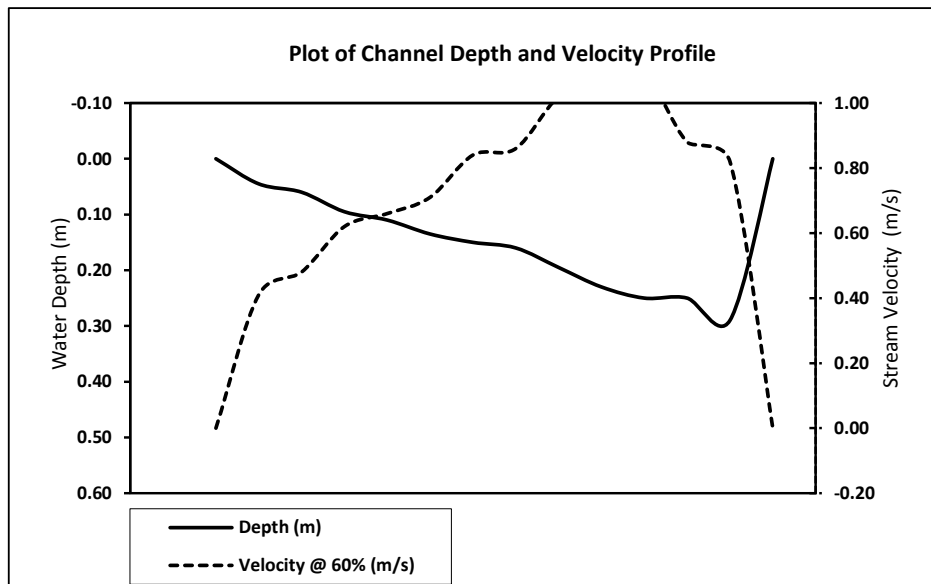


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|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Easter Creek       |                                                                                                                                |      |
| Station Name:         | R2                 |                                                                                                                                |      |
| Date and Time:        | Jul.23/2016, 16:46 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 512023. 7148061    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter |                                                                                                                                |      |
| Temp., Water/Air (°C) | 8.2/~19            | Right Bank                                                                                                                     | 0.54 |
| Crossing Number       | 2                  | Wet.Width                                                                                                                      | 2.43 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.14 | Discharge (m <sup>3</sup> /s) | 0.2960 |
| Mean Velocity (m/s) | 0.68 |                               |        |



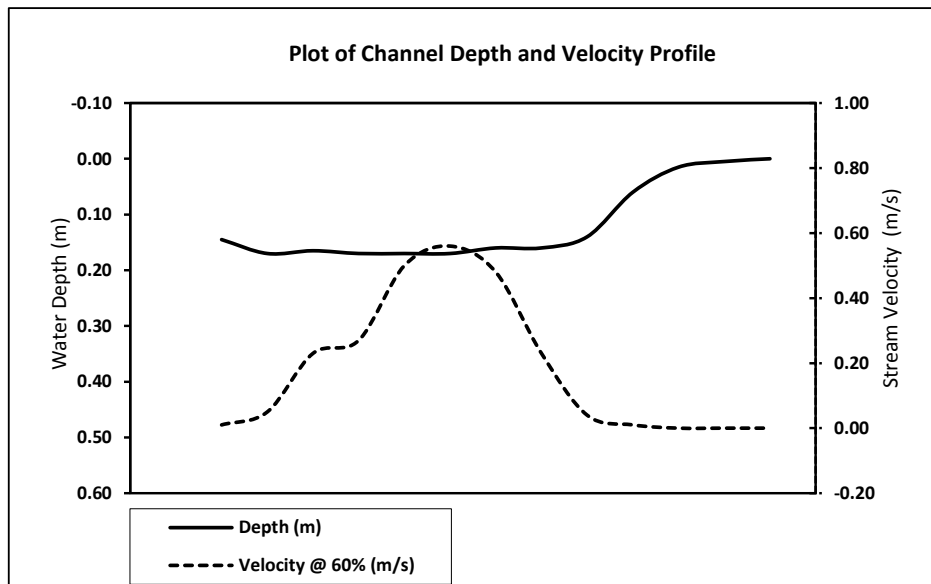


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|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Wolverine Creek    |                                                                                                                                |      |
| Station Name:         | R3                 |                                                                                                                                |      |
| Date and Time:        | Jul.19/2016, 17:47 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 513952. 7148677    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter |                                                                                                                                |      |
| Temp., Water/Air (°C) | 7.7/~16            | Right Bank                                                                                                                     | 3.22 |
| Crossing Number       | 1                  | Wet.Width                                                                                                                      | 1.83 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.12 | Discharge (m <sup>3</sup> /s) | 0.0606 |
| Mean Velocity (m/s) | 0.18 |                               |        |

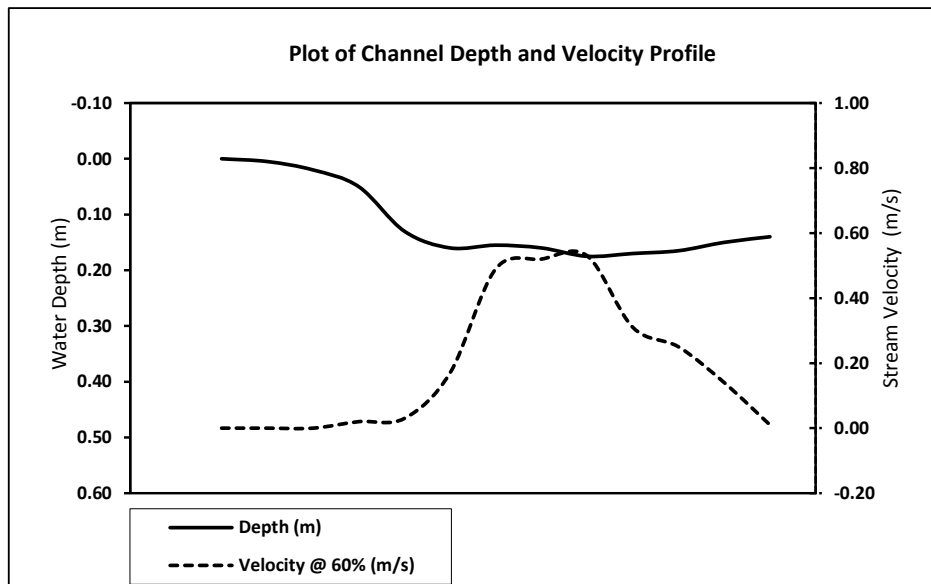




|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Wolverine Creek    |                                                                                                                                |      |
| Station Name:         | R3                 |                                                                                                                                |      |
| Date and Time:        | Jul.19/2016, 17:47 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 513952. 7148677    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                                                                      | 5.05 |
| Temp., Water/Air (°C) | 7.7/~16            | Right Bank                                                                                                                     | 3.22 |
| Crossing Number       | 2                  | Wet.Width                                                                                                                      | 1.83 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.11 | Discharge (m <sup>3</sup> /s) | 0.0596 |
| Mean Velocity (m/s) | 0.19 |                               |        |

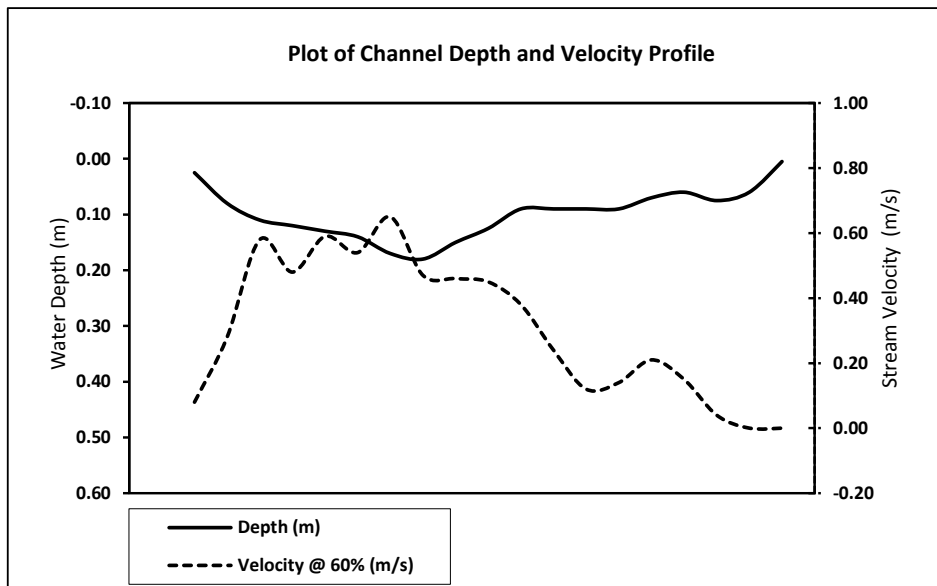


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Eagle Creek        |                                                                                     |      |
| Station Name:         | R4                 |                                                                                     |      |
| Date and Time:        | Jul.21/2016, 14:47 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 515981. 7145344    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 2.33 |
| Temp., Water/Air (°C) | 4.9/~10            | Right Bank                                                                          | 0.41 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 1.92 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.41         | 0.050             | 0.03      | 0.08                 | 0.001                        | 0.0001                              |
| 1           | 0.51         | 0.105             | 0.08      | 0.28                 | 0.008                        | 0.0024                              |
| 2           | 0.62         | 0.105             | 0.11      | 0.58                 | 0.012                        | 0.0067                              |
| 3           | 0.72         | 0.105             | 0.12      | 0.48                 | 0.013                        | 0.0060                              |
| 4           | 0.83         | 0.110             | 0.13      | 0.59                 | 0.014                        | 0.0084                              |
| 5           | 0.94         | 0.105             | 0.14      | 0.54                 | 0.015                        | 0.0079                              |
| 6           | 1.04         | 0.105             | 0.17      | 0.65                 | 0.018                        | 0.0116                              |
| 7           | 1.15         | 0.110             | 0.18      | 0.47                 | 0.020                        | 0.0093                              |
| 8           | 1.26         | 0.105             | 0.15      | 0.46                 | 0.016                        | 0.0072                              |
| 9           | 1.36         | 0.105             | 0.13      | 0.45                 | 0.013                        | 0.0059                              |
| 10          | 1.47         | 0.105             | 0.09      | 0.38                 | 0.009                        | 0.0036                              |
| 11          | 1.57         | 0.100             | 0.09      | 0.24                 | 0.009                        | 0.0022                              |
| 12          | 1.67         | 0.105             | 0.09      | 0.12                 | 0.009                        | 0.0011                              |
| 13          | 1.78         | 0.110             | 0.09      | 0.14                 | 0.010                        | 0.0014                              |
| 14          | 1.89         | 0.105             | 0.07      | 0.21                 | 0.007                        | 0.0015                              |
| 15          | 1.99         | 0.105             | 0.06      | 0.15                 | 0.006                        | 0.0009                              |
| 16          | 2.10         | 0.110             | 0.08      | 0.04                 | 0.008                        | 0.0003                              |
| 17          | 2.21         | 0.115             | 0.06      | 0.00                 | 0.007                        | 0.0000                              |
| 18          | 2.33         | 0.060             | 0.01      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.33         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.10 | Discharge (m <sup>3</sup> /s) | 0.0767 |
| Mean Velocity (m/s) | 0.31 |                               |        |

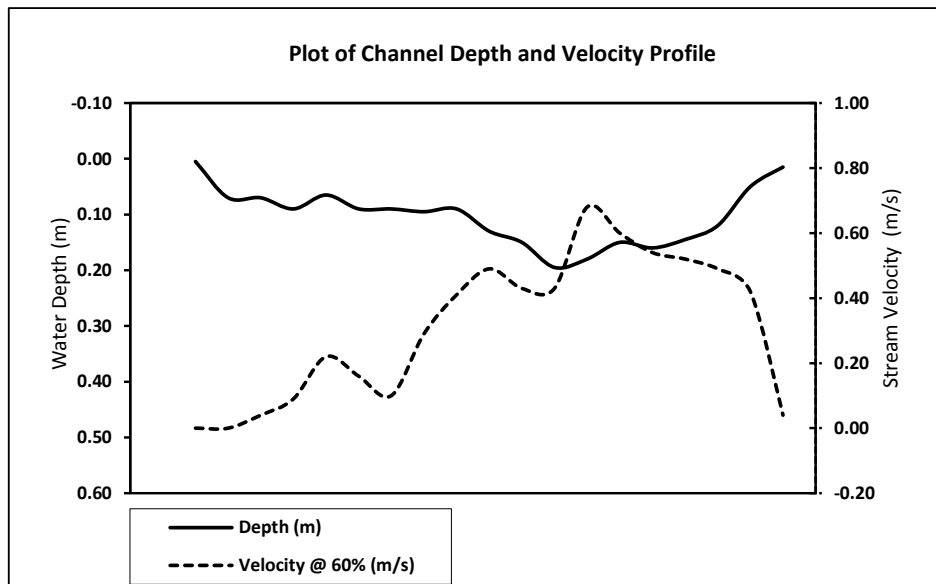


## Stream Flow & Discharge Calculation

|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Eagle Creek        |                                                                                     |      |
| Station Name:         | R4                 |                                                                                     |      |
| Date and Time:        | Jul.21/2016, 14:47 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 515981. 7145344    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 2.33 |
| Temp., Water/Air (°C) | 4.9/~10            | Right Bank                                                                          | 0.42 |
| Crossing Number       | 2                  | Wet.Width                                                                           | 1.91 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.33         | 0.055             | 0.01      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.22         | 0.110             | 0.07      | 0.00                 | 0.008                        | 0.0000                              |
| 2           | 2.11         | 0.105             | 0.07      | 0.04                 | 0.007                        | 0.0003                              |
| 3           | 2.01         | 0.105             | 0.09      | 0.09                 | 0.009                        | 0.0009                              |
| 4           | 1.90         | 0.110             | 0.07      | 0.22                 | 0.007                        | 0.0016                              |
| 5           | 1.79         | 0.105             | 0.09      | 0.16                 | 0.009                        | 0.0015                              |
| 6           | 1.69         | 0.105             | 0.09      | 0.10                 | 0.009                        | 0.0009                              |
| 7           | 1.58         | 0.105             | 0.10      | 0.29                 | 0.010                        | 0.0029                              |
| 8           | 1.48         | 0.105             | 0.09      | 0.41                 | 0.009                        | 0.0039                              |
| 9           | 1.37         | 0.105             | 0.13      | 0.49                 | 0.014                        | 0.0067                              |
| 10          | 1.27         | 0.105             | 0.15      | 0.43                 | 0.016                        | 0.0068                              |
| 11          | 1.16         | 0.110             | 0.20      | 0.43                 | 0.021                        | 0.0092                              |
| 12          | 1.05         | 0.105             | 0.18      | 0.68                 | 0.019                        | 0.0129                              |
| 13          | 0.95         | 0.100             | 0.15      | 0.60                 | 0.015                        | 0.0090                              |
| 14          | 0.85         | 0.105             | 0.16      | 0.54                 | 0.017                        | 0.0091                              |
| 15          | 0.74         | 0.100             | 0.15      | 0.52                 | 0.015                        | 0.0075                              |
| 16          | 0.65         | 0.100             | 0.12      | 0.49                 | 0.012                        | 0.0059                              |
| 17          | 0.54         | 0.115             | 0.05      | 0.42                 | 0.006                        | 0.0024                              |
| 18          | 0.42         | 0.060             | 0.02      | 0.04                 | 0.001                        | 0.0000                              |
| end         | 0.42         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.10 | Discharge (m <sup>3</sup> /s) | 0.0814 |
| Mean Velocity (m/s) | 0.31 |                               |        |





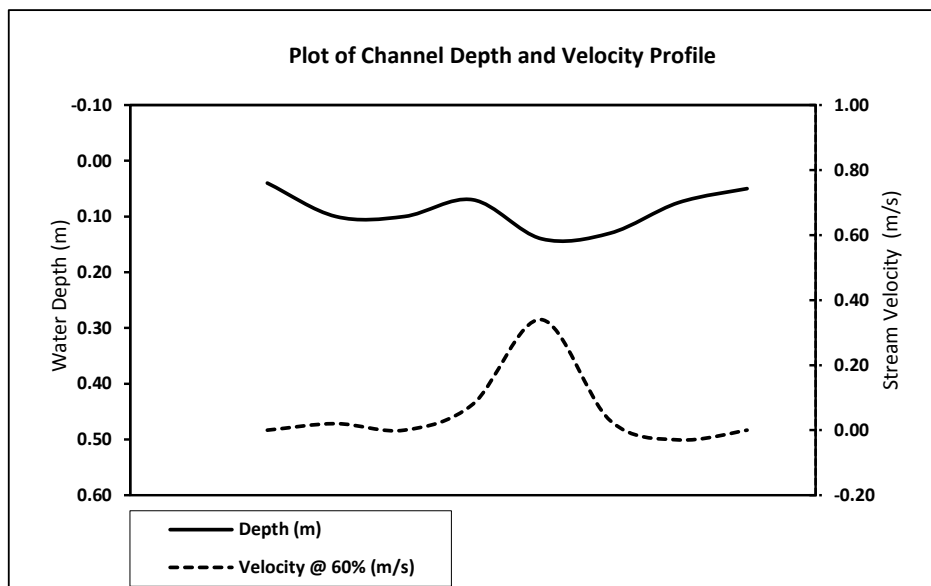


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|                       |                    |                                                                                     |      |
|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Porcupine Creek    |                                                                                     |      |
| Station Name:         | R7                 |                                                                                     |      |
| Date and Time:        | Jul.20/2016, 14:08 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 513026. 7145669    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                           | 1.92 |
| Temp., Water/Air (°C) | 5.3/~15            | Right Bank                                                                          | 1.3  |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.62 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.09 | Discharge (m <sup>3</sup> /s) | 0.0051 |
| Mean Velocity (m/s) | 0.06 |                               |        |



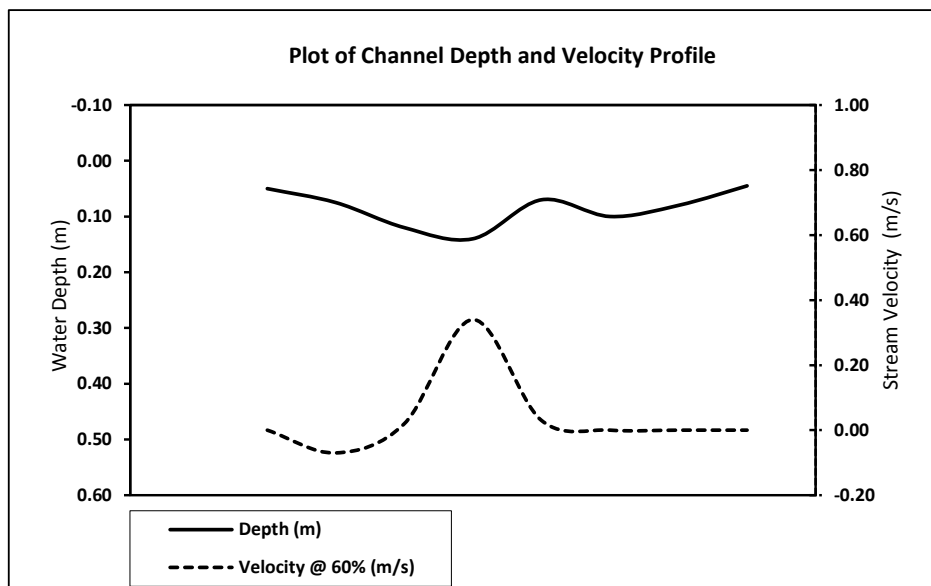


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|-----------------------|--------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           |  |      |
| Site / Location:      | Clinton Creek Site |                                                                                     |      |
| Stream Name:          | Porcupine Creek    |                                                                                     |      |
| Station Name:         | R7                 |                                                                                     |      |
| Date and Time:        | Jul.20/2016, 14:08 |                                                                                     |      |
| Staff:                | GR,NB              |                                                                                     |      |
| UTM Coordinates:      | 513026. 7145669    |                                                                                     |      |
| Technique:            | Swoffer Flow Meter |                                                                                     |      |
| Temp., Water/Air (°C) | 5.3/~15            | Right Bank                                                                          | 1.28 |
| Crossing Number       | 1                  | Wet.Width                                                                           | 0.65 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.09 | Discharge (m <sup>3</sup> /s) | 0.0049 |
| Mean Velocity (m/s) | 0.04 |                               |        |

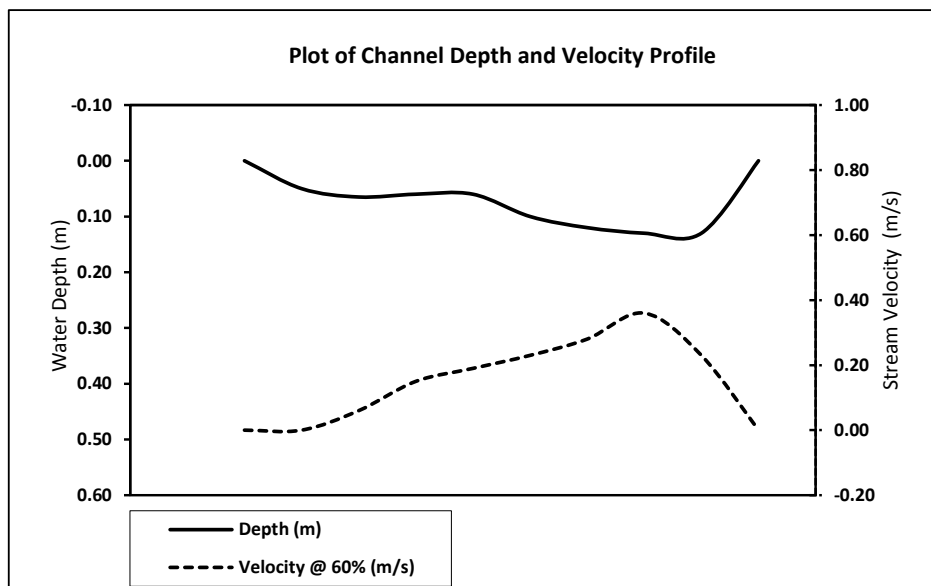




|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek      |                                                                                                                                |      |
| Station Name:         | R8                 |                                                                                                                                |      |
| Date and Time:        | Jul.23/2016, 17:47 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 511885. 7147805    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter |                                                                                                                                |      |
| Temp., Water/Air (°C) | 6.6/~20            | Right Bank                                                                                                                     | 1.02 |
| Crossing Number       | 1                  | Wet.Width                                                                                                                      | 0.88 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.07 | Discharge (m <sup>3</sup> /s) | 0.0146 |
| Mean Velocity (m/s) | 0.15 |                               |        |

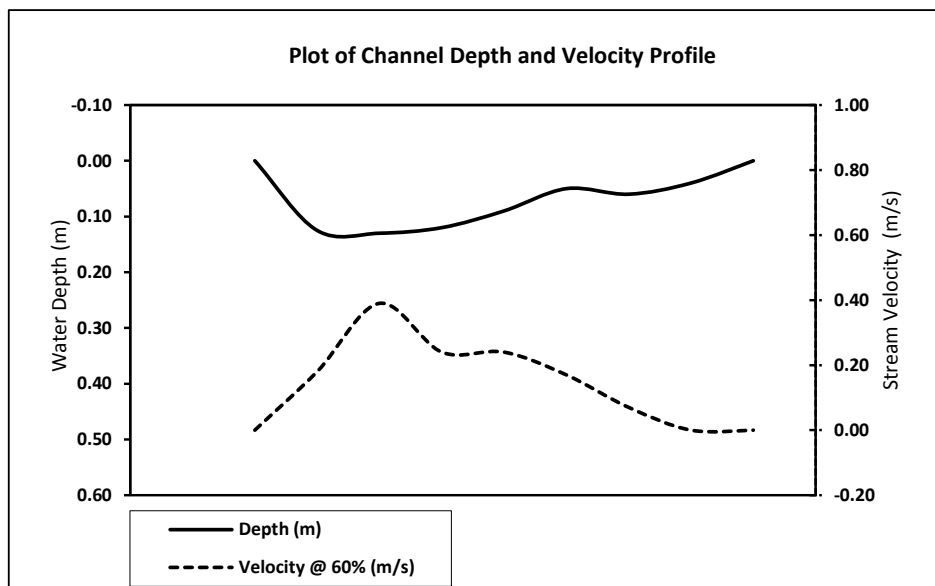




|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek      |                                                                                                                                |      |
| Station Name:         | R8                 |                                                                                                                                |      |
| Date and Time:        | Jul.23/2016, 17:47 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 511885. 7147805    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter |                                                                                                                                |      |
| Temp., Water/Air (°C) | 6.6/~20            | Left Bank                                                                                                                      | 1.9  |
| Crossing Number       | 2                  | Right Bank                                                                                                                     | 1.02 |
|                       |                    | Wet.Width                                                                                                                      | 0.88 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.07 | Discharge (m <sup>3</sup> /s) | 0.0144 |
| Mean Velocity (m/s) | 0.14 |                               |        |



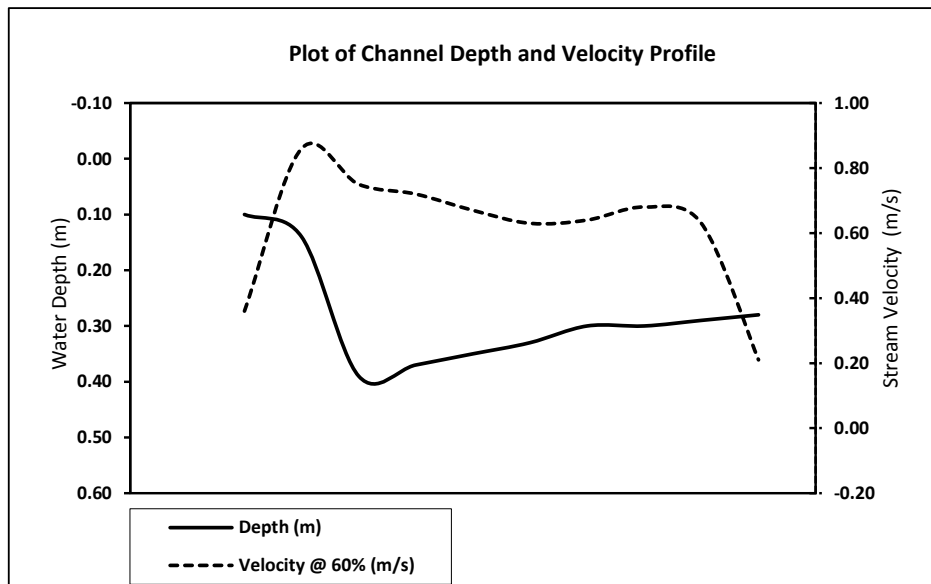


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|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek      |                                                                                                                                |      |
| Station Name:         | R9                 |                                                                                                                                |      |
| Date and Time:        | Jul.23/2016, 18:50 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 512343. 7146753    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                                                                      | 0.42 |
| Temp., Water/Air (°C) | 6.0/~17            | Right Bank                                                                                                                     | 1.01 |
| Crossing Number       | 1                  | Wet.Width                                                                                                                      | 0.59 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.29 | Discharge (m <sup>3</sup> /s) | 0.1129 |
| Mean Velocity (m/s) | 0.62 |                               |        |



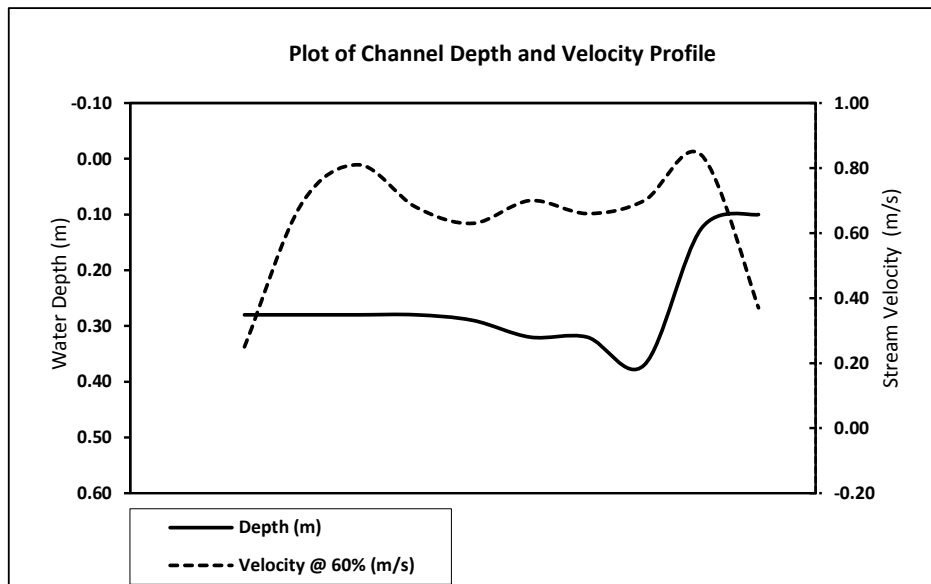


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|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek      |                                                                                                                                |      |
| Station Name:         | R9                 |                                                                                                                                |      |
| Date and Time:        | Jul.23/2016, 18:50 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 512343. 7146753    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter | Left Bank                                                                                                                      | 0.42 |
| Temp., Water/Air (°C) | 6.0/~17            | Right Bank                                                                                                                     | 1.01 |
| Crossing Number       | 2                  | Wet.Width                                                                                                                      | 0.59 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.26 | Discharge (m <sup>3</sup> /s) | 0.1105 |
| Mean Velocity (m/s) | 0.63 |                               |        |



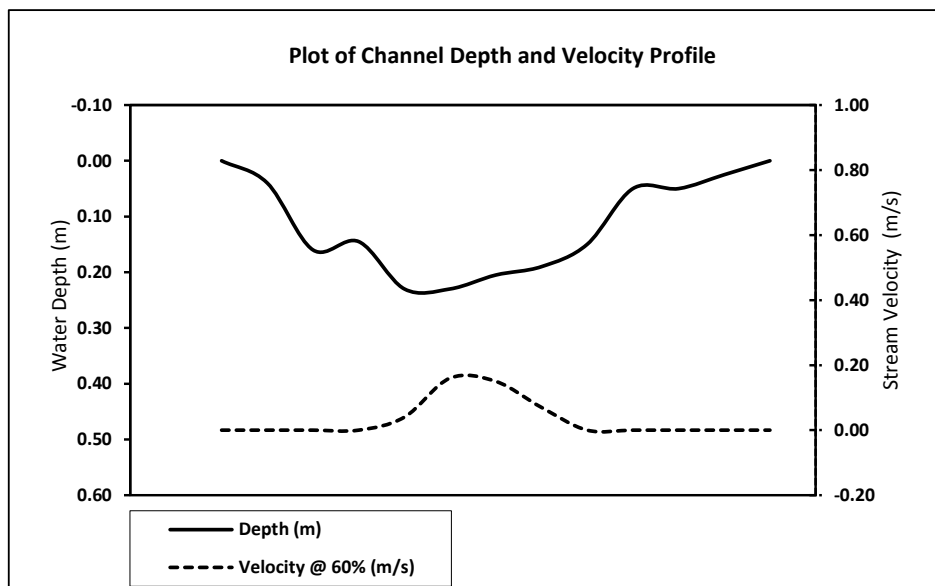


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|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek      |                                                                                                                                |      |
| Station Name:         | R11                |                                                                                                                                |      |
| Date and Time:        | Jul.19/2016, 15:55 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 514165. 7147732    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter |                                                                                                                                |      |
| Temp., Water/Air (°C) | 5.7/~16            | Left Bank                                                                                                                      | 2.49 |
| Crossing Number       | 1                  | Right Bank                                                                                                                     | 0.7  |
|                       |                    | Wet.Width                                                                                                                      | 1.79 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.11 | Discharge (m <sup>3</sup> /s) | 0.0135 |
| Mean Velocity (m/s) | 0.03 |                               |        |



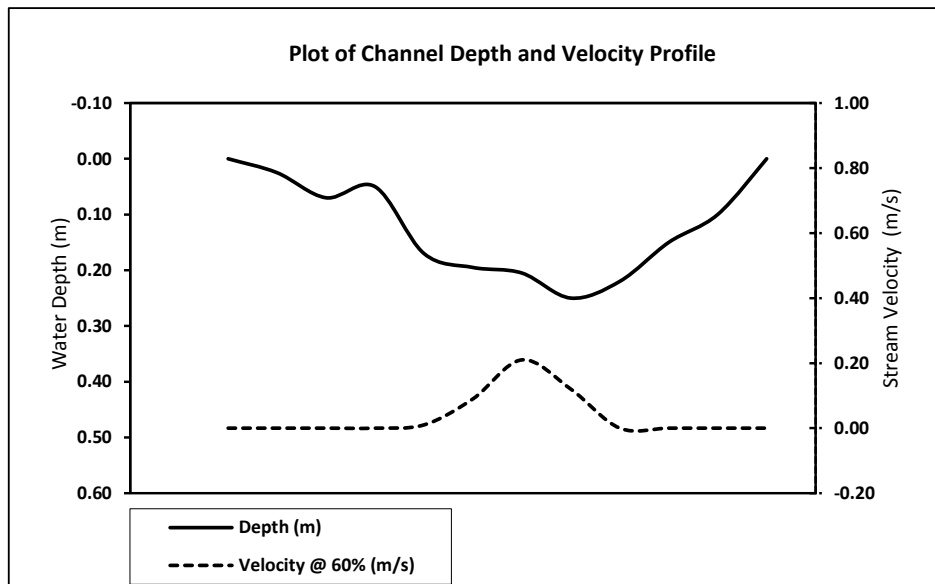


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|                       |                    |                                                                                                                                |      |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.3           | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek      |                                                                                                                                |      |
| Station Name:         | R11                |                                                                                                                                |      |
| Date and Time:        | Jul.19/2016, 15:55 |                                                                                                                                |      |
| Staff:                | GR,NB              |                                                                                                                                |      |
| UTM Coordinates:      | 514165. 7147732    |                                                                                                                                |      |
| Technique:            | Swoffer Flow Meter |                                                                                                                                |      |
| Temp., Water/Air (°C) | 5.7/~16            | Left Bank                                                                                                                      | 2.48 |
| Crossing Number       | 2                  | Right Bank                                                                                                                     | 0.7  |
|                       |                    | Wet.Width                                                                                                                      | 1.78 |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.12 | Discharge (m <sup>3</sup> /s) | 0.0136 |
| Mean Velocity (m/s) | 0.04 |                               |        |



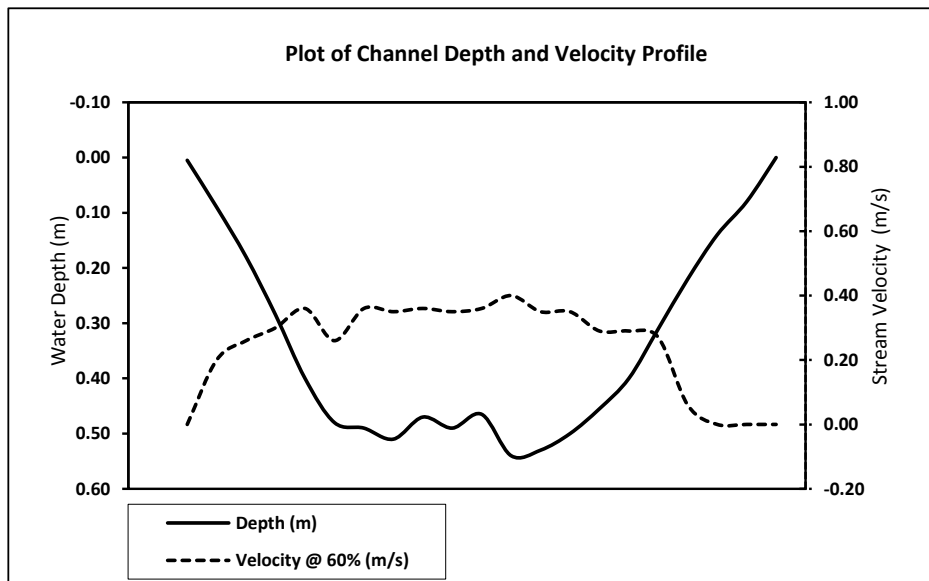


### Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |       |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.4            |  |       |
| Site / Location:      | Clinton Creek Site  |                                                                                     |       |
| Stream Name:          | Clinton Creek       |                                                                                     |       |
| Station Name:         | E1(H)               |                                                                                     |       |
| Date and Time:        | Aug.20,2016 10:42   |                                                                                     |       |
| Staff:                | GR,NB               |                                                                                     |       |
| UTM Coordinates:      | 07w 0512850 7147423 |                                                                                     |       |
| Technique:            | Swoffer             | Left Bank                                                                           | 13.18 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 0.81  |
| Crossing Number       | 1                   | Wet.Width                                                                           | 12.37 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 13.18        | 0.300             | 0.01      | 0.00                 | 0.002                        | 0.0000                              |
| 1           | 12.58        | 0.610             | 0.09      | 0.20                 | 0.055                        | 0.0110                              |
| 2           | 11.96        | 0.620             | 0.18      | 0.26                 | 0.112                        | 0.0290                              |
| 3           | 11.34        | 0.620             | 0.29      | 0.30                 | 0.177                        | 0.0530                              |
| 4           | 10.72        | 0.620             | 0.40      | 0.36                 | 0.248                        | 0.0893                              |
| 5           | 10.10        | 0.620             | 0.48      | 0.26                 | 0.298                        | 0.0774                              |
| 6           | 9.48         | 0.620             | 0.49      | 0.36                 | 0.304                        | 0.1094                              |
| 7           | 8.86         | 0.620             | 0.51      | 0.35                 | 0.316                        | 0.1107                              |
| 8           | 8.24         | 0.620             | 0.47      | 0.36                 | 0.291                        | 0.1049                              |
| 9           | 7.62         | 0.620             | 0.49      | 0.35                 | 0.304                        | 0.1063                              |
| 10          | 7.00         | 0.620             | 0.47      | 0.36                 | 0.288                        | 0.1038                              |
| 11          | 6.38         | 0.620             | 0.54      | 0.40                 | 0.335                        | 0.1339                              |
| 12          | 5.76         | 0.620             | 0.53      | 0.35                 | 0.329                        | 0.1150                              |
| 13          | 5.14         | 0.620             | 0.50      | 0.35                 | 0.310                        | 0.1085                              |
| 14          | 4.52         | 0.620             | 0.46      | 0.29                 | 0.282                        | 0.0818                              |
| 15          | 3.90         | 0.570             | 0.40      | 0.29                 | 0.228                        | 0.0661                              |
| 16          | 3.38         | 0.570             | 0.31      | 0.27                 | 0.177                        | 0.0477                              |
| 17          | 2.76         | 0.620             | 0.22      | 0.06                 | 0.136                        | 0.0082                              |
| 18          | 2.14         | 0.620             | 0.14      | 0.00                 | 0.087                        | 0.0000                              |
| 19          | 1.52         | 0.665             | 0.08      | 0.00                 | 0.053                        | 0.0000                              |
| 20          | 0.81         | 0.355             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.81         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.34 | Discharge (m <sup>3</sup> /s) | 1.3560 |
| Mean Velocity (m/s) | 0.25 |                               |        |



### Stream Flow & Discharge Calculation

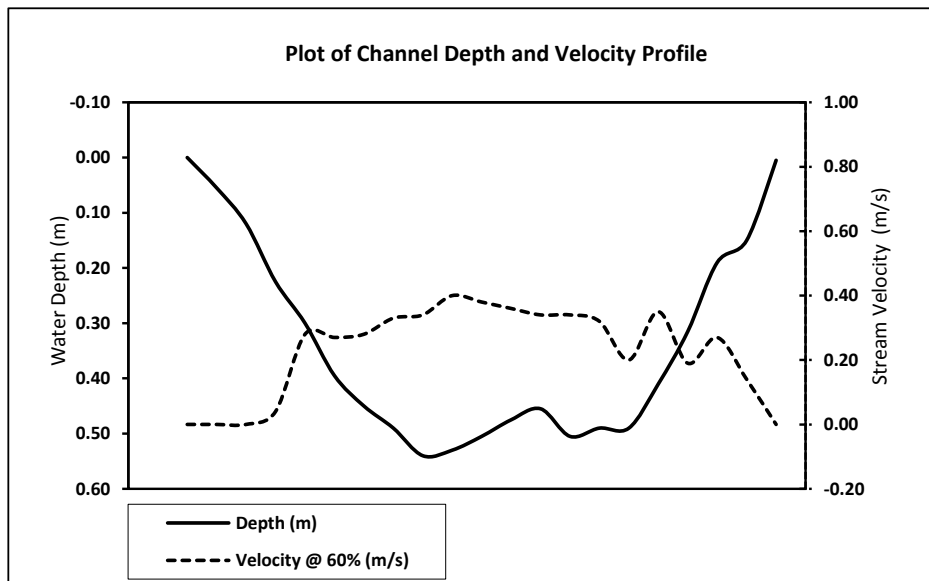
|                       |                     |            |       |
|-----------------------|---------------------|------------|-------|
| ELR Project No.       | 16-240.4            |            |       |
| Site / Location:      | Clinton Creek Site  |            |       |
| Stream Name:          | Clinton Creek       |            |       |
| Station Name:         | E1(H)               |            |       |
| Date and Time:        | Aug.20/2016 10:42   |            |       |
| Staff:                | GR,NB               |            |       |
| UTM Coordinates:      | 07w 0512850 7147423 |            |       |
| Technique:            | Swoffer             | Left Bank  | 13.18 |
| Temp., Water/Air (°C) | N/A                 | Right Bank | 0.81  |
| Crossing Number       | 2                   | Wet.Width  | 12.37 |



| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.81         | 0.310             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.43         | 0.620             | 0.06      | 0.00                 | 0.034                        | 0.0000                              |
| 2           | 2.05         | 0.620             | 0.12      | 0.00                 | 0.074                        | 0.0000                              |
| 3           | 2.67         | 0.620             | 0.23      | 0.04                 | 0.140                        | 0.0056                              |
| 4           | 3.29         | 0.570             | 0.30      | 0.28                 | 0.171                        | 0.0479                              |
| 5           | 3.81         | 0.570             | 0.40      | 0.27                 | 0.225                        | 0.0608                              |
| 6           | 4.43         | 0.620             | 0.45      | 0.28                 | 0.279                        | 0.0781                              |
| 7           | 5.05         | 0.620             | 0.49      | 0.33                 | 0.304                        | 0.1003                              |
| 8           | 5.67         | 0.620             | 0.54      | 0.34                 | 0.335                        | 0.1138                              |
| 9           | 6.29         | 0.570             | 0.53      | 0.40                 | 0.302                        | 0.1208                              |
| 10          | 6.81         | 0.595             | 0.51      | 0.38                 | 0.300                        | 0.1142                              |
| 11          | 7.48         | 0.645             | 0.48      | 0.36                 | 0.306                        | 0.1103                              |
| 12          | 8.10         | 0.620             | 0.46      | 0.34                 | 0.282                        | 0.0959                              |
| 13          | 8.72         | 0.620             | 0.51      | 0.34                 | 0.313                        | 0.1065                              |
| 14          | 9.34         | 0.630             | 0.49      | 0.32                 | 0.309                        | 0.0988                              |
| 15          | 9.98         | 0.630             | 0.49      | 0.20                 | 0.309                        | 0.0617                              |
| 16          | 10.60        | 0.620             | 0.41      | 0.35                 | 0.254                        | 0.0890                              |
| 17          | 11.22        | 0.620             | 0.32      | 0.19                 | 0.195                        | 0.0371                              |
| 18          | 11.84        | 0.620             | 0.19      | 0.27                 | 0.118                        | 0.0318                              |
| 19          | 12.46        | 0.670             | 0.15      | 0.14                 | 0.101                        | 0.0141                              |
| 20          | 13.18        | 0.360             | 0.01      | 0.00                 | 0.002                        | 0.0000                              |
| end         | 13.18        |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.34 |
| Mean Velocity (m/s) | 0.23 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 1.2866 |
|-------------------------------|--------|

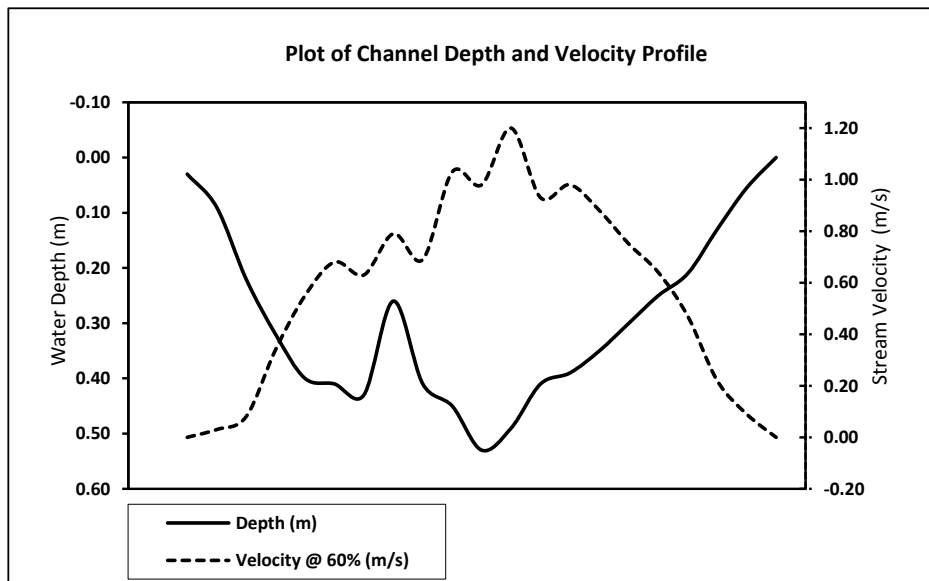


### Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Clinton Creek       |                                                                                     |      |
| Station Name:         | E2                  |                                                                                     |      |
| Date and Time:        | Aug.17,2016 14:45   |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0514168 7147077 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 8.74 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 0.64 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 8.1  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.64         | 0.200             | 0.03      | 0.00                 | 0.006                        | 0.0000                              |
| 1           | 1.04         | 0.400             | 0.09      | 0.03                 | 0.036                        | 0.0011                              |
| 2           | 1.44         | 0.400             | 0.22      | 0.08                 | 0.088                        | 0.0070                              |
| 3           | 1.84         | 0.400             | 0.32      | 0.34                 | 0.128                        | 0.0435                              |
| 4           | 2.24         | 0.400             | 0.40      | 0.55                 | 0.160                        | 0.0880                              |
| 5           | 2.64         | 0.405             | 0.41      | 0.68                 | 0.166                        | 0.1129                              |
| 6           | 3.05         | 0.410             | 0.43      | 0.63                 | 0.176                        | 0.1111                              |
| 7           | 3.46         | 0.405             | 0.26      | 0.79                 | 0.105                        | 0.0832                              |
| 8           | 3.86         | 0.400             | 0.41      | 0.69                 | 0.164                        | 0.1132                              |
| 9           | 4.26         | 0.410             | 0.45      | 1.03                 | 0.185                        | 0.1900                              |
| 10          | 4.68         | 0.410             | 0.53      | 0.98                 | 0.217                        | 0.2130                              |
| 11          | 5.08         | 0.400             | 0.49      | 1.20                 | 0.196                        | 0.2352                              |
| 12          | 5.48         | 0.400             | 0.41      | 0.93                 | 0.164                        | 0.1525                              |
| 13          | 5.88         | 0.410             | 0.39      | 0.98                 | 0.160                        | 0.1567                              |
| 14          | 6.30         | 0.410             | 0.35      | 0.88                 | 0.144                        | 0.1263                              |
| 15          | 6.70         | 0.400             | 0.30      | 0.75                 | 0.120                        | 0.0900                              |
| 16          | 7.10         | 0.410             | 0.25      | 0.64                 | 0.103                        | 0.0656                              |
| 17          | 7.52         | 0.410             | 0.21      | 0.47                 | 0.086                        | 0.0405                              |
| 18          | 7.92         | 0.410             | 0.13      | 0.22                 | 0.053                        | 0.0117                              |
| 19          | 8.34         | 0.410             | 0.06      | 0.09                 | 0.023                        | 0.0020                              |
| 20          | 8.74         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 8.74         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.29 | Discharge (m <sup>3</sup> /s) | 1.8435 |
| Mean Velocity (m/s) | 0.57 |                               |        |



### Stream Flow & Discharge Calculation

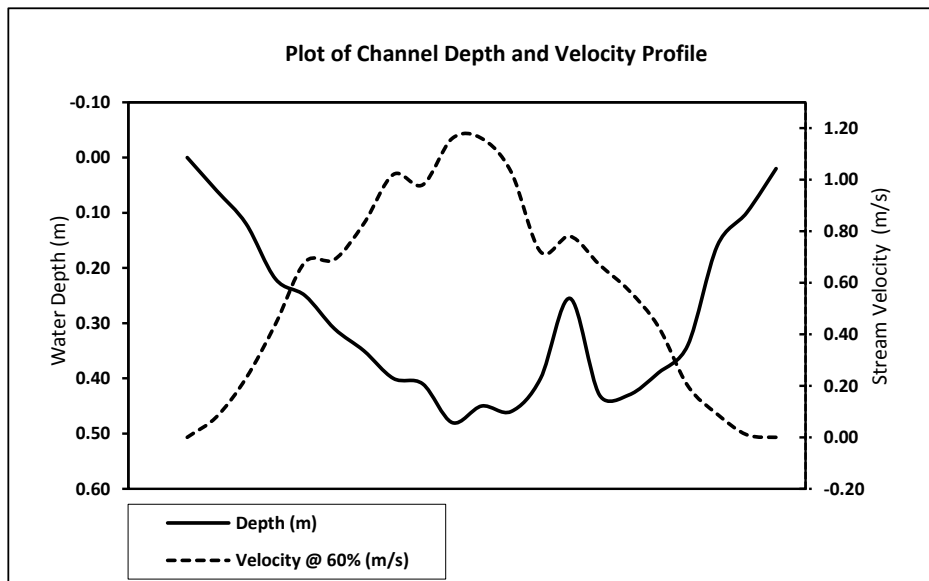
|                       |                     |            |      |
|-----------------------|---------------------|------------|------|
| ELR Project No.       | 16-240.4            |            |      |
| Site / Location:      | Clinton Creek Site  |            |      |
| Stream Name:          | Clinton Creek       |            |      |
| Station Name:         | E2                  |            |      |
| Date and Time:        | Aug.17,2016 14:45   |            |      |
| Staff:                | GR,NB               |            |      |
| UTM Coordinates:      | 07w 0514168 7147077 |            |      |
| Technique:            | Swoffer             | Left Bank  | 8.74 |
| Temp., Water/Air (°C) | N/A                 | Right Bank | 0.64 |
| Crossing Number       | 2                   | Wet.Width  | 8.1  |



| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 8.74         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 8.34         | 0.410             | 0.06      | 0.08                 | 0.025                        | 0.0020                              |
| 2           | 7.92         | 0.410             | 0.12      | 0.23                 | 0.049                        | 0.0113                              |
| 3           | 7.52         | 0.410             | 0.22      | 0.44                 | 0.090                        | 0.0397                              |
| 4           | 7.10         | 0.410             | 0.25      | 0.68                 | 0.103                        | 0.0697                              |
| 5           | 6.70         | 0.410             | 0.31      | 0.69                 | 0.127                        | 0.0877                              |
| 6           | 6.28         | 0.410             | 0.35      | 0.83                 | 0.144                        | 0.1191                              |
| 7           | 5.88         | 0.400             | 0.40      | 1.02                 | 0.160                        | 0.1632                              |
| 8           | 5.48         | 0.410             | 0.41      | 0.98                 | 0.168                        | 0.1647                              |
| 9           | 5.06         | 0.410             | 0.48      | 1.16                 | 0.197                        | 0.2283                              |
| 10          | 4.66         | 0.400             | 0.45      | 1.16                 | 0.180                        | 0.2088                              |
| 11          | 4.26         | 0.410             | 0.46      | 1.03                 | 0.189                        | 0.1943                              |
| 12          | 3.84         | 0.410             | 0.40      | 0.72                 | 0.164                        | 0.1181                              |
| 13          | 3.44         | 0.400             | 0.26      | 0.78                 | 0.102                        | 0.0796                              |
| 14          | 3.04         | 0.400             | 0.43      | 0.67                 | 0.172                        | 0.1152                              |
| 15          | 2.64         | 0.410             | 0.43      | 0.57                 | 0.176                        | 0.1005                              |
| 16          | 2.22         | 0.420             | 0.39      | 0.43                 | 0.164                        | 0.0704                              |
| 17          | 1.80         | 0.420             | 0.34      | 0.20                 | 0.143                        | 0.0286                              |
| 18          | 1.38         | 0.400             | 0.16      | 0.09                 | 0.064                        | 0.0058                              |
| 19          | 1.00         | 0.370             | 0.10      | 0.01                 | 0.037                        | 0.0004                              |
| 20          | 0.64         | 0.180             | 0.02      | 0.00                 | 0.004                        | 0.0000                              |
| end         | 0.64         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.29 |
| Mean Velocity (m/s) | 0.56 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 1.8073 |
|-------------------------------|--------|



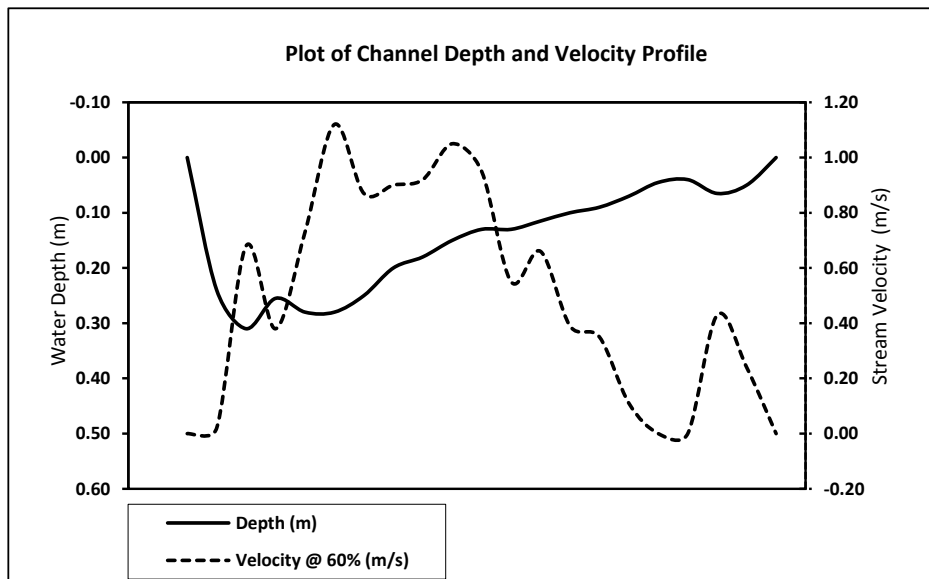
### Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Wolverine Creek     |                                                                                     |      |
| Station Name:         | E3(H)               |                                                                                     |      |
| Date and Time:        | Aug.16,2016 9:35    |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0514183 7147592 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 6.68 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 0.79 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 5.89 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.79         | 0.150             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.09         | 0.295             | 0.24      | 0.02                 | 0.071                        | 0.0014                              |
| 2           | 1.38         | 0.290             | 0.31      | 0.68                 | 0.090                        | 0.0611                              |
| 3           | 1.67         | 0.290             | 0.26      | 0.38                 | 0.074                        | 0.0281                              |
| 4           | 1.96         | 0.285             | 0.28      | 0.73                 | 0.080                        | 0.0583                              |
| 5           | 2.24         | 0.285             | 0.28      | 1.12                 | 0.080                        | 0.0894                              |
| 6           | 2.53         | 0.290             | 0.25      | 0.87                 | 0.073                        | 0.0631                              |
| 7           | 2.82         | 0.290             | 0.20      | 0.90                 | 0.058                        | 0.0522                              |
| 8           | 3.11         | 0.290             | 0.18      | 0.92                 | 0.052                        | 0.0480                              |
| 9           | 3.40         | 0.340             | 0.15      | 1.05                 | 0.051                        | 0.0536                              |
| 10          | 3.79         | 0.340             | 0.13      | 0.95                 | 0.044                        | 0.0420                              |
| 11          | 4.08         | 0.290             | 0.13      | 0.55                 | 0.038                        | 0.0207                              |
| 12          | 4.37         | 0.290             | 0.12      | 0.66                 | 0.033                        | 0.0220                              |
| 13          | 4.66         | 0.290             | 0.10      | 0.39                 | 0.029                        | 0.0113                              |
| 14          | 4.95         | 0.290             | 0.09      | 0.35                 | 0.026                        | 0.0091                              |
| 15          | 5.24         | 0.290             | 0.07      | 0.11                 | 0.020                        | 0.0022                              |
| 16          | 5.53         | 0.290             | 0.05      | 0.00                 | 0.013                        | 0.0000                              |
| 17          | 5.82         | 0.290             | 0.04      | 0.00                 | 0.012                        | 0.0000                              |
| 18          | 6.11         | 0.290             | 0.07      | 0.43                 | 0.019                        | 0.0081                              |
| 19          | 6.40         | 0.285             | 0.05      | 0.24                 | 0.014                        | 0.0034                              |
| 20          | 6.68         | 0.140             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 6.68         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.14 |
| Mean Velocity (m/s) | 0.49 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.5741 |
|-------------------------------|--------|



### Stream Flow & Discharge Calculation

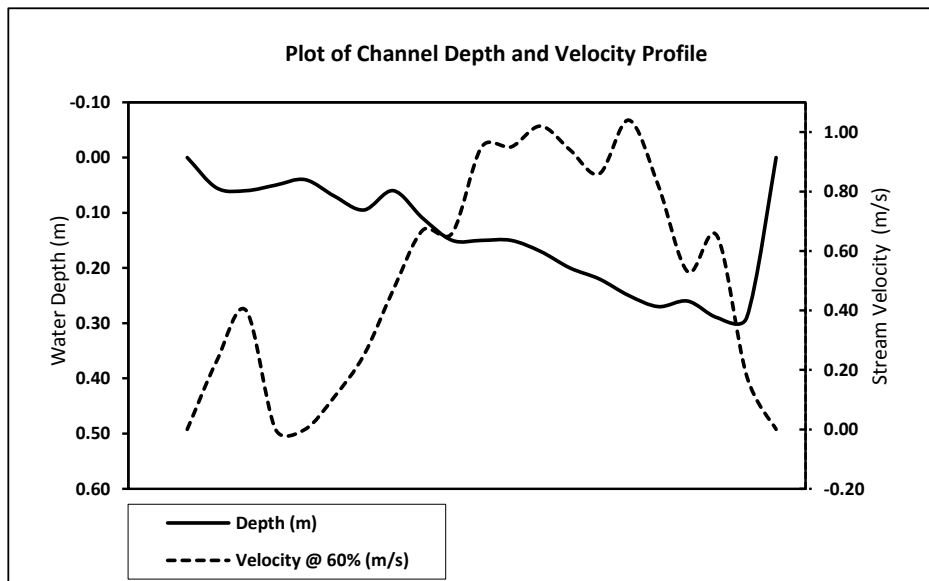
|                       |                     |            |      |
|-----------------------|---------------------|------------|------|
| ELR Project No.       | 16-240.4            |            |      |
| Site / Location:      | Clinton Creek Site  |            |      |
| Stream Name:          | Wolverine Creek     |            |      |
| Station Name:         | E3(H)               |            |      |
| Date and Time:        | Aug.16,2016 9:35    |            |      |
| Staff:                | GR,NB               |            |      |
| UTM Coordinates:      | 07w 0514183 7147592 |            |      |
| Technique:            | Swoffer             | Left Bank  | 6.68 |
| Temp., Water/Air (°C) | N/A                 | Right Bank | 0.79 |
| Crossing Number       | 2                   | Wet.Width  | 5.89 |



| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 6.68         | 0.145             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 6.39         | 0.290             | 0.06      | 0.23                 | 0.016                        | 0.0037                              |
| 2           | 6.10         | 0.290             | 0.06      | 0.40                 | 0.017                        | 0.0070                              |
| 3           | 5.81         | 0.290             | 0.05      | 0.00                 | 0.015                        | 0.0000                              |
| 4           | 5.52         | 0.290             | 0.04      | 0.00                 | 0.012                        | 0.0000                              |
| 5           | 5.23         | 0.290             | 0.07      | 0.11                 | 0.020                        | 0.0022                              |
| 6           | 4.94         | 0.290             | 0.10      | 0.25                 | 0.028                        | 0.0069                              |
| 7           | 4.65         | 0.290             | 0.06      | 0.47                 | 0.017                        | 0.0082                              |
| 8           | 4.36         | 0.290             | 0.11      | 0.67                 | 0.032                        | 0.0214                              |
| 9           | 4.07         | 0.290             | 0.15      | 0.66                 | 0.044                        | 0.0287                              |
| 10          | 3.78         | 0.290             | 0.15      | 0.95                 | 0.044                        | 0.0413                              |
| 11          | 3.49         | 0.285             | 0.15      | 0.95                 | 0.043                        | 0.0406                              |
| 12          | 3.21         | 0.285             | 0.17      | 1.02                 | 0.048                        | 0.0494                              |
| 13          | 2.92         | 0.290             | 0.20      | 0.94                 | 0.058                        | 0.0545                              |
| 14          | 2.63         | 0.290             | 0.22      | 0.86                 | 0.064                        | 0.0549                              |
| 15          | 2.34         | 0.290             | 0.25      | 1.04                 | 0.073                        | 0.0754                              |
| 16          | 2.05         | 0.290             | 0.27      | 0.82                 | 0.078                        | 0.0642                              |
| 17          | 1.76         | 0.290             | 0.26      | 0.53                 | 0.075                        | 0.0400                              |
| 18          | 1.47         | 0.290             | 0.29      | 0.65                 | 0.084                        | 0.0547                              |
| 19          | 1.18         | 0.340             | 0.29      | 0.18                 | 0.099                        | 0.0177                              |
| 20          | 0.79         | 0.195             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.79         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.14 |
| Mean Velocity (m/s) | 0.51 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.5707 |
|-------------------------------|--------|

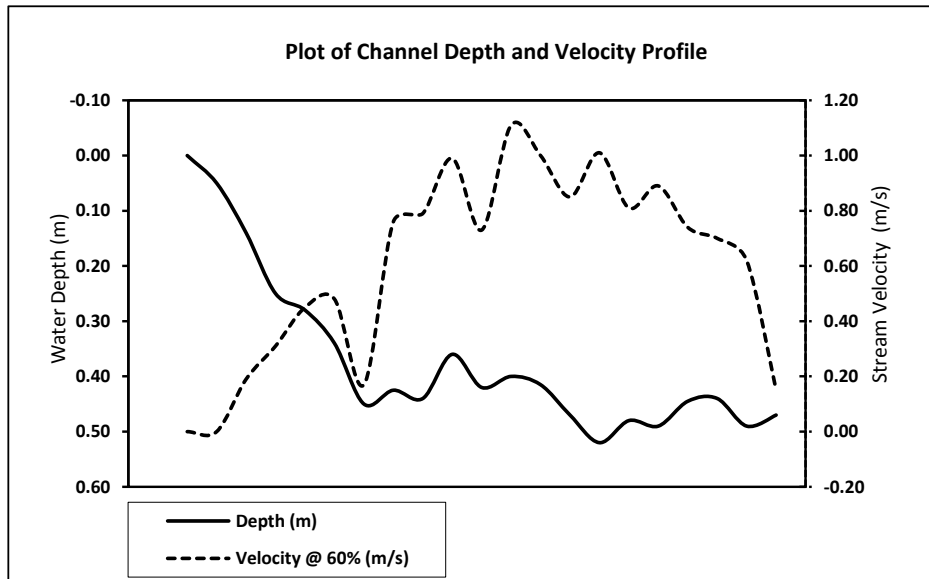


### Stream Flow & Discharge Calculation

|                       |                      |                                                                                     |      |
|-----------------------|----------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4             |  |      |
| Site / Location:      | Clinton Creek Site   |                                                                                     |      |
| Stream Name:          | Clinton Creek        |                                                                                     |      |
| Station Name:         | E4                   |                                                                                     |      |
| Date and Time:        | Aug.18,2016 15:33    |                                                                                     |      |
| Staff:                | GR,NB                |                                                                                     |      |
| UTM Coordinates:      | 07w 05159451 7145283 |                                                                                     |      |
| Technique:            | Swoffer              | Left Bank                                                                           | 9.72 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                          | 2    |
| Crossing Number       | 1                    | Wet.Width                                                                           | 7.72 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.00         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.40         | 0.400             | 0.05      | 0.00                 | 0.020                        | 0.0000                              |
| 2           | 2.80         | 0.400             | 0.14      | 0.19                 | 0.056                        | 0.0106                              |
| 3           | 3.20         | 0.400             | 0.25      | 0.31                 | 0.100                        | 0.0310                              |
| 4           | 3.60         | 0.400             | 0.28      | 0.45                 | 0.112                        | 0.0504                              |
| 5           | 4.00         | 0.400             | 0.34      | 0.48                 | 0.136                        | 0.0653                              |
| 6           | 4.40         | 0.400             | 0.45      | 0.17                 | 0.180                        | 0.0306                              |
| 7           | 4.80         | 0.400             | 0.43      | 0.76                 | 0.170                        | 0.1292                              |
| 8           | 5.20         | 0.400             | 0.44      | 0.79                 | 0.176                        | 0.1390                              |
| 9           | 5.60         | 0.400             | 0.36      | 0.99                 | 0.144                        | 0.1426                              |
| 10          | 6.00         | 0.400             | 0.42      | 0.73                 | 0.168                        | 0.1226                              |
| 11          | 6.40         | 0.400             | 0.40      | 1.11                 | 0.160                        | 0.1776                              |
| 12          | 6.80         | 0.400             | 0.42      | 1.00                 | 0.166                        | 0.1660                              |
| 13          | 7.20         | 0.400             | 0.47      | 0.85                 | 0.188                        | 0.1598                              |
| 14          | 7.60         | 0.400             | 0.52      | 1.01                 | 0.208                        | 0.2101                              |
| 15          | 8.00         | 0.400             | 0.48      | 0.81                 | 0.192                        | 0.1555                              |
| 16          | 8.40         | 0.400             | 0.49      | 0.89                 | 0.196                        | 0.1744                              |
| 17          | 8.80         | 0.400             | 0.45      | 0.74                 | 0.178                        | 0.1317                              |
| 18          | 9.20         | 0.350             | 0.44      | 0.70                 | 0.154                        | 0.1078                              |
| 19          | 9.50         | 0.260             | 0.49      | 0.62                 | 0.127                        | 0.0790                              |
| 20          | 9.72         | 0.110             | 0.47      | 0.15                 | 0.052                        | 0.0078                              |
| end         | 9.72         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.37 | Discharge (m <sup>3</sup> /s) | 2.0911 |
| Mean Velocity (m/s) | 0.61 |                               |        |

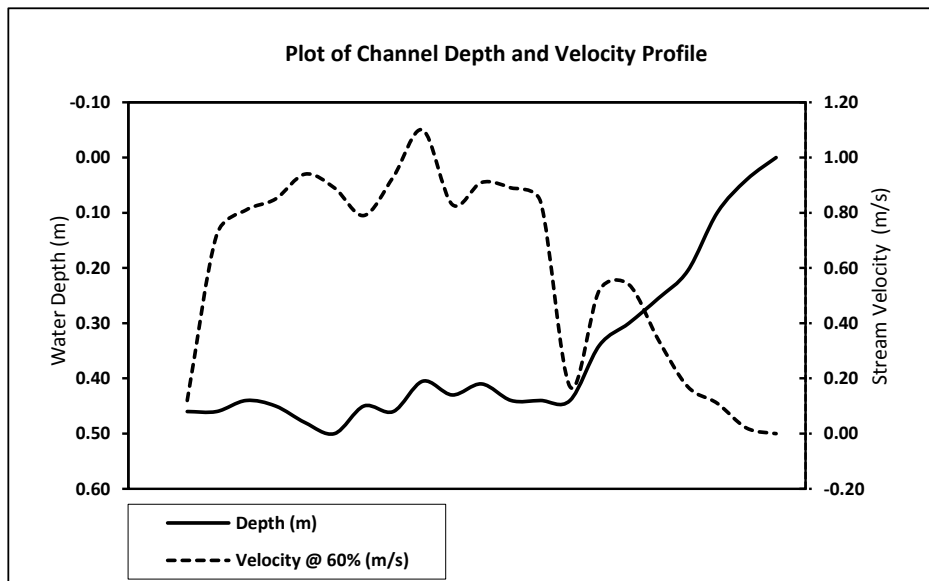


### Stream Flow & Discharge Calculation

|                       |                      |                                                                                     |      |
|-----------------------|----------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4             |  |      |
| Site / Location:      | Clinton Creek Site   |                                                                                     |      |
| Stream Name:          | Clinton Creek        |                                                                                     |      |
| Station Name:         | E4                   |                                                                                     |      |
| Date and Time:        | Aug.18,2016 15:33    |                                                                                     |      |
| Staff:                | GR,NB                |                                                                                     |      |
| UTM Coordinates:      | 07w 05159451 7145283 |                                                                                     |      |
| Technique:            | Swoffer              | Left Bank                                                                           | 9.72 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                          | 2    |
| Crossing Number       | 2                    | Wet.Width                                                                           | 7.72 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 9.72         | 0.200             | 0.46      | 0.12                 | 0.092                        | 0.0110                              |
| 1           | 9.32         | 0.400             | 0.46      | 0.72                 | 0.184                        | 0.1325                              |
| 2           | 8.92         | 0.400             | 0.44      | 0.81                 | 0.176                        | 0.1426                              |
| 3           | 8.52         | 0.400             | 0.45      | 0.85                 | 0.180                        | 0.1530                              |
| 4           | 8.12         | 0.400             | 0.48      | 0.94                 | 0.192                        | 0.1805                              |
| 5           | 7.72         | 0.400             | 0.50      | 0.89                 | 0.200                        | 0.1780                              |
| 6           | 7.32         | 0.400             | 0.45      | 0.79                 | 0.180                        | 0.1422                              |
| 7           | 6.92         | 0.400             | 0.46      | 0.93                 | 0.184                        | 0.1711                              |
| 8           | 6.52         | 0.400             | 0.41      | 1.10                 | 0.162                        | 0.1782                              |
| 9           | 6.12         | 0.400             | 0.43      | 0.83                 | 0.172                        | 0.1428                              |
| 10          | 5.72         | 0.400             | 0.41      | 0.91                 | 0.164                        | 0.1492                              |
| 11          | 5.32         | 0.400             | 0.44      | 0.89                 | 0.176                        | 0.1566                              |
| 12          | 4.92         | 0.400             | 0.44      | 0.84                 | 0.176                        | 0.1478                              |
| 13          | 4.52         | 0.400             | 0.44      | 0.17                 | 0.176                        | 0.0299                              |
| 14          | 4.12         | 0.400             | 0.34      | 0.52                 | 0.136                        | 0.0707                              |
| 15          | 3.72         | 0.400             | 0.30      | 0.54                 | 0.120                        | 0.0648                              |
| 16          | 3.32         | 0.400             | 0.26      | 0.34                 | 0.102                        | 0.0347                              |
| 17          | 2.92         | 0.400             | 0.21      | 0.17                 | 0.082                        | 0.0139                              |
| 18          | 2.52         | 0.340             | 0.10      | 0.11                 | 0.034                        | 0.0037                              |
| 19          | 2.24         | 0.260             | 0.04      | 0.02                 | 0.010                        | 0.0002                              |
| 20          | 2.00         | 0.120             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.00         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.36 | Discharge (m <sup>3</sup> /s) | 2.1036 |
| Mean Velocity (m/s) | 0.59 |                               |        |





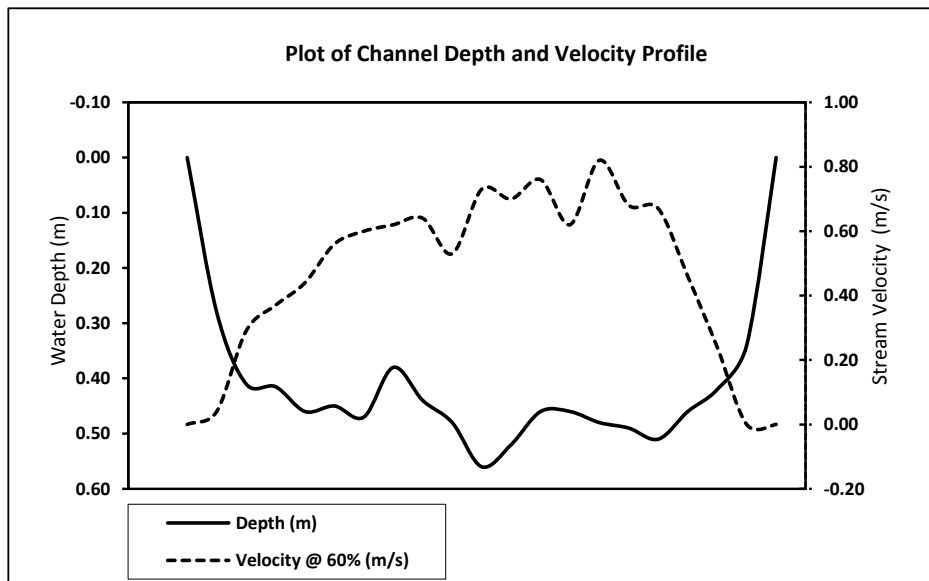
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |       |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.4            |  |       |
| Site / Location:      | Clinton Creek Site  |                                                                                     |       |
| Stream Name:          | Clinton Creek       |                                                                                     |       |
| Station Name:         | E7                  |                                                                                     |       |
| Date and Time:        | Aug.18,2016 11:48   |                                                                                     |       |
| Staff:                | GR,NB               |                                                                                     |       |
| UTM Coordinates:      | 07w 0519358 7142050 |                                                                                     |       |
| Technique:            | Swoffer             | Left Bank                                                                           | 14.71 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1.28  |
| Crossing Number       | 1                   | Wet.Width                                                                           | 13.43 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.28         | 0.350             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.98         | 0.700             | 0.28      | 0.04                 | 0.196                        | 0.0078                              |
| 2           | 2.68         | 0.700             | 0.41      | 0.29                 | 0.287                        | 0.0832                              |
| 3           | 3.38         | 0.700             | 0.42      | 0.37                 | 0.291                        | 0.1075                              |
| 4           | 4.08         | 0.700             | 0.46      | 0.44                 | 0.322                        | 0.1417                              |
| 5           | 4.78         | 0.700             | 0.45      | 0.56                 | 0.315                        | 0.1764                              |
| 6           | 5.48         | 0.700             | 0.47      | 0.60                 | 0.329                        | 0.1974                              |
| 7           | 6.18         | 0.700             | 0.38      | 0.62                 | 0.266                        | 0.1649                              |
| 8           | 6.88         | 0.700             | 0.44      | 0.64                 | 0.308                        | 0.1971                              |
| 9           | 7.58         | 0.700             | 0.48      | 0.53                 | 0.336                        | 0.1781                              |
| 10          | 8.28         | 0.700             | 0.56      | 0.73                 | 0.392                        | 0.2862                              |
| 11          | 8.98         | 0.700             | 0.52      | 0.70                 | 0.364                        | 0.2548                              |
| 12          | 9.68         | 0.700             | 0.46      | 0.76                 | 0.322                        | 0.2447                              |
| 13          | 10.38        | 0.700             | 0.46      | 0.62                 | 0.322                        | 0.1996                              |
| 14          | 11.08        | 0.700             | 0.48      | 0.82                 | 0.336                        | 0.2755                              |
| 15          | 11.78        | 0.700             | 0.49      | 0.68                 | 0.343                        | 0.2332                              |
| 16          | 12.48        | 0.700             | 0.51      | 0.67                 | 0.357                        | 0.2392                              |
| 17          | 13.18        | 0.700             | 0.46      | 0.46                 | 0.322                        | 0.1481                              |
| 18          | 13.88        | 0.590             | 0.42      | 0.24                 | 0.248                        | 0.0595                              |
| 19          | 14.36        | 0.415             | 0.34      | 0.00                 | 0.141                        | 0.0000                              |
| 20          | 14.71        | 0.175             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 14.71        |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.40 |
| Mean Velocity (m/s) | 0.47 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 3.1950 |
|-------------------------------|--------|



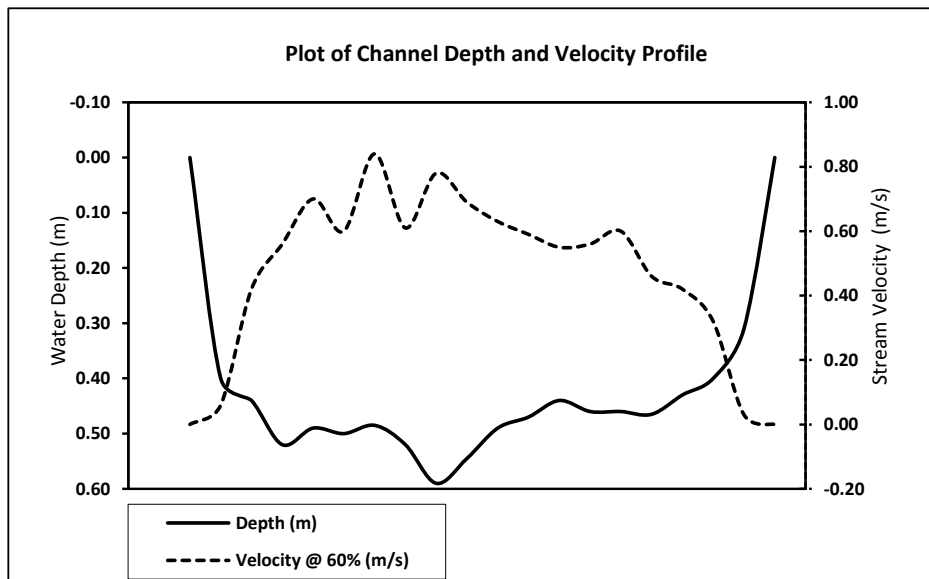
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |       |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.4            |  |       |
| Site / Location:      | Clinton Creek Site  |                                                                                     |       |
| Stream Name:          | Clinton Creek       |                                                                                     |       |
| Station Name:         | E7                  |                                                                                     |       |
| Date and Time:        | Aug.18,2016 11:48   |                                                                                     |       |
| Staff:                | GR,NB               |                                                                                     |       |
| UTM Coordinates:      | 07w 0519358 7142050 |                                                                                     |       |
| Technique:            | Swoffer             | Left Bank                                                                           | 14.71 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1.26  |
| Crossing Number       | 2                   | Wet.Width                                                                           | 13.45 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 14.71        | 0.350             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 14.01        | 0.700             | 0.40      | 0.06                 | 0.280                        | 0.0168                              |
| 2           | 13.31        | 0.700             | 0.44      | 0.42                 | 0.308                        | 0.1294                              |
| 3           | 12.61        | 0.700             | 0.52      | 0.56                 | 0.364                        | 0.2038                              |
| 4           | 11.91        | 0.700             | 0.49      | 0.70                 | 0.343                        | 0.2401                              |
| 5           | 11.21        | 0.700             | 0.50      | 0.60                 | 0.350                        | 0.2100                              |
| 6           | 10.51        | 0.700             | 0.49      | 0.84                 | 0.340                        | 0.2852                              |
| 7           | 9.81         | 0.700             | 0.52      | 0.61                 | 0.364                        | 0.2220                              |
| 8           | 9.11         | 0.700             | 0.59      | 0.78                 | 0.413                        | 0.3221                              |
| 9           | 8.41         | 0.700             | 0.55      | 0.69                 | 0.382                        | 0.2632                              |
| 10          | 7.71         | 0.700             | 0.49      | 0.63                 | 0.343                        | 0.2161                              |
| 11          | 7.01         | 0.700             | 0.47      | 0.59                 | 0.329                        | 0.1941                              |
| 12          | 6.31         | 0.700             | 0.44      | 0.55                 | 0.550                        | 0.3025                              |
| 13          | 5.61         | 0.700             | 0.46      | 0.56                 | 0.560                        | 0.3136                              |
| 14          | 4.91         | 0.700             | 0.46      | 0.60                 | 0.600                        | 0.3600                              |
| 15          | 4.21         | 0.700             | 0.47      | 0.46                 | 0.460                        | 0.2116                              |
| 16          | 3.51         | 0.700             | 0.43      | 0.42                 | 0.420                        | 0.1764                              |
| 17          | 2.81         | 0.700             | 0.40      | 0.32                 | 0.320                        | 0.1024                              |
| 18          | 2.11         | 0.775             | 0.31      | 0.03                 | 0.030                        | 0.0009                              |
| 19          | 1.26         | 0.425             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.26         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.42 |
| Mean Velocity (m/s) | 0.47 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 3.7703 |
|-------------------------------|--------|



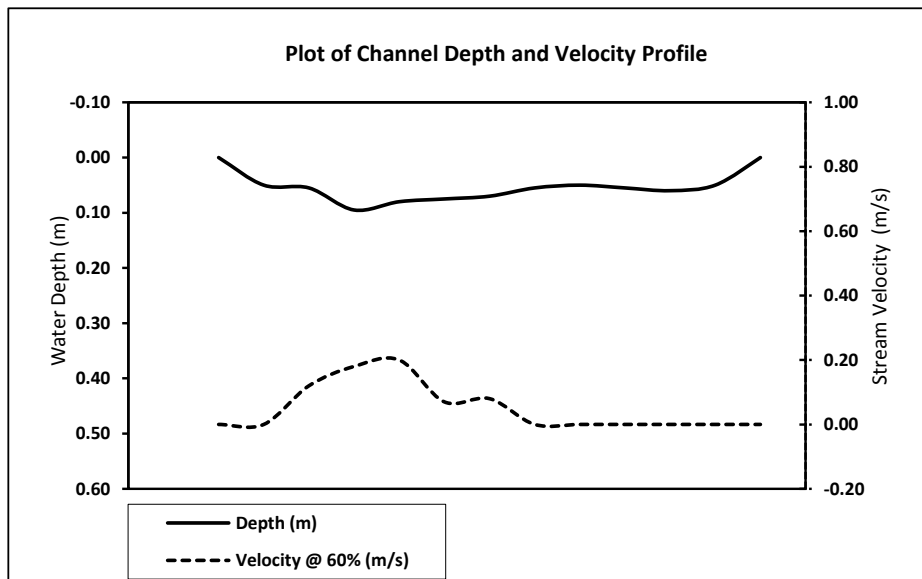


Ecological Logistics  
& Research Ltd.

|                              |                      |                                                                                                                                            |      |
|------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.4             | <br><b>Ecological Logistics<br/>&amp; Research Ltd.</b> |      |
| <b>Site / Location:</b>      | Clinton Creek Site   |                                                                                                                                            |      |
| <b>Stream Name:</b>          | Groundwater Seepage  |                                                                                                                                            |      |
| <b>Station Name:</b>         | GWCC-5               |                                                                                                                                            |      |
| <b>Date and Time:</b>        | Aug.18,2016 17:09    |                                                                                                                                            |      |
| <b>Staff:</b>                | GR,NB                |                                                                                                                                            |      |
| <b>UTM Coordinates:</b>      | 07w 05139841 7142128 |                                                                                                                                            |      |
| <b>Technique:</b>            | Swoffer              | <b>Left Bank</b>                                                                                                                           | 3.42 |
| <b>Temp., Water/Air (°C)</b> | N/A                  | <b>Right Bank</b>                                                                                                                          | 1.22 |
| <b>Crossing Number</b>       | 1                    | <b>Wet.Width</b>                                                                                                                           | 2.2  |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.05 | Discharge (m <sup>3</sup> /s) | 0.0096 |
| Mean Velocity (m/s) | 0.05 |                               |        |



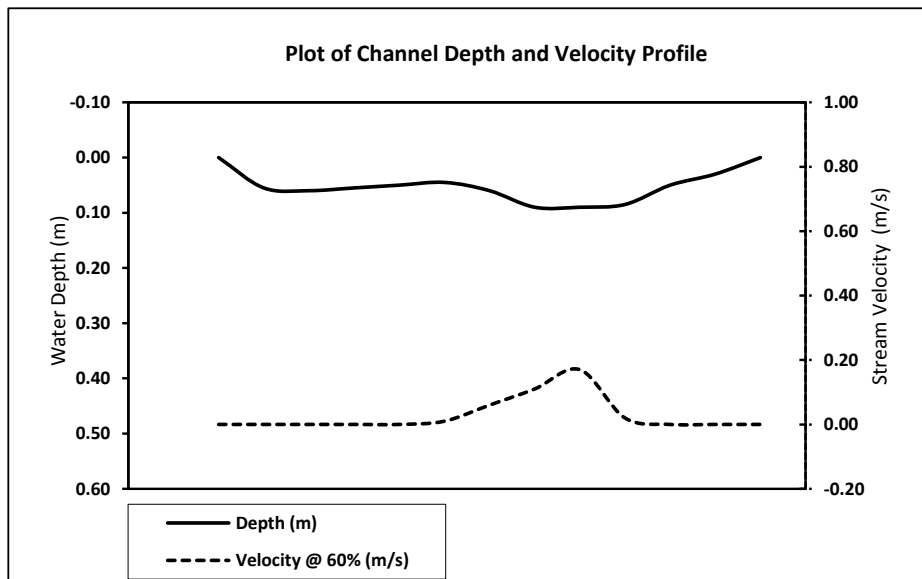


Ecological Logistics  
& Research Ltd.

|                              |                      |      |
|------------------------------|----------------------|------|
| <b>ELR Project No.</b>       | 16-240.4             |      |
| <b>Site / Location:</b>      | Clinton Creek Site   |      |
| <b>Stream Name:</b>          | Groundwater Seepage  |      |
| <b>Station Name:</b>         | GWCC-5               |      |
| <b>Date and Time:</b>        | Aug.18,2016 17:09    |      |
| <b>Staff:</b>                | GR,NB                |      |
| <b>UTM Coordinates:</b>      | 07w 05139841 7142128 |      |
| <b>Technique:</b>            | <b>Left Bank</b>     | 3.42 |
| <b>Temp., Water/Air (°C)</b> | <b>Right Bank</b>    | 1.22 |
| <b>Crossing Number</b>       | <b>Wet.Width</b>     | 2.2  |

[illegible]

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.05 | Discharge (m <sup>3</sup> /s) | 0.0059 |
| Mean Velocity (m/s) | 0.03 |                               |        |

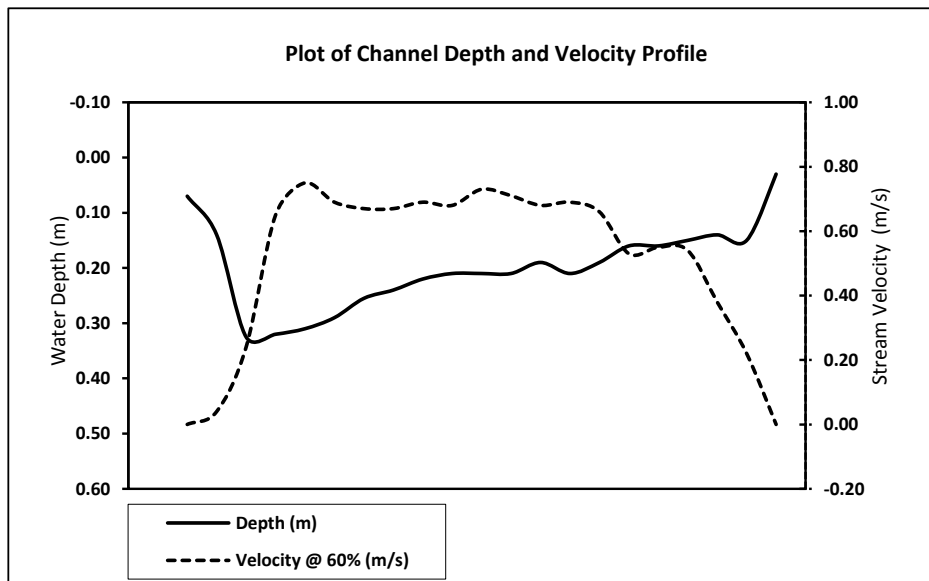


### Stream Flow & Discharge Calculation

|                       |                      |                                                                                     |      |
|-----------------------|----------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4             |  |      |
| Site / Location:      | Clinton Creek Site   |                                                                                     |      |
| Stream Name:          | Upper Clinton Creek  |                                                                                     |      |
| Station Name:         | R1                   |                                                                                     |      |
| Date and Time:        | Aug.19,2016 15:10    |                                                                                     |      |
| Staff:                | GR,NB                |                                                                                     |      |
| UTM Coordinates:      | 07w 05810604 7147490 |                                                                                     |      |
| Technique:            | Swoffer              | Left Bank                                                                           | 0.74 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                          | 8    |
| Crossing Number       | 1                    | Wet.Width                                                                           | 7.26 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.74         | 0.180             | 0.07      | 0.00                 | 0.013                        | 0.0000                              |
| 1           | 1.10         | 0.360             | 0.14      | 0.04                 | 0.050                        | 0.0020                              |
| 2           | 1.46         | 0.360             | 0.33      | 0.24                 | 0.117                        | 0.0281                              |
| 3           | 1.82         | 0.360             | 0.32      | 0.65                 | 0.115                        | 0.0749                              |
| 4           | 2.18         | 0.310             | 0.31      | 0.75                 | 0.096                        | 0.0721                              |
| 5           | 2.44         | 0.310             | 0.29      | 0.69                 | 0.090                        | 0.0620                              |
| 6           | 2.80         | 0.360             | 0.26      | 0.67                 | 0.092                        | 0.0615                              |
| 7           | 3.16         | 0.360             | 0.24      | 0.67                 | 0.086                        | 0.0579                              |
| 8           | 3.52         | 0.360             | 0.22      | 0.69                 | 0.079                        | 0.0546                              |
| 9           | 3.88         | 0.360             | 0.21      | 0.68                 | 0.076                        | 0.0514                              |
| 10          | 4.24         | 0.360             | 0.21      | 0.73                 | 0.076                        | 0.0552                              |
| 11          | 4.60         | 0.360             | 0.21      | 0.71                 | 0.076                        | 0.0537                              |
| 12          | 4.96         | 0.360             | 0.19      | 0.68                 | 0.068                        | 0.0465                              |
| 13          | 5.32         | 0.360             | 0.21      | 0.69                 | 0.076                        | 0.0522                              |
| 14          | 5.68         | 0.360             | 0.19      | 0.66                 | 0.068                        | 0.0451                              |
| 15          | 6.04         | 0.360             | 0.16      | 0.53                 | 0.058                        | 0.0305                              |
| 16          | 6.40         | 0.360             | 0.16      | 0.55                 | 0.058                        | 0.0317                              |
| 17          | 6.76         | 0.360             | 0.15      | 0.54                 | 0.054                        | 0.0292                              |
| 18          | 7.12         | 0.360             | 0.14      | 0.38                 | 0.050                        | 0.0192                              |
| 19          | 7.48         | 0.440             | 0.15      | 0.22                 | 0.066                        | 0.0145                              |
| 20          | 8.00         | 0.260             | 0.03      | 0.00                 | 0.008                        | 0.0000                              |
| end         | 8.00         |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.20 | Discharge (m <sup>3</sup> /s) | 0.8423 |
| Mean Velocity (m/s) | 0.51 |                               |        |



### Stream Flow & Discharge Calculation

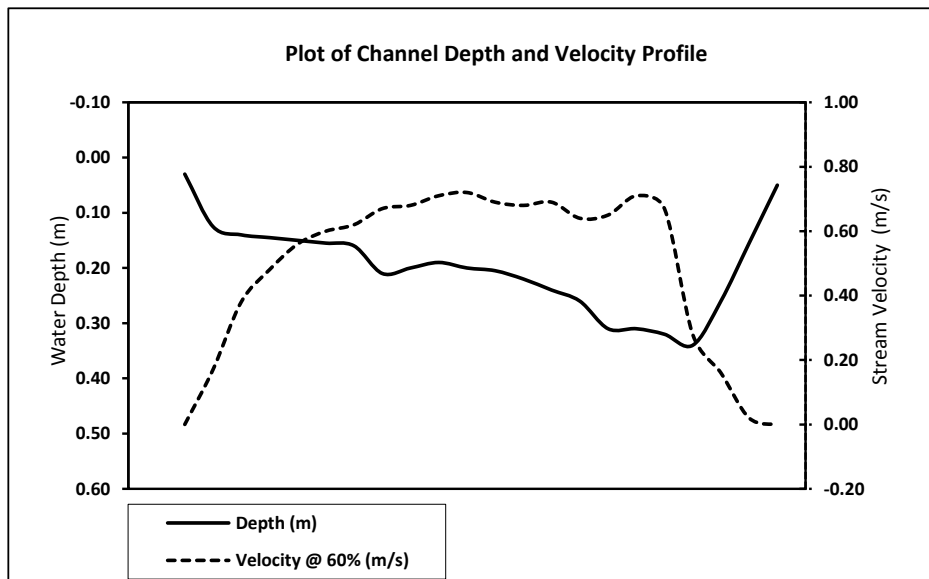
|                       |                      |            |      |
|-----------------------|----------------------|------------|------|
| ELR Project No.       | 16-240.4             |            |      |
| Site / Location:      | Clinton Creek Site   |            |      |
| Stream Name:          | Upper Clinton Creek  |            |      |
| Station Name:         | R1                   |            |      |
| Date and Time:        | Aug.19,2016 15:10    |            |      |
| Staff:                | GR,NB                |            |      |
| UTM Coordinates:      | 07w 05810604 7147490 |            |      |
| Technique:            | Swoffer              | Left Bank  | 0.74 |
| Temp., Water/Air (°C) | N/A                  | Right Bank | 8    |
| Crossing Number       | 2                    | Wet.Width  | 7.26 |



| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 8.00         | 0.180             | 0.03      | 0.00                 | 0.005                        | 0.0000                              |
| 1           | 7.64         | 0.360             | 0.13      | 0.17                 | 0.045                        | 0.0077                              |
| 2           | 7.28         | 0.360             | 0.14      | 0.38                 | 0.050                        | 0.0192                              |
| 3           | 6.92         | 0.360             | 0.15      | 0.48                 | 0.052                        | 0.0251                              |
| 4           | 6.56         | 0.360             | 0.15      | 0.56                 | 0.054                        | 0.0302                              |
| 5           | 6.20         | 0.360             | 0.16      | 0.60                 | 0.056                        | 0.0335                              |
| 6           | 5.84         | 0.360             | 0.16      | 0.62                 | 0.058                        | 0.0357                              |
| 7           | 5.48         | 0.360             | 0.21      | 0.67                 | 0.076                        | 0.0507                              |
| 8           | 5.12         | 0.360             | 0.20      | 0.68                 | 0.072                        | 0.0490                              |
| 9           | 4.76         | 0.360             | 0.19      | 0.71                 | 0.068                        | 0.0486                              |
| 10          | 4.40         | 0.360             | 0.20      | 0.72                 | 0.072                        | 0.0518                              |
| 11          | 4.04         | 0.360             | 0.21      | 0.69                 | 0.074                        | 0.0509                              |
| 12          | 3.68         | 0.360             | 0.22      | 0.68                 | 0.079                        | 0.0539                              |
| 13          | 3.32         | 0.360             | 0.24      | 0.69                 | 0.086                        | 0.0596                              |
| 14          | 2.96         | 0.360             | 0.26      | 0.64                 | 0.094                        | 0.0599                              |
| 15          | 2.60         | 0.360             | 0.31      | 0.65                 | 0.112                        | 0.0725                              |
| 16          | 2.24         | 0.360             | 0.31      | 0.71                 | 0.112                        | 0.0792                              |
| 17          | 1.88         | 0.360             | 0.32      | 0.67                 | 0.115                        | 0.0772                              |
| 18          | 1.52         | 0.310             | 0.34      | 0.28                 | 0.105                        | 0.0295                              |
| 19          | 1.26         | 0.260             | 0.26      | 0.16                 | 0.068                        | 0.0108                              |
| 20          | 1.00         | 0.260             | 0.16      | 0.02                 | 0.040                        | 0.0008                              |
| 21          | 0.74         | 0.130             | 0.05      | 0.00                 | 0.007                        | 0.0000                              |
| end         | 0.74         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.20 |
| Mean Velocity (m/s) | 0.49 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.8457 |
|-------------------------------|--------|

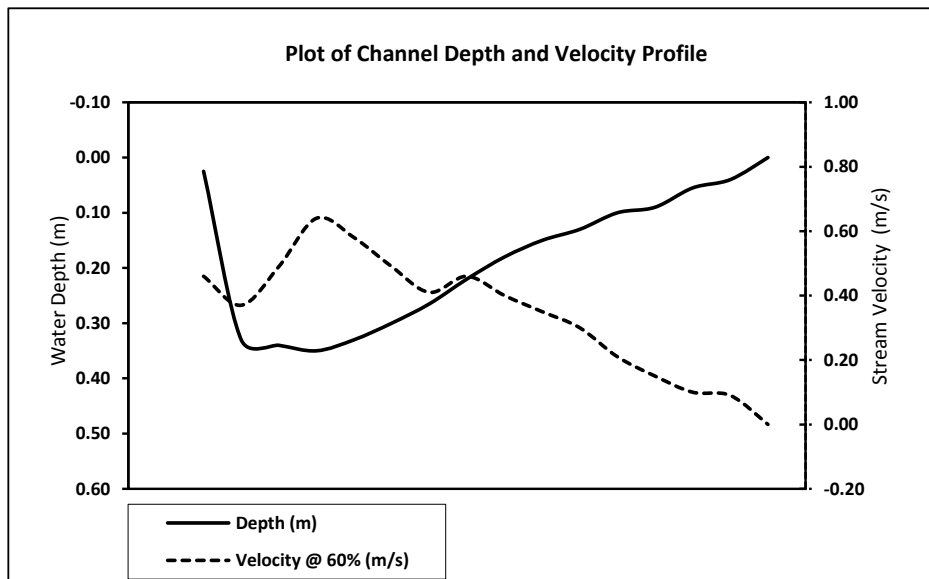


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Easter Creek        |                                                                                     |      |
| Station Name:         | R2                  |                                                                                     |      |
| Date and Time:        | Aug.19,2016 16:52   |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0512028 7148062 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 0.51 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 3.24 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 2.73 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.51         | 0.090             | 0.03      | 0.46                 | 0.002                        | 0.0010                              |
| 1           | 0.69         | 0.180             | 0.33      | 0.37                 | 0.059                        | 0.0220                              |
| 2           | 0.87         | 0.180             | 0.34      | 0.49                 | 0.061                        | 0.0300                              |
| 3           | 1.05         | 0.180             | 0.35      | 0.64                 | 0.063                        | 0.0403                              |
| 4           | 1.23         | 0.180             | 0.33      | 0.58                 | 0.059                        | 0.0345                              |
| 5           | 1.41         | 0.180             | 0.30      | 0.49                 | 0.054                        | 0.0265                              |
| 6           | 1.59         | 0.180             | 0.27      | 0.41                 | 0.048                        | 0.0196                              |
| 7           | 1.77         | 0.180             | 0.22      | 0.46                 | 0.040                        | 0.0182                              |
| 8           | 1.95         | 0.180             | 0.18      | 0.40                 | 0.032                        | 0.0130                              |
| 9           | 2.13         | 0.180             | 0.15      | 0.35                 | 0.027                        | 0.0095                              |
| 10          | 2.31         | 0.180             | 0.13      | 0.30                 | 0.023                        | 0.0070                              |
| 11          | 2.49         | 0.180             | 0.10      | 0.21                 | 0.018                        | 0.0038                              |
| 12          | 2.67         | 0.180             | 0.09      | 0.15                 | 0.016                        | 0.0024                              |
| 13          | 2.85         | 0.180             | 0.06      | 0.10                 | 0.010                        | 0.0010                              |
| 14          | 3.03         | 0.195             | 0.04      | 0.09                 | 0.008                        | 0.0007                              |
| 15          | 3.24         | 0.105             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 3.24         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.18 | Discharge (m <sup>3</sup> /s) | 0.2293 |
| Mean Velocity (m/s) | 0.34 |                               |        |

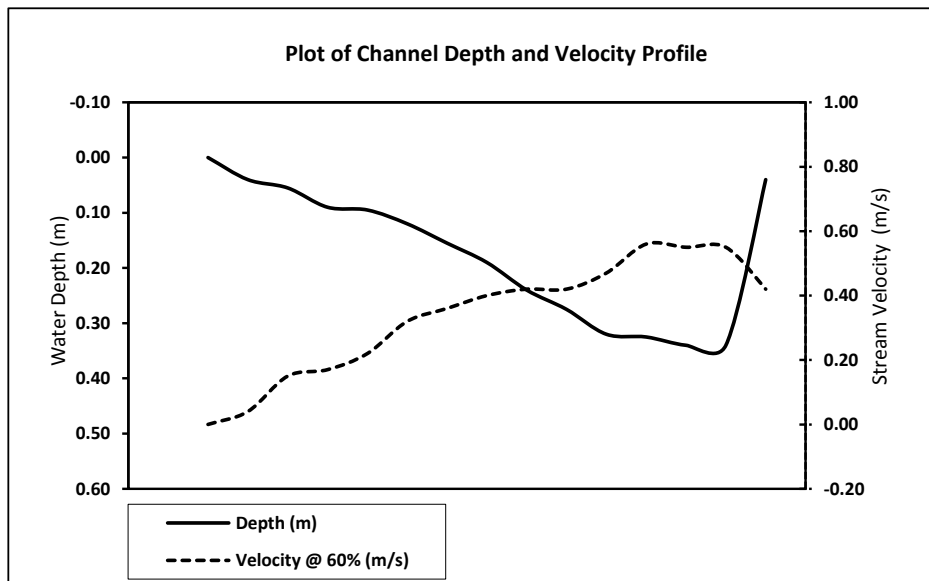


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Easter Creek        |                                                                                     |      |
| Station Name:         | R2                  |                                                                                     |      |
| Date and Time:        | Aug.19,2016 16:52   |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0512028 7148062 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 0.54 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 3.24 |
| Crossing Number       | 2                   | Wet.Width                                                                           | 2.7  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 3.24         | 0.080             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 3.08         | 0.180             | 0.04      | 0.04                 | 0.007                        | 0.0003                              |
| 2           | 2.88         | 0.190             | 0.06      | 0.15                 | 0.010                        | 0.0016                              |
| 3           | 2.70         | 0.180             | 0.09      | 0.17                 | 0.016                        | 0.0028                              |
| 4           | 2.52         | 0.230             | 0.10      | 0.22                 | 0.022                        | 0.0048                              |
| 5           | 2.24         | 0.230             | 0.12      | 0.32                 | 0.028                        | 0.0088                              |
| 6           | 2.06         | 0.180             | 0.16      | 0.36                 | 0.028                        | 0.0100                              |
| 7           | 1.88         | 0.180             | 0.19      | 0.40                 | 0.034                        | 0.0137                              |
| 8           | 1.70         | 0.180             | 0.24      | 0.42                 | 0.043                        | 0.0181                              |
| 9           | 1.52         | 0.180             | 0.28      | 0.42                 | 0.050                        | 0.0208                              |
| 10          | 1.34         | 0.180             | 0.32      | 0.47                 | 0.058                        | 0.0271                              |
| 11          | 1.16         | 0.180             | 0.33      | 0.56                 | 0.059                        | 0.0328                              |
| 12          | 0.98         | 0.190             | 0.34      | 0.55                 | 0.065                        | 0.0355                              |
| 13          | 0.78         | 0.220             | 0.34      | 0.55                 | 0.075                        | 0.0411                              |
| 14          | 0.54         | 0.120             | 0.04      | 0.42                 | 0.005                        | 0.0020                              |
| end         | 0.54         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.18 | Discharge (m <sup>3</sup> /s) | 0.2194 |
| Mean Velocity (m/s) | 0.34 |                               |        |



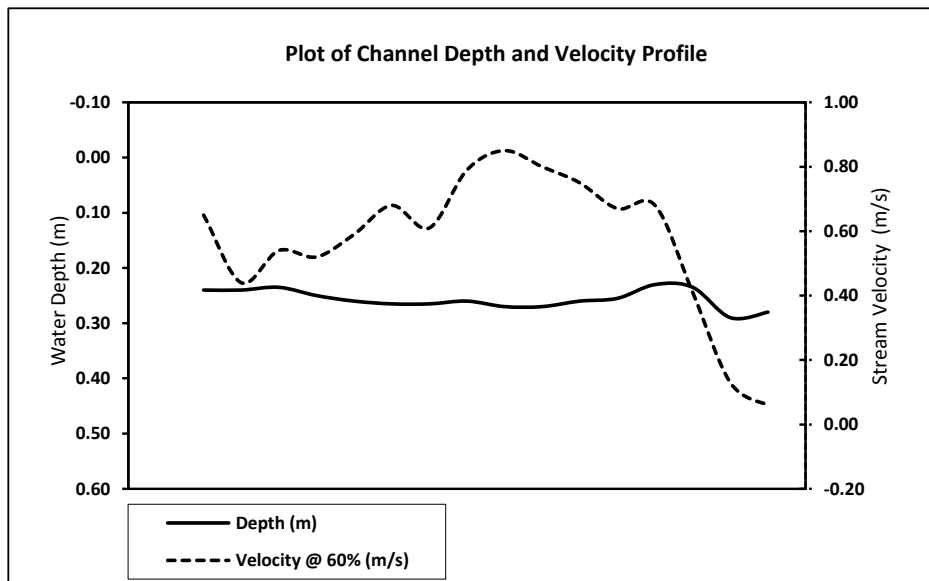


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Wolverine Creek     |                                                                                     |      |
| Station Name:         | R3                  |                                                                                     |      |
| Date and Time:        | Aug.16,2016 14:30   |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0513948 7148677 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 3.57 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1    |
| Crossing Number       | 1                   | Wet.Width                                                                           | 2.57 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.00         | 0.085             | 0.24      | 0.65                 | 0.020                        | 0.0133                              |
| 1           | 1.17         | 0.170             | 0.24      | 0.44                 | 0.041                        | 0.0180                              |
| 2           | 1.34         | 0.170             | 0.24      | 0.54                 | 0.040                        | 0.0216                              |
| 3           | 1.51         | 0.170             | 0.25      | 0.52                 | 0.043                        | 0.0221                              |
| 4           | 1.68         | 0.170             | 0.26      | 0.59                 | 0.044                        | 0.0261                              |
| 5           | 1.85         | 0.170             | 0.27      | 0.68                 | 0.045                        | 0.0306                              |
| 6           | 2.02         | 0.170             | 0.27      | 0.61                 | 0.045                        | 0.0275                              |
| 7           | 2.19         | 0.170             | 0.26      | 0.79                 | 0.044                        | 0.0349                              |
| 8           | 2.36         | 0.170             | 0.27      | 0.85                 | 0.046                        | 0.0390                              |
| 9           | 2.53         | 0.170             | 0.27      | 0.80                 | 0.046                        | 0.0367                              |
| 10          | 2.70         | 0.170             | 0.26      | 0.75                 | 0.044                        | 0.0332                              |
| 11          | 2.87         | 0.170             | 0.26      | 0.67                 | 0.043                        | 0.0290                              |
| 12          | 3.04         | 0.170             | 0.23      | 0.68                 | 0.039                        | 0.0266                              |
| 13          | 3.21         | 0.170             | 0.24      | 0.41                 | 0.040                        | 0.0164                              |
| 14          | 3.38         | 0.180             | 0.29      | 0.13                 | 0.052                        | 0.0068                              |
| 15          | 3.57         | 0.095             | 0.28      | 0.06                 | 0.027                        | 0.0016                              |
| end         | 3.57         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.26 | Discharge (m <sup>3</sup> /s) | 0.3833 |
| Mean Velocity (m/s) | 0.57 |                               |        |

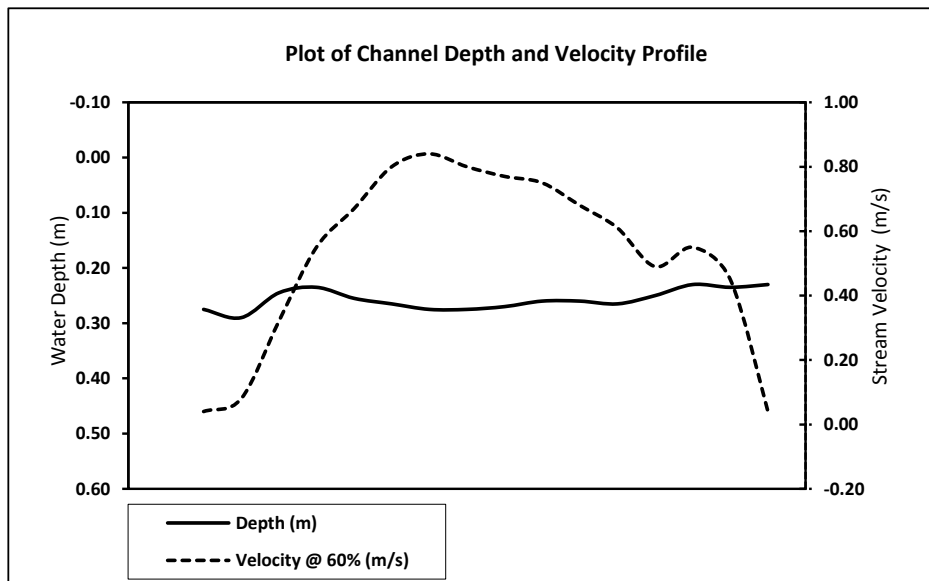


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Wolverine Creek     |                                                                                     |      |
| Station Name:         | R3                  |                                                                                     |      |
| Date and Time:        | Aug.16,2016 14:30   |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0513948 7148677 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 3.57 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1    |
| Crossing Number       | 2                   | Wet.Width                                                                           | 2.57 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 3.57         | 0.085             | 0.28      | 0.04                 | 0.023                        | 0.0009                              |
| 1           | 3.40         | 0.170             | 0.29      | 0.08                 | 0.049                        | 0.0039                              |
| 2           | 3.23         | 0.170             | 0.25      | 0.32                 | 0.042                        | 0.0133                              |
| 3           | 3.06         | 0.170             | 0.24      | 0.55                 | 0.040                        | 0.0220                              |
| 4           | 2.89         | 0.170             | 0.26      | 0.67                 | 0.043                        | 0.0290                              |
| 5           | 2.72         | 0.170             | 0.27      | 0.80                 | 0.045                        | 0.0360                              |
| 6           | 2.55         | 0.170             | 0.28      | 0.84                 | 0.047                        | 0.0393                              |
| 7           | 2.38         | 0.170             | 0.28      | 0.80                 | 0.047                        | 0.0374                              |
| 8           | 2.21         | 0.170             | 0.27      | 0.77                 | 0.046                        | 0.0353                              |
| 9           | 2.04         | 0.170             | 0.26      | 0.75                 | 0.044                        | 0.0332                              |
| 10          | 1.87         | 0.170             | 0.26      | 0.68                 | 0.044                        | 0.0301                              |
| 11          | 1.70         | 0.170             | 0.27      | 0.61                 | 0.045                        | 0.0275                              |
| 12          | 1.53         | 0.170             | 0.25      | 0.49                 | 0.043                        | 0.0208                              |
| 13          | 1.36         | 0.170             | 0.23      | 0.55                 | 0.039                        | 0.0215                              |
| 14          | 1.19         | 0.180             | 0.24      | 0.45                 | 0.042                        | 0.0190                              |
| 15          | 1.00         | 0.095             | 0.23      | 0.04                 | 0.022                        | 0.0009                              |
| end         | 1.00         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.26 | Discharge (m <sup>3</sup> /s) | 0.3702 |
| Mean Velocity (m/s) | 0.53 |                               |        |

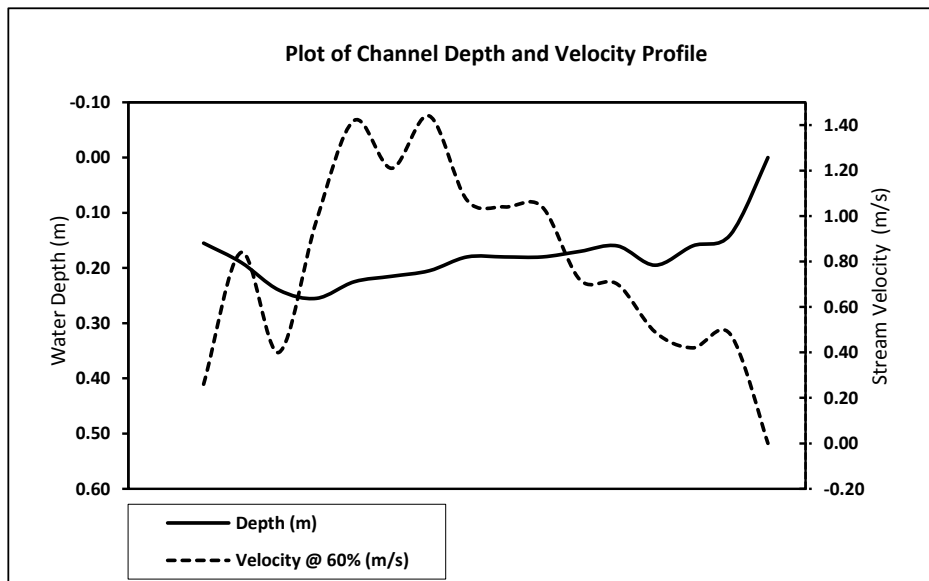


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Eagle Creek         |                                                                                     |      |
| Station Name:         | R4                  |                                                                                     |      |
| Date and Time:        | Aug.18,2016 14:18   |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0515985 7145352 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 2.44 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 0.4  |
| Crossing Number       | 1                   | Wet.Width                                                                           | 2.04 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.40         | 0.075             | 0.16      | 0.26                 | 0.012                        | 0.0030                              |
| 1           | 0.55         | 0.145             | 0.19      | 0.84                 | 0.028                        | 0.0231                              |
| 2           | 0.69         | 0.140             | 0.24      | 0.40                 | 0.034                        | 0.0134                              |
| 3           | 0.83         | 0.140             | 0.26      | 0.98                 | 0.036                        | 0.0350                              |
| 4           | 0.97         | 0.140             | 0.23      | 1.42                 | 0.032                        | 0.0447                              |
| 5           | 1.11         | 0.140             | 0.22      | 1.21                 | 0.030                        | 0.0364                              |
| 6           | 1.25         | 0.140             | 0.21      | 1.44                 | 0.029                        | 0.0413                              |
| 7           | 1.39         | 0.140             | 0.18      | 1.07                 | 0.025                        | 0.0270                              |
| 8           | 1.53         | 0.140             | 0.18      | 1.04                 | 0.025                        | 0.0262                              |
| 9           | 1.67         | 0.140             | 0.18      | 1.04                 | 0.025                        | 0.0262                              |
| 10          | 1.81         | 0.140             | 0.17      | 0.72                 | 0.024                        | 0.0171                              |
| 11          | 1.95         | 0.140             | 0.16      | 0.70                 | 0.022                        | 0.0157                              |
| 12          | 2.09         | 0.140             | 0.20      | 0.49                 | 0.027                        | 0.0134                              |
| 13          | 2.23         | 0.140             | 0.16      | 0.42                 | 0.022                        | 0.0094                              |
| 14          | 2.37         | 0.105             | 0.14      | 0.48                 | 0.015                        | 0.0071                              |
| 15          | 2.44         | 0.035             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.44         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.18 | Discharge (m <sup>3</sup> /s) | 0.3391 |
| Mean Velocity (m/s) | 0.78 |                               |        |

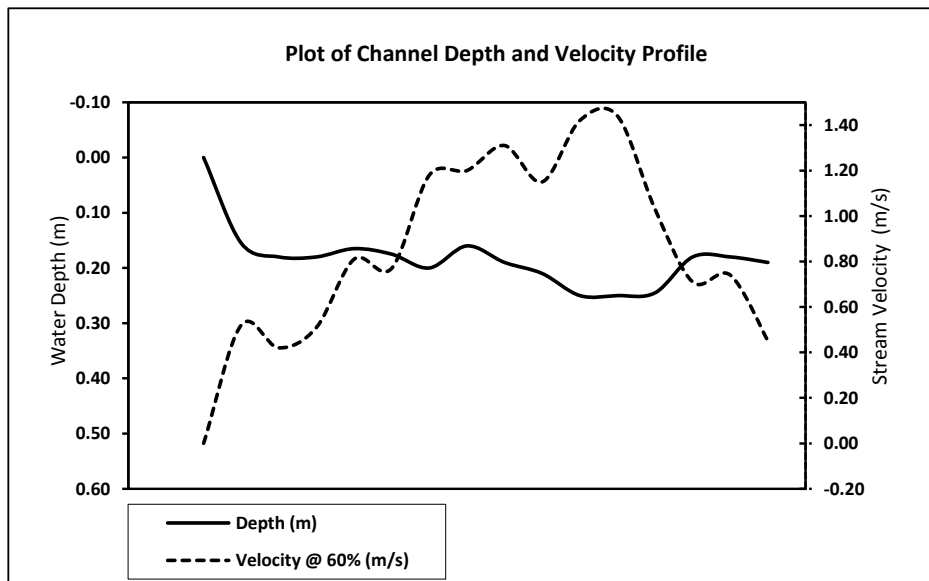


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Eagle Creek         |                                                                                     |      |
| Station Name:         | R4                  |                                                                                     |      |
| Date and Time:        | Aug.18,2016 14:18   |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0515985 7145352 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 2.44 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 0.4  |
| Crossing Number       | 2                   | Wet.Width                                                                           | 2.04 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.44         | 0.070             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.30         | 0.140             | 0.16      | 0.52                 | 0.022                        | 0.0113                              |
| 2           | 2.16         | 0.140             | 0.18      | 0.42                 | 0.025                        | 0.0106                              |
| 3           | 2.02         | 0.140             | 0.18      | 0.51                 | 0.025                        | 0.0129                              |
| 4           | 1.88         | 0.140             | 0.17      | 0.81                 | 0.023                        | 0.0187                              |
| 5           | 1.74         | 0.140             | 0.18      | 0.77                 | 0.025                        | 0.0189                              |
| 6           | 1.60         | 0.140             | 0.20      | 1.18                 | 0.028                        | 0.0330                              |
| 7           | 1.46         | 0.140             | 0.16      | 1.20                 | 0.022                        | 0.0269                              |
| 8           | 1.32         | 0.140             | 0.19      | 1.31                 | 0.027                        | 0.0348                              |
| 9           | 1.18         | 0.140             | 0.21      | 1.15                 | 0.029                        | 0.0338                              |
| 10          | 1.04         | 0.140             | 0.25      | 1.42                 | 0.035                        | 0.0497                              |
| 11          | 0.90         | 0.140             | 0.25      | 1.44                 | 0.035                        | 0.0504                              |
| 12          | 0.76         | 0.140             | 0.25      | 1.03                 | 0.034                        | 0.0353                              |
| 13          | 0.62         | 0.130             | 0.18      | 0.71                 | 0.023                        | 0.0166                              |
| 14          | 0.50         | 0.110             | 0.18      | 0.74                 | 0.020                        | 0.0147                              |
| 15          | 0.40         | 0.050             | 0.19      | 0.45                 | 0.010                        | 0.0043                              |
| end         | 0.40         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.18 | Discharge (m <sup>3</sup> /s) | 0.3718 |
| Mean Velocity (m/s) | 0.85 |                               |        |



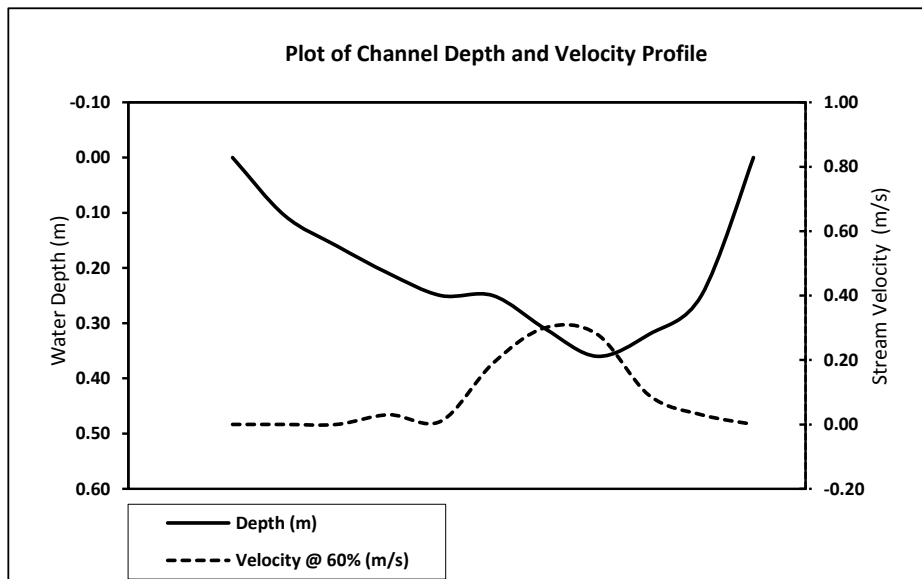


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|------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.4            | <br><b>Ecological Logistics<br/>&amp; Research Ltd.</b> |      |
| <b>Site / Location:</b>      | Clinton Creek Site  |                                                                                                                                            |      |
| <b>Stream Name:</b>          | Porcupine Creek     |                                                                                                                                            |      |
| <b>Station Name:</b>         | R7                  |                                                                                                                                            |      |
| <b>Date and Time:</b>        | Aug.17,2016 10:11   |                                                                                                                                            |      |
| <b>Staff:</b>                | GR,NB               |                                                                                                                                            |      |
| <b>UTM Coordinates:</b>      | 07w 0513003 7145649 |                                                                                                                                            |      |
| <b>Technique:</b>            | Swoffer             | <b>Left Bank</b>                                                                                                                           | 1.27 |
| <b>Temp., Water/Air (°C)</b> | N/A                 | <b>Right Bank</b>                                                                                                                          | 0.46 |
| <b>Crossing Number</b>       | 1                   | <b>Wet.Width</b>                                                                                                                           | 0.81 |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.20 |
| Mean Velocity (m/s) | 0.08 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0229 |
|-------------------------------|--------|



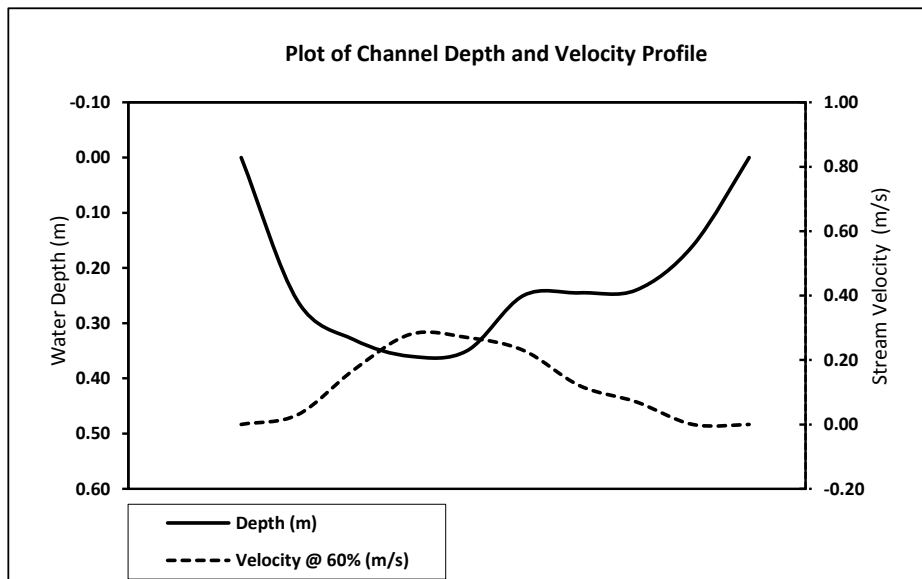


|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Porcupine Creek     |                                                                                                                                |      |
| Station Name:         | R7                  |                                                                                                                                |      |
| Date and Time:        | Aug.17,2016 10:11   |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0513003 7145649 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 1.27 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.47 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 0.8  |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.22 |
| Mean Velocity (m/s) | 0.12 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0290 |
|-------------------------------|--------|





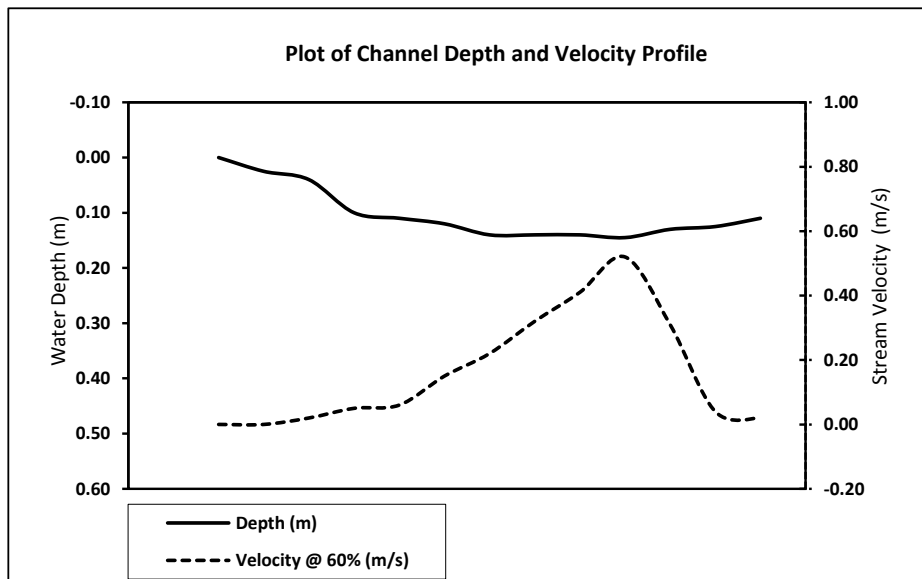
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& Research Ltd.

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|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek       |                                                                                                                                |      |
| Station Name:         | R8                  |                                                                                                                                |      |
| Date and Time:        | Aug.19,2016 17:57   |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0511894 7147906 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 1.93 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.93 |
| Crossing Number       | 1                   | Wet.Width                                                                                                                      | 1    |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.10 |
| Mean Velocity (m/s) | 0.16 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0239 |
|-------------------------------|--------|



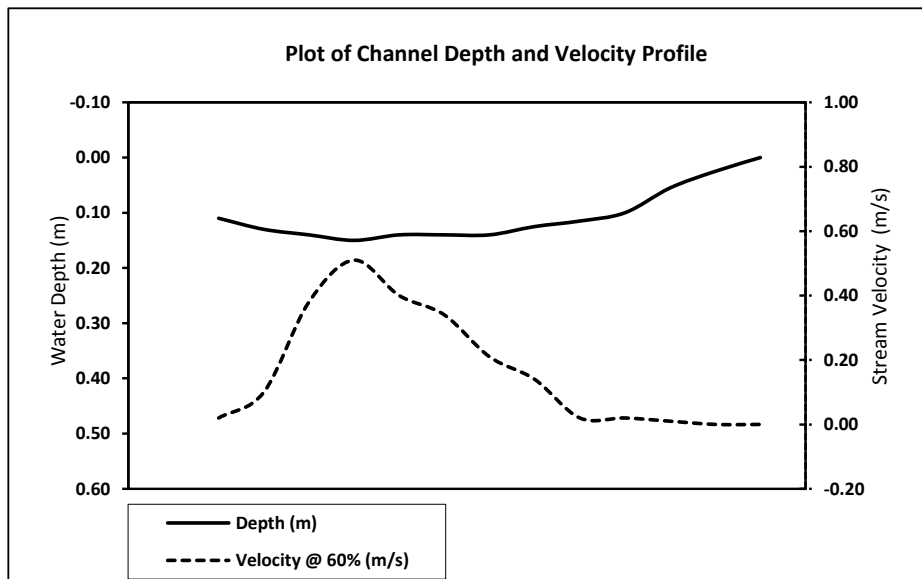


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|------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.4            | <br><b>Ecological Logistics<br/>&amp; Research Ltd.</b> |      |
| <b>Site / Location:</b>      | Clinton Creek Site  |                                                                                                                                            |      |
| <b>Stream Name:</b>          | Unnamed Creek       |                                                                                                                                            |      |
| <b>Station Name:</b>         | R8                  |                                                                                                                                            |      |
| <b>Date and Time:</b>        | Aug.19,2016 17:57   |                                                                                                                                            |      |
| <b>Staff:</b>                | GR,NB               |                                                                                                                                            |      |
| <b>UTM Coordinates:</b>      | 07w 0511894 7147906 |                                                                                                                                            |      |
| <b>Technique:</b>            | Swoffer             | <b>Left Bank</b>                                                                                                                           | 1.93 |
| <b>Temp., Water/Air (°C)</b> | N/A                 | <b>Right Bank</b>                                                                                                                          | 0.93 |
| <b>Crossing Number</b>       | 2                   | <b>Wet.Width</b>                                                                                                                           | 1    |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.11 |
| Mean Velocity (m/s) | 0.17 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0252 |
|-------------------------------|--------|







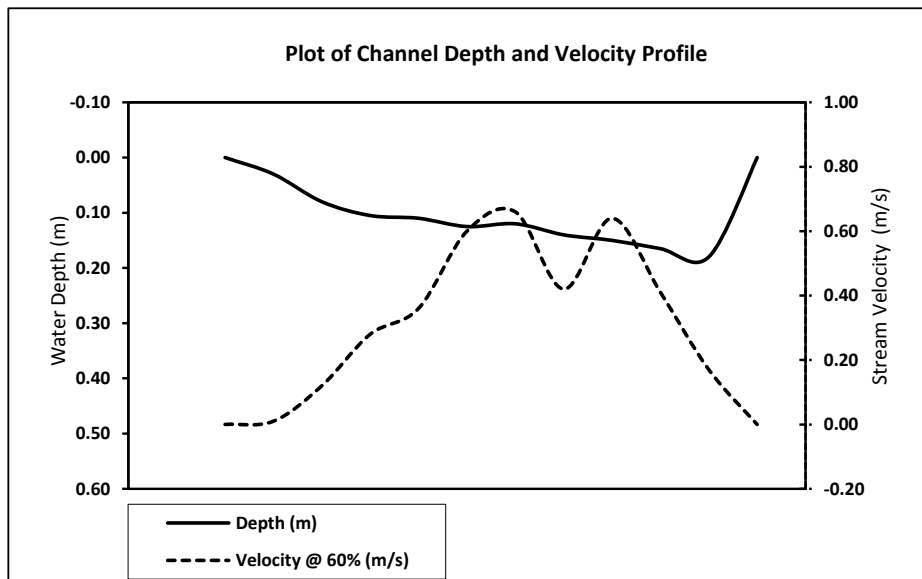
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& Research Ltd.

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|------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.4             | <br><b>Ecological Logistics<br/>&amp; Research Ltd.</b> |      |
| <b>Site / Location:</b>      | Clinton Creek Site   |                                                                                                                                            |      |
| <b>Stream Name:</b>          | Unnamed Creek        |                                                                                                                                            |      |
| <b>Station Name:</b>         | R9                   |                                                                                                                                            |      |
| <b>Date and Time:</b>        | Aug.20,2016 9:02     |                                                                                                                                            |      |
| <b>Staff:</b>                | GR,NB                |                                                                                                                                            |      |
| <b>UTM Coordinates:</b>      | 07w 05123441 7146751 |                                                                                                                                            |      |
| <b>Technique:</b>            | Swoffer              | <b>Left Bank</b>                                                                                                                           | 3.04 |
| <b>Temp., Water/Air (°C)</b> | N/A                  | <b>Right Bank</b>                                                                                                                          | 1.76 |
| <b>Crossing Number</b>       | 1                    | <b>Wet.Width</b>                                                                                                                           | 1.28 |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.10 |
| Mean Velocity (m/s) | 0.31 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0500 |
|-------------------------------|--------|





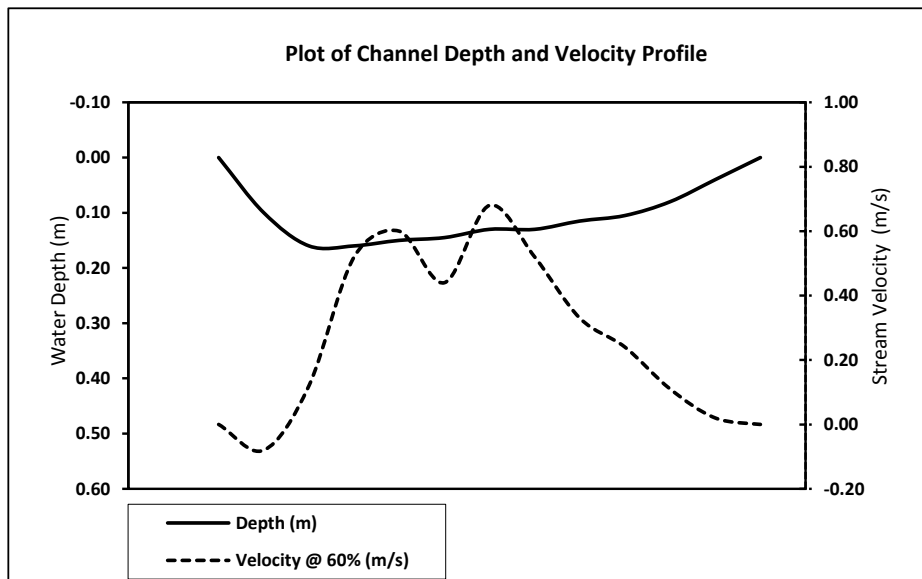
Ecological Logistics  
& Research Ltd.

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|------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.4             | <br><b>Ecological Logistics<br/>&amp; Research Ltd.</b> |      |
| <b>Site / Location:</b>      | Clinton Creek Site   |                                                                                                                                            |      |
| <b>Stream Name:</b>          | Unnamed Creek        |                                                                                                                                            |      |
| <b>Station Name:</b>         | R9                   |                                                                                                                                            |      |
| <b>Date and Time:</b>        | Aug.20,2016 9:02     |                                                                                                                                            |      |
| <b>Staff:</b>                | GR,NB                |                                                                                                                                            |      |
| <b>UTM Coordinates:</b>      | 07w 05123441 7146751 |                                                                                                                                            |      |
| <b>Technique:</b>            | Swoffer              | <b>Left Bank</b>                                                                                                                           | 3.05 |
| <b>Temp., Water/Air (°C)</b> | N/A                  | <b>Right Bank</b>                                                                                                                          | 1.76 |
| <b>Crossing Number</b>       | 2                    | <b>Wet.Width</b>                                                                                                                           | 1.29 |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.10 |
| Mean Velocity (m/s) | 0.27 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0477 |
|-------------------------------|--------|

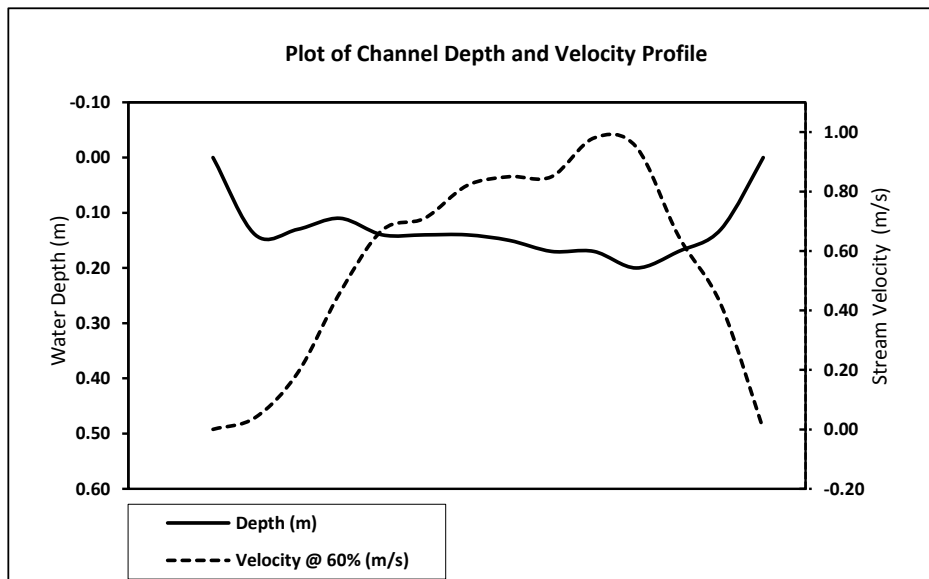


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek       |                                                                                                                                |      |
| Station Name:         | R11(H)              |                                                                                                                                |      |
| Date and Time:        | Aug.16,2016 11:48   |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0514161 7147784 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 2.41 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.49 |
| Crossing Number       | 1                   | Wet.Width                                                                                                                      | 1.92 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.41         | 0.075             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.26         | 0.150             | 0.14      | 0.04                 | 0.021                        | 0.0008                              |
| 2           | 2.11         | 0.150             | 0.13      | 0.19                 | 0.020                        | 0.0037                              |
| 3           | 1.96         | 0.150             | 0.11      | 0.46                 | 0.017                        | 0.0076                              |
| 4           | 1.81         | 0.150             | 0.14      | 0.67                 | 0.021                        | 0.0141                              |
| 5           | 1.66         | 0.150             | 0.14      | 0.71                 | 0.021                        | 0.0149                              |
| 6           | 1.51         | 0.150             | 0.14      | 0.82                 | 0.021                        | 0.0172                              |
| 7           | 1.36         | 0.150             | 0.15      | 0.85                 | 0.023                        | 0.0191                              |
| 8           | 1.21         | 0.150             | 0.17      | 0.85                 | 0.026                        | 0.0217                              |
| 9           | 1.06         | 0.150             | 0.17      | 0.98                 | 0.026                        | 0.0250                              |
| 10          | 0.91         | 0.150             | 0.20      | 0.95                 | 0.030                        | 0.0285                              |
| 11          | 0.76         | 0.150             | 0.17      | 0.65                 | 0.026                        | 0.0166                              |
| 12          | 0.61         | 0.135             | 0.13      | 0.42                 | 0.018                        | 0.0074                              |
| 13          | 0.49         | 0.060             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.49         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |      |                               |        |
|---------------------|------|-------------------------------|--------|
| Mean Depth (m)      | 0.13 | Discharge (m <sup>3</sup> /s) | 0.1766 |
| Mean Velocity (m/s) | 0.54 |                               |        |





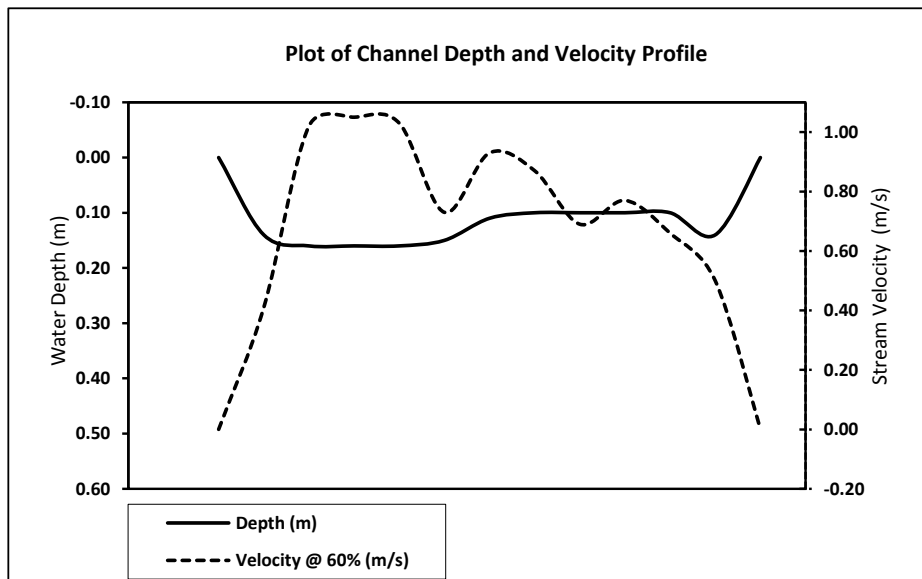
Ecological Logistics  
& Research Ltd.

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek       |                                                                                                                                |      |
| Station Name:         | R11(H)              |                                                                                                                                |      |
| Date and Time:        | Aug.16,2016 11:48   |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0514161 7147784 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 2.39 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.49 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 1.9  |

[illegible]

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.11 |
| Mean Velocity (m/s) | 0.67 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.1736 |
|-------------------------------|--------|



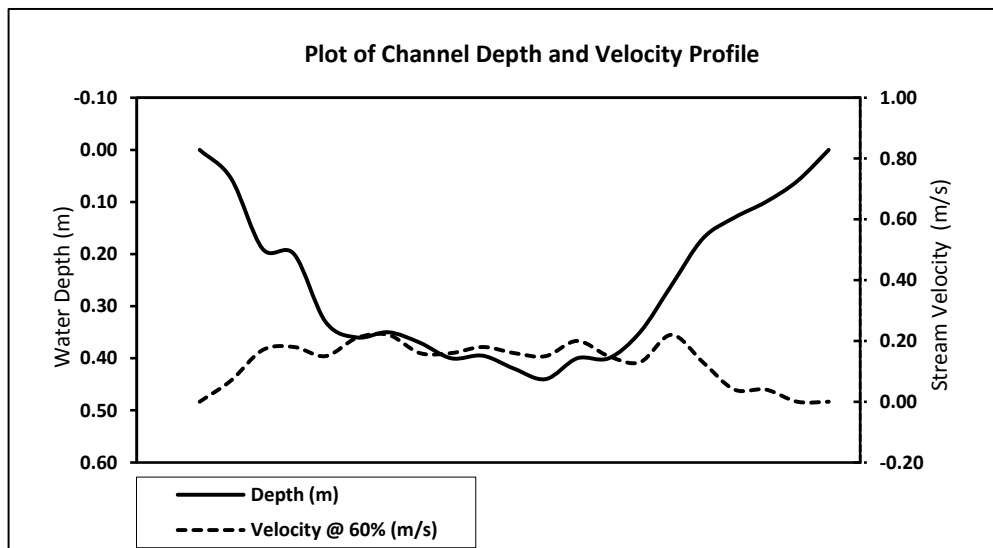
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |       |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.5            |  |       |
| Site / Location:      | Clinton Creek Site  |                                                                                     |       |
| Stream Name:          | Clinton Creek       |                                                                                     |       |
| Station Name:         | E1(H)               |                                                                                     |       |
| Date and Time:        | Sept.24/2016, 9:36  |                                                                                     |       |
| Staff:                | GR,NB               |                                                                                     |       |
| UTM Coordinates:      | 07w 0512850 7147423 |                                                                                     |       |
| Technique:            | Swoffer             | Left Bank                                                                           | 12.11 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1.31  |
| Crossing Number       | 1                   | Wet.Width                                                                           | 10.8  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 12.11        | 0.270             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 11.57        | 0.540             | 0.06      | 0.07                 | 0.030                        | 0.0021                              |
| 2           | 11.03        | 0.540             | 0.19      | 0.17                 | 0.103                        | 0.0174                              |
| 3           | 10.49        | 0.540             | 0.20      | 0.18                 | 0.108                        | 0.0194                              |
| 4           | 9.95         | 0.540             | 0.33      | 0.15                 | 0.178                        | 0.0267                              |
| 5           | 9.41         | 0.540             | 0.36      | 0.21                 | 0.194                        | 0.0408                              |
| 6           | 8.87         | 0.540             | 0.35      | 0.22                 | 0.189                        | 0.0416                              |
| 7           | 8.33         | 0.540             | 0.37      | 0.16                 | 0.200                        | 0.0320                              |
| 8           | 7.79         | 0.540             | 0.40      | 0.16                 | 0.216                        | 0.0346                              |
| 9           | 7.25         | 0.540             | 0.40      | 0.18                 | 0.213                        | 0.0384                              |
| 10          | 6.71         | 0.540             | 0.42      | 0.16                 | 0.227                        | 0.0363                              |
| 11          | 6.17         | 0.540             | 0.44      | 0.15                 | 0.238                        | 0.0356                              |
| 12          | 5.63         | 0.540             | 0.40      | 0.20                 | 0.216                        | 0.0432                              |
| 13          | 5.09         | 0.540             | 0.40      | 0.15                 | 0.216                        | 0.0324                              |
| 14          | 4.55         | 0.540             | 0.35      | 0.13                 | 0.189                        | 0.0246                              |
| 15          | 4.01         | 0.540             | 0.26      | 0.22                 | 0.140                        | 0.0309                              |
| 16          | 3.47         | 0.540             | 0.17      | 0.13                 | 0.092                        | 0.0119                              |
| 17          | 2.93         | 0.540             | 0.13      | 0.04                 | 0.070                        | 0.0028                              |
| 18          | 2.39         | 0.540             | 0.10      | 0.04                 | 0.054                        | 0.0022                              |
| 19          | 1.85         | 0.540             | 0.06      | 0.00                 | 0.032                        | 0.0000                              |
| 20          | 1.31         | 0.270             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.31         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.26  |
| Mean Velocity (m/s) | 0.130 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.4729 |
|-------------------------------|--------|



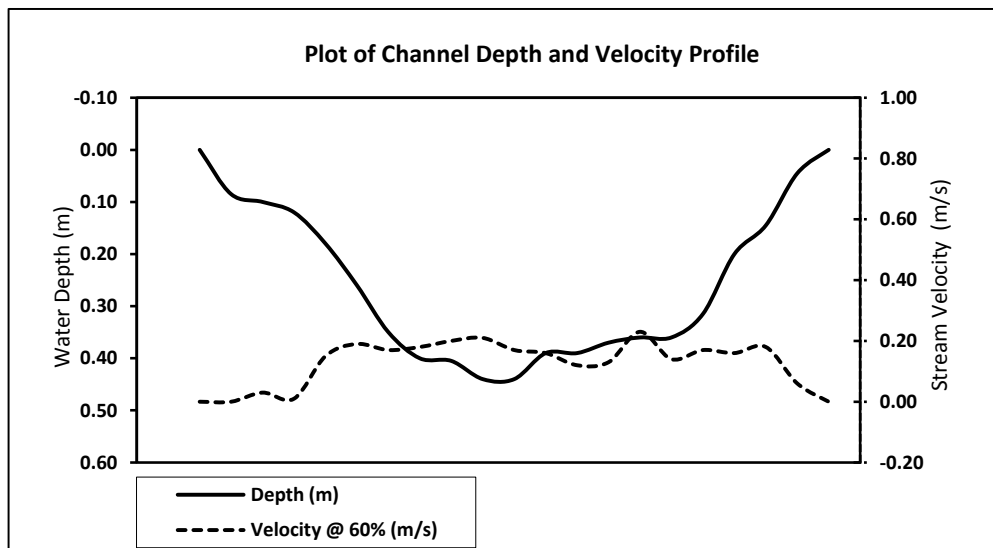
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |       |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-------|
| ELR Project No.       | 16-240.5            |  |       |
| Site / Location:      | Clinton Creek Site  |                                                                                     |       |
| Stream Name:          | Clinton Creek       |                                                                                     |       |
| Station Name:         | E1(H)               |                                                                                     |       |
| Date and Time:        | Sept.24/2016, 9:36  |                                                                                     |       |
| Staff:                | GR,NB               |                                                                                     |       |
| UTM Coordinates:      | 07w 0512850 7147423 |                                                                                     |       |
| Technique:            | Swoffer             | Left Bank                                                                           | 12.11 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1.31  |
| Crossing Number       | 2                   | Wet.Width                                                                           | 10.8  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.31         | 0.295             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.90         | 0.565             | 0.09      | 0.00                 | 0.048                        | 0.0000                              |
| 2           | 2.44         | 0.540             | 0.10      | 0.03                 | 0.054                        | 0.0016                              |
| 3           | 2.98         | 0.540             | 0.12      | 0.01                 | 0.065                        | 0.0006                              |
| 4           | 3.52         | 0.540             | 0.18      | 0.15                 | 0.097                        | 0.0146                              |
| 5           | 4.06         | 0.540             | 0.26      | 0.19                 | 0.140                        | 0.0267                              |
| 6           | 4.60         | 0.540             | 0.35      | 0.17                 | 0.189                        | 0.0321                              |
| 7           | 5.14         | 0.540             | 0.40      | 0.18                 | 0.216                        | 0.0389                              |
| 8           | 5.68         | 0.540             | 0.41      | 0.20                 | 0.219                        | 0.0437                              |
| 9           | 6.22         | 0.540             | 0.44      | 0.21                 | 0.238                        | 0.0499                              |
| 10          | 6.76         | 0.540             | 0.44      | 0.17                 | 0.238                        | 0.0404                              |
| 11          | 7.30         | 0.540             | 0.39      | 0.16                 | 0.211                        | 0.0337                              |
| 12          | 7.84         | 0.540             | 0.39      | 0.12                 | 0.211                        | 0.0253                              |
| 13          | 8.38         | 0.540             | 0.37      | 0.13                 | 0.200                        | 0.0260                              |
| 14          | 8.92         | 0.540             | 0.36      | 0.23                 | 0.194                        | 0.0447                              |
| 15          | 9.46         | 0.540             | 0.36      | 0.14                 | 0.194                        | 0.0272                              |
| 16          | 10.00        | 0.540             | 0.32      | 0.17                 | 0.170                        | 0.0289                              |
| 17          | 10.54        | 0.540             | 0.20      | 0.16                 | 0.108                        | 0.0173                              |
| 18          | 11.08        | 0.540             | 0.15      | 0.18                 | 0.078                        | 0.0141                              |
| 19          | 11.62        | 0.515             | 0.05      | 0.06                 | 0.023                        | 0.0014                              |
| 20          | 12.11        | 0.245             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 12.11        |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.26  |
| Mean Velocity (m/s) | 0.127 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.4671 |
|-------------------------------|--------|



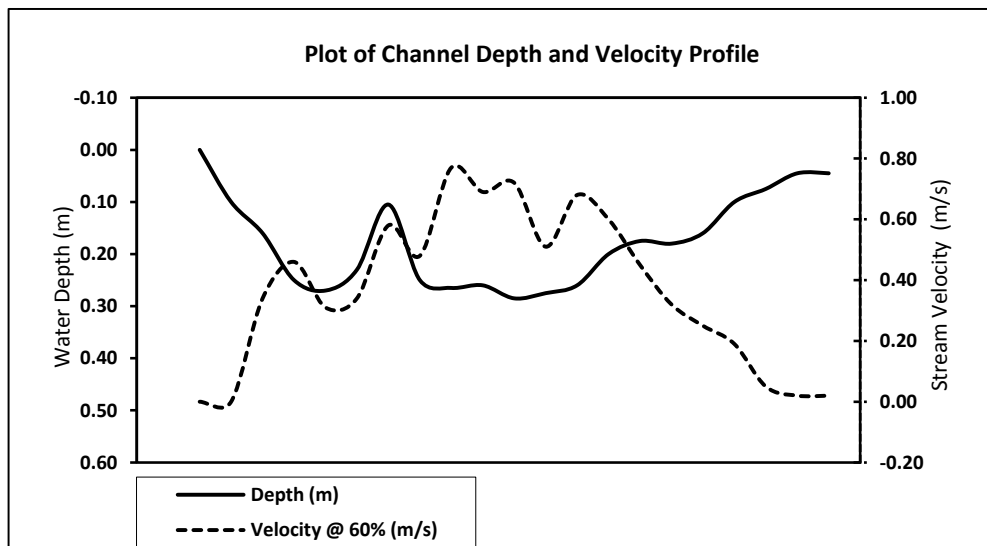
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Clinton Creek       |                                                                                     |      |
| Station Name:         | E2                  |                                                                                     |      |
| Date and Time:        | Sept.20/2016, 17:28 |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0514168 7147077 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 7.92 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1.44 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 6.48 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.44         | 0.165             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.77         | 0.330             | 0.10      | 0.00                 | 0.033                        | 0.0112                              |
| 2           | 2.10         | 0.330             | 0.16      | 0.34                 | 0.053                        | 0.0243                              |
| 3           | 2.43         | 0.330             | 0.25      | 0.46                 | 0.083                        | 0.0256                              |
| 4           | 2.76         | 0.330             | 0.27      | 0.31                 | 0.089                        | 0.0303                              |
| 5           | 3.09         | 0.330             | 0.23      | 0.34                 | 0.076                        | 0.0440                              |
| 6           | 3.42         | 0.330             | 0.11      | 0.58                 | 0.035                        | 0.0166                              |
| 7           | 3.75         | 0.330             | 0.25      | 0.48                 | 0.083                        | 0.0635                              |
| 8           | 4.08         | 0.330             | 0.27      | 0.77                 | 0.087                        | 0.0603                              |
| 9           | 4.41         | 0.330             | 0.26      | 0.69                 | 0.086                        | 0.0618                              |
| 10          | 4.74         | 0.330             | 0.29      | 0.72                 | 0.094                        | 0.0480                              |
| 11          | 5.07         | 0.330             | 0.28      | 0.51                 | 0.091                        | 0.0617                              |
| 12          | 5.40         | 0.330             | 0.26      | 0.68                 | 0.086                        | 0.0515                              |
| 13          | 5.73         | 0.330             | 0.20      | 0.60                 | 0.066                        | 0.0297                              |
| 14          | 6.06         | 0.330             | 0.18      | 0.45                 | 0.058                        | 0.0185                              |
| 15          | 6.39         | 0.330             | 0.18      | 0.32                 | 0.059                        | 0.0149                              |
| 16          | 6.72         | 0.330             | 0.16      | 0.25                 | 0.053                        | 0.0100                              |
| 17          | 7.05         | 0.330             | 0.10      | 0.19                 | 0.033                        | 0.0017                              |
| 18          | 7.38         | 0.330             | 0.08      | 0.05                 | 0.025                        | 0.0005                              |
| 19          | 7.71         | 0.270             | 0.05      | 0.02                 | 0.012                        | 0.0002                              |
| 20          | 7.92         | 0.105             | 0.05      | 0.02                 | 0.005                        | 0.0000                              |
| end         | 7.92         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.18 |
| Mean Velocity (m/s) | 0.37 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.5743 |
|-------------------------------|--------|



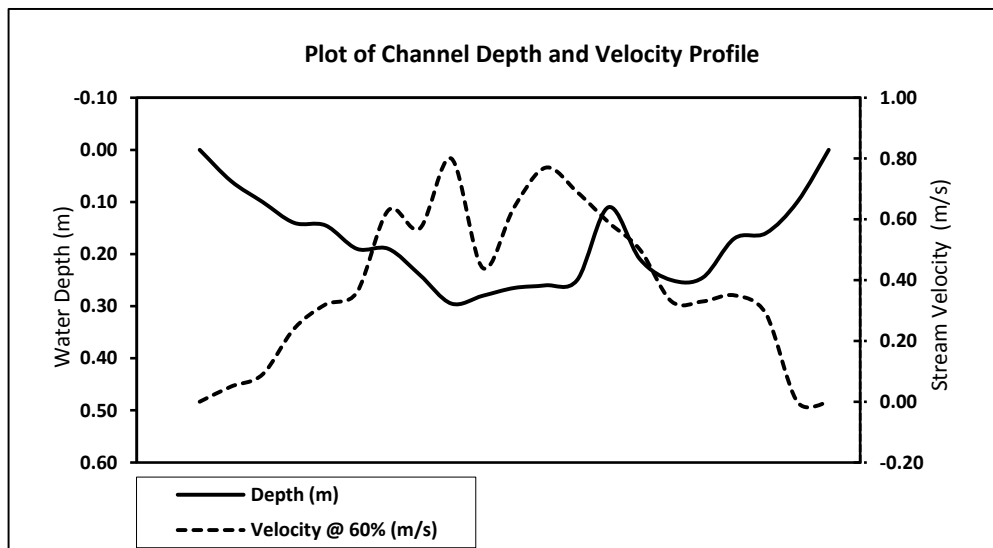
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Clinton Creek       |                                                                                                                                |      |
| Station Name:         | E2                  |                                                                                                                                |      |
| Date and Time:        | Sept.20/2016, 17:28 |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0514168 7147077 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 7.92 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 1.44 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 6.48 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 7.92         | 0.165             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 7.59         | 0.330             | 0.06      | 0.05                 | 0.020                        | 0.0010                              |
| 2           | 7.26         | 0.330             | 0.10      | 0.09                 | 0.033                        | 0.0030                              |
| 3           | 6.93         | 0.330             | 0.14      | 0.24                 | 0.046                        | 0.0111                              |
| 4           | 6.60         | 0.330             | 0.15      | 0.32                 | 0.048                        | 0.0153                              |
| 5           | 6.27         | 0.330             | 0.19      | 0.36                 | 0.063                        | 0.0226                              |
| 6           | 5.94         | 0.330             | 0.19      | 0.63                 | 0.063                        | 0.0395                              |
| 7           | 5.61         | 0.330             | 0.24      | 0.57                 | 0.079                        | 0.0451                              |
| 8           | 5.28         | 0.330             | 0.30      | 0.80                 | 0.097                        | 0.0779                              |
| 9           | 4.95         | 0.330             | 0.28      | 0.44                 | 0.092                        | 0.0407                              |
| 10          | 4.62         | 0.330             | 0.27      | 0.64                 | 0.087                        | 0.0560                              |
| 11          | 4.29         | 0.330             | 0.26      | 0.77                 | 0.086                        | 0.0661                              |
| 12          | 3.96         | 0.330             | 0.25      | 0.69                 | 0.083                        | 0.0569                              |
| 13          | 3.63         | 0.330             | 0.11      | 0.59                 | 0.036                        | 0.0214                              |
| 14          | 3.30         | 0.330             | 0.21      | 0.50                 | 0.069                        | 0.0347                              |
| 15          | 2.97         | 0.330             | 0.25      | 0.33                 | 0.083                        | 0.0272                              |
| 16          | 2.64         | 0.330             | 0.25      | 0.33                 | 0.081                        | 0.0267                              |
| 17          | 2.31         | 0.330             | 0.17      | 0.35                 | 0.056                        | 0.0196                              |
| 18          | 1.98         | 0.330             | 0.16      | 0.29                 | 0.053                        | 0.0153                              |
| 19          | 1.65         | 0.270             | 0.10      | 0.00                 | 0.027                        | 0.0000                              |
| 20          | 1.44         | 0.105             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.44         |                   |           |                      |                              |                                     |

|                     |      |
|---------------------|------|
| Mean Depth (m)      | 0.17 |
| Mean Velocity (m/s) | 0.38 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.5800 |
|-------------------------------|--------|





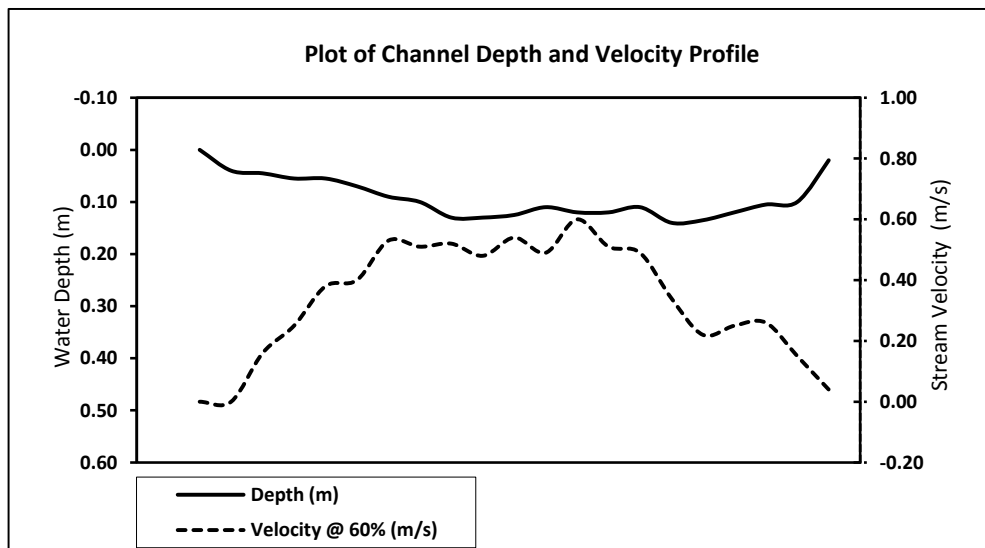
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Wolverine Creek     |                                                                                                                                |      |
| Station Name:         | E3(H)               |                                                                                                                                |      |
| Date and Time:        | Sept.20/2016, 9:35  |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0514183 7147592 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 4.49 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.46 |
| Crossing Number       | 1                   | Wet.Width                                                                                                                      | 4.03 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 4.49         | 0.130             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 4.23         | 0.195             | 0.04      | 0.00                 | 0.008                        | 0.0000                              |
| 2           | 4.10         | 0.165             | 0.05      | 0.16                 | 0.007                        | 0.0012                              |
| 3           | 3.90         | 0.200             | 0.06      | 0.25                 | 0.011                        | 0.0028                              |
| 4           | 3.70         | 0.205             | 0.06      | 0.38                 | 0.011                        | 0.0043                              |
| 5           | 3.49         | 0.205             | 0.07      | 0.40                 | 0.014                        | 0.0057                              |
| 6           | 3.29         | 0.200             | 0.09      | 0.53                 | 0.018                        | 0.0095                              |
| 7           | 3.09         | 0.200             | 0.10      | 0.51                 | 0.020                        | 0.0102                              |
| 8           | 2.89         | 0.205             | 0.13      | 0.52                 | 0.027                        | 0.0139                              |
| 9           | 2.68         | 0.205             | 0.13      | 0.48                 | 0.027                        | 0.0128                              |
| 10          | 2.48         | 0.200             | 0.13      | 0.54                 | 0.025                        | 0.0135                              |
| 11          | 2.28         | 0.205             | 0.11      | 0.49                 | 0.023                        | 0.0110                              |
| 12          | 2.07         | 0.205             | 0.12      | 0.60                 | 0.025                        | 0.0148                              |
| 13          | 1.87         | 0.200             | 0.12      | 0.51                 | 0.024                        | 0.0122                              |
| 14          | 1.67         | 0.200             | 0.11      | 0.49                 | 0.022                        | 0.0108                              |
| 15          | 1.47         | 0.205             | 0.14      | 0.34                 | 0.029                        | 0.0098                              |
| 16          | 1.26         | 0.205             | 0.14      | 0.22                 | 0.028                        | 0.0061                              |
| 17          | 1.06         | 0.200             | 0.12      | 0.25                 | 0.024                        | 0.0060                              |
| 18          | 0.86         | 0.200             | 0.11      | 0.26                 | 0.021                        | 0.0053                              |
| 19          | 0.66         | 0.200             | 0.10      | 0.15                 | 0.020                        | 0.0052                              |
| 20          | 0.46         | 0.100             | 0.02      | 0.04                 | 0.002                        | 0.0003                              |
| end         | 0.46         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.09  |
| Mean Velocity (m/s) | 0.339 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.1553 |
|-------------------------------|--------|



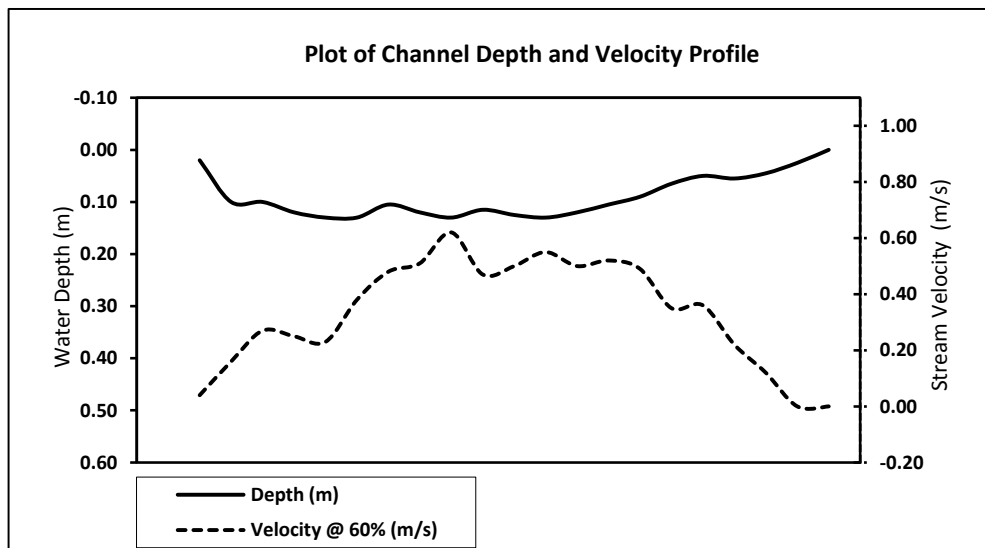
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Wolverine Creek     |                                                                                                                                |      |
| Station Name:         | E3(H)               |                                                                                                                                |      |
| Date and Time:        | Sept.20/2016, 9:35  |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0514183 7147592 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 4.48 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.46 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 4.02 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.46         | 0.100             | 0.02      | 0.04                 | 0.002                        | 0.0001                              |
| 1           | 0.66         | 0.205             | 0.10      | 0.16                 | 0.021                        | 0.0033                              |
| 2           | 0.87         | 0.205             | 0.10      | 0.27                 | 0.021                        | 0.0055                              |
| 3           | 1.07         | 0.200             | 0.12      | 0.25                 | 0.024                        | 0.0060                              |
| 4           | 1.27         | 0.205             | 0.13      | 0.23                 | 0.027                        | 0.0061                              |
| 5           | 1.48         | 0.205             | 0.13      | 0.38                 | 0.027                        | 0.0101                              |
| 6           | 1.68         | 0.200             | 0.11      | 0.48                 | 0.021                        | 0.0101                              |
| 7           | 1.88         | 0.205             | 0.12      | 0.51                 | 0.025                        | 0.0125                              |
| 8           | 2.09         | 0.205             | 0.13      | 0.62                 | 0.027                        | 0.0165                              |
| 9           | 2.29         | 0.200             | 0.12      | 0.47                 | 0.023                        | 0.0108                              |
| 10          | 2.49         | 0.200             | 0.13      | 0.50                 | 0.025                        | 0.0125                              |
| 11          | 2.69         | 0.205             | 0.13      | 0.55                 | 0.027                        | 0.0147                              |
| 12          | 2.90         | 0.205             | 0.12      | 0.50                 | 0.025                        | 0.0123                              |
| 13          | 3.10         | 0.205             | 0.11      | 0.52                 | 0.022                        | 0.0112                              |
| 14          | 3.31         | 0.205             | 0.09      | 0.49                 | 0.018                        | 0.0090                              |
| 15          | 3.51         | 0.200             | 0.07      | 0.35                 | 0.013                        | 0.0046                              |
| 16          | 3.71         | 0.205             | 0.05      | 0.36                 | 0.010                        | 0.0037                              |
| 17          | 3.92         | 0.205             | 0.06      | 0.22                 | 0.011                        | 0.0025                              |
| 18          | 4.12         | 0.170             | 0.05      | 0.12                 | 0.008                        | 0.0009                              |
| 19          | 4.26         | 0.180             | 0.03      | 0.00                 | 0.005                        | 0.0000                              |
| 20          | 4.48         | 0.110             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 4.48         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.09  |
| Mean Velocity (m/s) | 0.334 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.1524 |
|-------------------------------|--------|



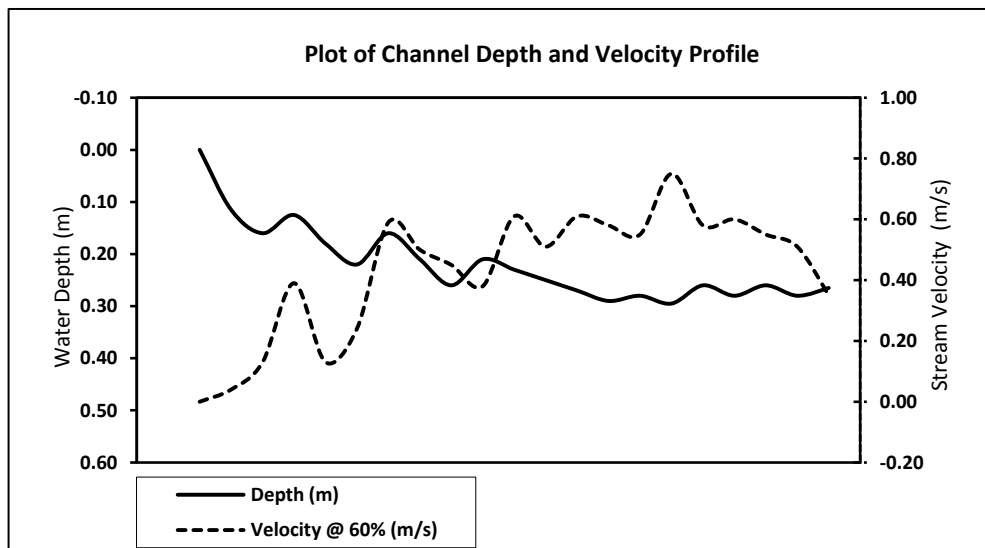
## Stream Flow & Discharge Calculation

|                       |                      |                                                                                                                                |      |
|-----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5             | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site   |                                                                                                                                |      |
| Stream Name:          | Clinton Creek        |                                                                                                                                |      |
| Station Name:         | E4                   |                                                                                                                                |      |
| Date and Time:        | Sept.22/2016, 17:28  |                                                                                                                                |      |
| Staff:                | GR,NB                |                                                                                                                                |      |
| UTM Coordinates:      | 07w 05159451 7145283 |                                                                                                                                |      |
| Technique:            | Swoffer              | Left Bank                                                                                                                      | 9.36 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                                                                     | 2.46 |
| Crossing Number       | 1                    | Wet.Width                                                                                                                      | 6.9  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.46         | 0.175             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.81         | 0.350             | 0.12      | 0.04                 | 0.040                        | 0.0016                              |
| 2           | 3.16         | 0.350             | 0.16      | 0.13                 | 0.056                        | 0.0073                              |
| 3           | 3.51         | 0.350             | 0.13      | 0.39                 | 0.044                        | 0.0171                              |
| 4           | 3.86         | 0.350             | 0.18      | 0.13                 | 0.063                        | 0.0082                              |
| 5           | 4.21         | 0.350             | 0.22      | 0.24                 | 0.077                        | 0.0185                              |
| 6           | 4.56         | 0.350             | 0.16      | 0.59                 | 0.056                        | 0.0330                              |
| 7           | 4.91         | 0.350             | 0.21      | 0.50                 | 0.074                        | 0.0368                              |
| 8           | 5.26         | 0.350             | 0.26      | 0.45                 | 0.091                        | 0.0410                              |
| 9           | 5.61         | 0.350             | 0.21      | 0.38                 | 0.074                        | 0.0279                              |
| 10          | 5.96         | 0.350             | 0.23      | 0.61                 | 0.080                        | 0.0491                              |
| 11          | 6.31         | 0.400             | 0.25      | 0.51                 | 0.100                        | 0.0510                              |
| 12          | 6.76         | 0.400             | 0.27      | 0.61                 | 0.108                        | 0.0659                              |
| 13          | 7.11         | 0.350             | 0.29      | 0.58                 | 0.102                        | 0.0589                              |
| 14          | 7.46         | 0.350             | 0.28      | 0.55                 | 0.098                        | 0.0539                              |
| 15          | 7.81         | 0.350             | 0.30      | 0.75                 | 0.103                        | 0.0774                              |
| 16          | 8.16         | 0.350             | 0.26      | 0.58                 | 0.091                        | 0.0528                              |
| 17          | 8.51         | 0.350             | 0.28      | 0.60                 | 0.098                        | 0.0588                              |
| 18          | 8.86         | 0.320             | 0.26      | 0.55                 | 0.083                        | 0.0458                              |
| 19          | 9.15         | 0.250             | 0.28      | 0.51                 | 0.070                        | 0.0357                              |
| 20          | 9.36         | 0.105             | 0.27      | 0.35                 | 0.028                        | 0.0097                              |
| end         | 9.36         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.22  |
| Mean Velocity (m/s) | 0.431 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.7503 |
|-------------------------------|--------|



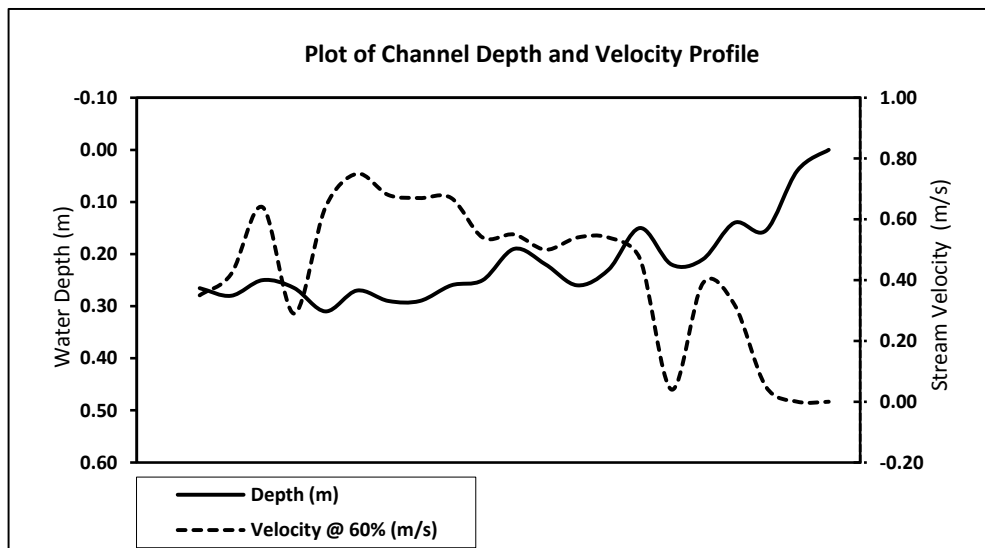
## Stream Flow & Discharge Calculation

|                       |                      |                                                                                                                                |      |
|-----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5             | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site   |                                                                                                                                |      |
| Stream Name:          | Clinton Creek        |                                                                                                                                |      |
| Station Name:         | E4                   |                                                                                                                                |      |
| Date and Time:        | Sept.22/2016, 17:28  |                                                                                                                                |      |
| Staff:                | GR,NB                |                                                                                                                                |      |
| UTM Coordinates:      | 07w 05159451 7145283 |                                                                                                                                |      |
| Technique:            | Swoffer              | Left Bank                                                                                                                      | 9.36 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                                                                     | 2.46 |
| Crossing Number       | 2                    | Wet.Width                                                                                                                      | 6.9  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 9.36         | 0.175             | 0.27      | 0.35                 | 0.046                        | 0.0163                              |
| 1           | 9.01         | 0.350             | 0.28      | 0.42                 | 0.098                        | 0.0412                              |
| 2           | 8.66         | 0.350             | 0.25      | 0.64                 | 0.087                        | 0.0560                              |
| 3           | 8.31         | 0.350             | 0.27      | 0.29                 | 0.093                        | 0.0269                              |
| 4           | 7.96         | 0.350             | 0.31      | 0.64                 | 0.109                        | 0.0694                              |
| 5           | 7.61         | 0.350             | 0.27      | 0.75                 | 0.095                        | 0.0709                              |
| 6           | 7.26         | 0.350             | 0.29      | 0.68                 | 0.102                        | 0.0690                              |
| 7           | 6.91         | 0.350             | 0.29      | 0.67                 | 0.102                        | 0.0680                              |
| 8           | 6.56         | 0.350             | 0.26      | 0.67                 | 0.091                        | 0.0610                              |
| 9           | 6.21         | 0.350             | 0.25      | 0.54                 | 0.087                        | 0.0473                              |
| 10          | 5.86         | 0.350             | 0.19      | 0.55                 | 0.067                        | 0.0366                              |
| 11          | 5.51         | 0.350             | 0.22      | 0.50                 | 0.077                        | 0.0385                              |
| 12          | 5.16         | 0.350             | 0.26      | 0.54                 | 0.091                        | 0.0491                              |
| 13          | 4.81         | 0.350             | 0.23      | 0.54                 | 0.081                        | 0.0435                              |
| 14          | 4.46         | 0.350             | 0.15      | 0.47                 | 0.052                        | 0.0247                              |
| 15          | 4.11         | 0.350             | 0.22      | 0.04                 | 0.077                        | 0.0031                              |
| 16          | 3.76         | 0.350             | 0.21      | 0.39                 | 0.074                        | 0.0287                              |
| 17          | 3.41         | 0.350             | 0.14      | 0.32                 | 0.049                        | 0.0157                              |
| 18          | 3.06         | 0.350             | 0.16      | 0.05                 | 0.054                        | 0.0027                              |
| 19          | 2.71         | 0.300             | 0.04      | 0.00                 | 0.012                        | 0.0000                              |
| 20          | 2.46         | 0.125             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.46         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.22  |
| Mean Velocity (m/s) | 0.431 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.7684 |
|-------------------------------|--------|



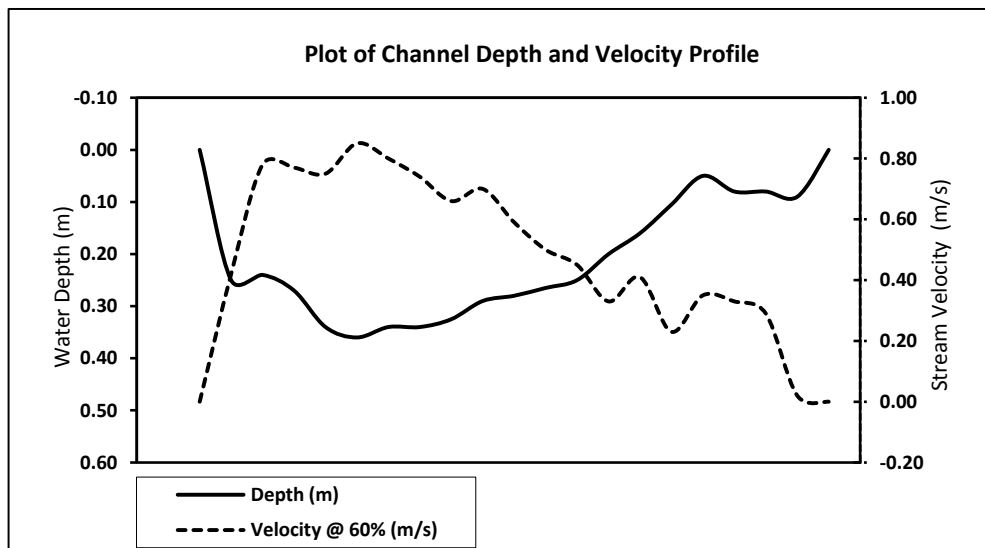
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Clinton Creek       |                                                                                                                                |      |
| Station Name:         | E7                  |                                                                                                                                |      |
| Date and Time:        | Sept.22/2016, 13:56 |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0519358 7142050 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 8.94 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.74 |
| Crossing Number       | 1                   | Wet.Width                                                                                                                      | 8.2  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.74         | 0.155             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.05         | 0.360             | 0.25      | 0.42                 | 0.090                        | 0.0378                              |
| 2           | 1.46         | 0.410             | 0.24      | 0.78                 | 0.098                        | 0.0768                              |
| 3           | 1.87         | 0.410             | 0.27      | 0.77                 | 0.111                        | 0.0852                              |
| 4           | 2.28         | 0.410             | 0.34      | 0.75                 | 0.139                        | 0.1046                              |
| 5           | 2.69         | 0.410             | 0.36      | 0.85                 | 0.148                        | 0.1255                              |
| 6           | 3.10         | 0.410             | 0.34      | 0.80                 | 0.139                        | 0.1115                              |
| 7           | 3.51         | 0.410             | 0.34      | 0.74                 | 0.139                        | 0.1032                              |
| 8           | 3.92         | 0.410             | 0.33      | 0.66                 | 0.133                        | 0.0879                              |
| 9           | 4.33         | 0.410             | 0.29      | 0.70                 | 0.119                        | 0.0832                              |
| 10          | 4.74         | 0.410             | 0.28      | 0.59                 | 0.115                        | 0.0677                              |
| 11          | 5.15         | 0.410             | 0.27      | 0.50                 | 0.109                        | 0.0543                              |
| 12          | 5.56         | 0.410             | 0.25      | 0.45                 | 0.103                        | 0.0461                              |
| 13          | 5.97         | 0.410             | 0.20      | 0.33                 | 0.082                        | 0.0271                              |
| 14          | 6.38         | 0.410             | 0.16      | 0.41                 | 0.066                        | 0.0269                              |
| 15          | 6.79         | 0.410             | 0.11      | 0.23                 | 0.043                        | 0.0099                              |
| 16          | 7.20         | 0.410             | 0.05      | 0.35                 | 0.021                        | 0.0072                              |
| 17          | 7.61         | 0.410             | 0.08      | 0.33                 | 0.033                        | 0.0108                              |
| 18          | 8.02         | 0.410             | 0.08      | 0.29                 | 0.033                        | 0.0095                              |
| 19          | 8.43         | 0.460             | 0.09      | 0.02                 | 0.041                        | 0.0008                              |
| 20          | 8.94         | 0.255             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 8.94         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.21  |
| Mean Velocity (m/s) | 0.475 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 1.0760 |
|-------------------------------|--------|

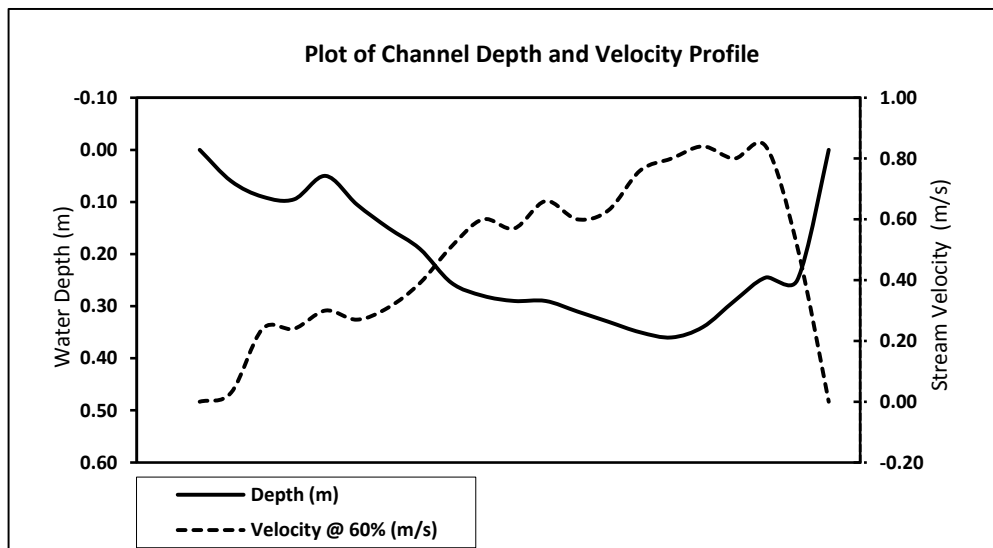


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.4            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Clinton Creek       |                                                                                                                                |      |
| Station Name:         | E7                  |                                                                                                                                |      |
| Date and Time:        | Sept.22/2016, 13:56 |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0519358 7142050 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 8.94 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.76 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 8.18 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 8.94         | 0.205             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 8.53         | 0.410             | 0.06      | 0.03                 | 0.025                        | 0.0007                              |
| 2           | 8.12         | 0.410             | 0.09      | 0.24                 | 0.037                        | 0.0089                              |
| 3           | 7.71         | 0.410             | 0.10      | 0.24                 | 0.039                        | 0.0093                              |
| 4           | 7.30         | 0.410             | 0.05      | 0.30                 | 0.021                        | 0.0062                              |
| 5           | 6.89         | 0.410             | 0.11      | 0.27                 | 0.043                        | 0.0116                              |
| 6           | 6.48         | 0.410             | 0.15      | 0.31                 | 0.062                        | 0.0191                              |
| 7           | 6.07         | 0.400             | 0.19      | 0.39                 | 0.076                        | 0.0296                              |
| 8           | 5.68         | 0.400             | 0.26      | 0.51                 | 0.102                        | 0.0520                              |
| 9           | 5.27         | 0.410             | 0.28      | 0.60                 | 0.115                        | 0.0689                              |
| 10          | 4.86         | 0.410             | 0.29      | 0.57                 | 0.119                        | 0.0678                              |
| 11          | 4.45         | 0.410             | 0.29      | 0.66                 | 0.119                        | 0.0785                              |
| 12          | 4.04         | 0.410             | 0.31      | 0.60                 | 0.127                        | 0.0763                              |
| 13          | 3.63         | 0.410             | 0.33      | 0.63                 | 0.135                        | 0.0852                              |
| 14          | 3.22         | 0.410             | 0.35      | 0.76                 | 0.144                        | 0.1091                              |
| 15          | 2.81         | 0.410             | 0.36      | 0.80                 | 0.148                        | 0.1181                              |
| 16          | 2.40         | 0.410             | 0.34      | 0.84                 | 0.139                        | 0.1171                              |
| 17          | 1.99         | 0.410             | 0.29      | 0.80                 | 0.119                        | 0.0951                              |
| 18          | 1.58         | 0.410             | 0.25      | 0.84                 | 0.100                        | 0.0844                              |
| 19          | 1.17         | 0.410             | 0.25      | 0.51                 | 0.103                        | 0.0523                              |
| 20          | 0.76         | 0.205             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.76         |                   |           |                      |                              |                                     |

|                     |       |       |                               |        |
|---------------------|-------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.21  | 0.475 | Discharge (m <sup>3</sup> /s) | 1.0901 |
| Mean Velocity (m/s) | 0.471 |       |                               |        |



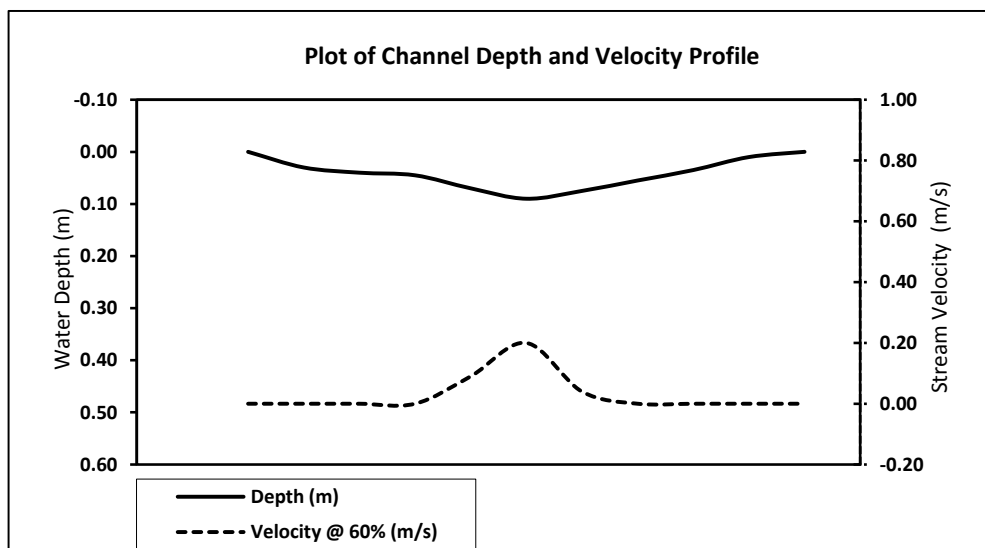


|                              |                      |                                                                                     |      |
|------------------------------|----------------------|-------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.5             |  |      |
| <b>Site / Location:</b>      | Clinton Creek Site   |                                                                                     |      |
| <b>Stream Name:</b>          | Groundwater Seepage  |                                                                                     |      |
| <b>Station Name:</b>         | GWCC-5               |                                                                                     |      |
| <b>Date and Time:</b>        | Sept.21/2016, 15:56  |                                                                                     |      |
| <b>Staff:</b>                | GR,NB                |                                                                                     |      |
| <b>UTM Coordinates:</b>      | 07w 05139841 7142128 |                                                                                     |      |
| <b>Technique:</b>            | Swoffer              |                                                                                     |      |
| <b>Temp., Water/Air (°C)</b> | N/A                  | <b>Left Bank</b>                                                                    | 1.82 |
| <b>Crossing Number</b>       | 1                    | <b>Right Bank</b>                                                                   | 0.92 |
|                              |                      | <b>Wet.Width</b>                                                                    | 0.9  |

[illegible]

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.04  |
| Mean Velocity (m/s) | 0.030 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0025 |
|-------------------------------|--------|



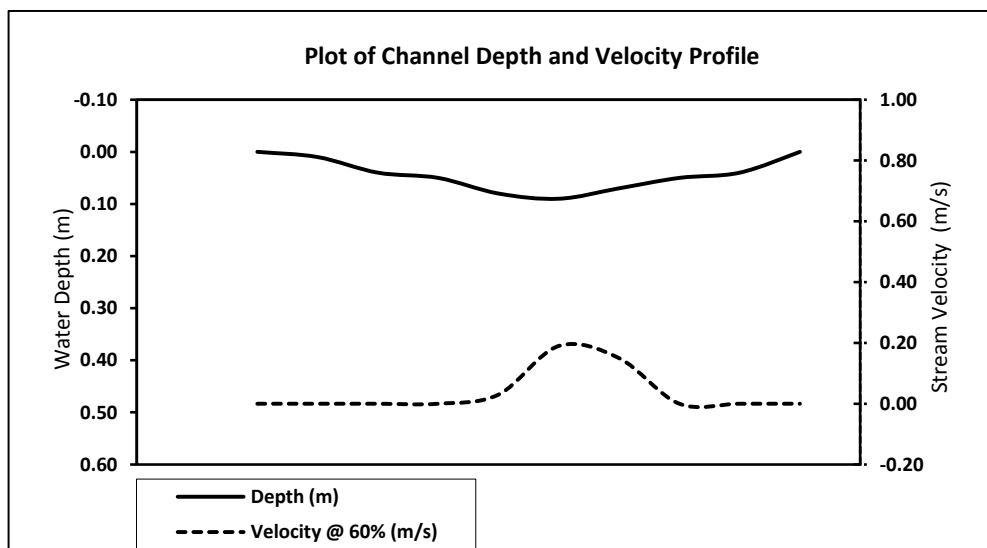


|                              |                      |                                                                                                                                            |      |
|------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.5             | <br><b>Ecological Logistics<br/>&amp; Research Ltd.</b> |      |
| <b>Site / Location:</b>      | Clinton Creek Site   |                                                                                                                                            |      |
| <b>Stream Name:</b>          | Groundwater Seepage  |                                                                                                                                            |      |
| <b>Station Name:</b>         | GWCC-5               |                                                                                                                                            |      |
| <b>Date and Time:</b>        | Sept.21/2016, 15:56  |                                                                                                                                            |      |
| <b>Staff:</b>                | GR,NB                |                                                                                                                                            |      |
| <b>UTM Coordinates:</b>      | 07w 05139841 7142128 |                                                                                                                                            |      |
| <b>Technique:</b>            | Swoffer              | <b>Left Bank</b>                                                                                                                           | 1.82 |
| <b>Temp., Water/Air (°C)</b> | N/A                  | <b>Right Bank</b>                                                                                                                          | 0.92 |
| <b>Crossing Number</b>       | 2                    | <b>Wet.Width</b>                                                                                                                           | 0.9  |

[illegible]

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.04  |
| Mean Velocity (m/s) | 0.037 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0027 |
|-------------------------------|--------|





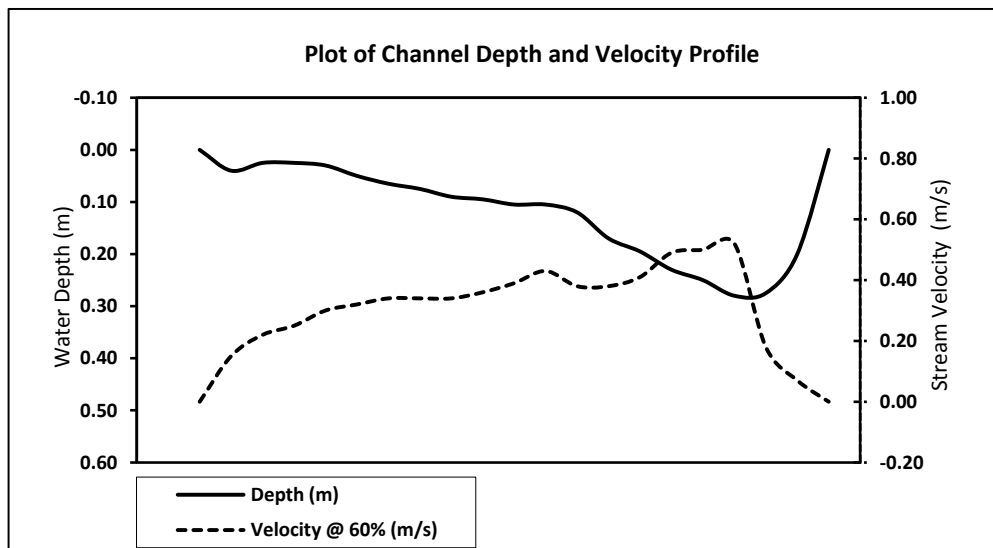
## Stream Flow & Discharge Calculation

|                       |                      |                                                                                                                                |      |
|-----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5             | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site   |                                                                                                                                |      |
| Stream Name:          | Upper Clinton Creek  |                                                                                                                                |      |
| Station Name:         | R1                   |                                                                                                                                |      |
| Date and Time:        | Sept.23/2016, 14:28  |                                                                                                                                |      |
| Staff:                | GR,NB                |                                                                                                                                |      |
| UTM Coordinates:      | 07w 05810604 7147490 |                                                                                                                                |      |
| Technique:            | Swoffer              | Left Bank                                                                                                                      | 7.97 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                                                                     | 0.74 |
| Crossing Number       | 1                    | Wet.Width                                                                                                                      | 7.23 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.74         | 0.180             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.10         | 0.360             | 0.04      | 0.15                 | 0.014                        | 0.0022                              |
| 2           | 1.46         | 0.360             | 0.03      | 0.22                 | 0.009                        | 0.0020                              |
| 3           | 1.82         | 0.360             | 0.03      | 0.25                 | 0.009                        | 0.0023                              |
| 4           | 2.18         | 0.360             | 0.03      | 0.30                 | 0.011                        | 0.0032                              |
| 5           | 2.54         | 0.360             | 0.05      | 0.32                 | 0.018                        | 0.0058                              |
| 6           | 2.90         | 0.360             | 0.07      | 0.34                 | 0.023                        | 0.0080                              |
| 7           | 3.26         | 0.360             | 0.08      | 0.34                 | 0.027                        | 0.0092                              |
| 8           | 3.62         | 0.360             | 0.09      | 0.34                 | 0.032                        | 0.0110                              |
| 9           | 3.98         | 0.360             | 0.10      | 0.36                 | 0.034                        | 0.0123                              |
| 10          | 4.34         | 0.360             | 0.11      | 0.39                 | 0.038                        | 0.0147                              |
| 11          | 4.70         | 0.360             | 0.11      | 0.43                 | 0.038                        | 0.0163                              |
| 12          | 5.06         | 0.360             | 0.12      | 0.38                 | 0.043                        | 0.0164                              |
| 13          | 5.42         | 0.360             | 0.17      | 0.38                 | 0.061                        | 0.0233                              |
| 14          | 5.78         | 0.360             | 0.20      | 0.41                 | 0.070                        | 0.0288                              |
| 15          | 6.14         | 0.360             | 0.23      | 0.49                 | 0.083                        | 0.0406                              |
| 16          | 6.50         | 0.360             | 0.25      | 0.50                 | 0.090                        | 0.0450                              |
| 17          | 6.86         | 0.360             | 0.28      | 0.52                 | 0.101                        | 0.0524                              |
| 18          | 7.22         | 0.360             | 0.28      | 0.18                 | 0.099                        | 0.0178                              |
| 19          | 7.58         | 0.375             | 0.20      | 0.07                 | 0.075                        | 0.0053                              |
| 20          | 7.97         | 0.195             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 7.97         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.12  |
| Mean Velocity (m/s) | 0.303 |

|                               |       |
|-------------------------------|-------|
| Discharge (m <sup>3</sup> /s) | 0.316 |
|-------------------------------|-------|



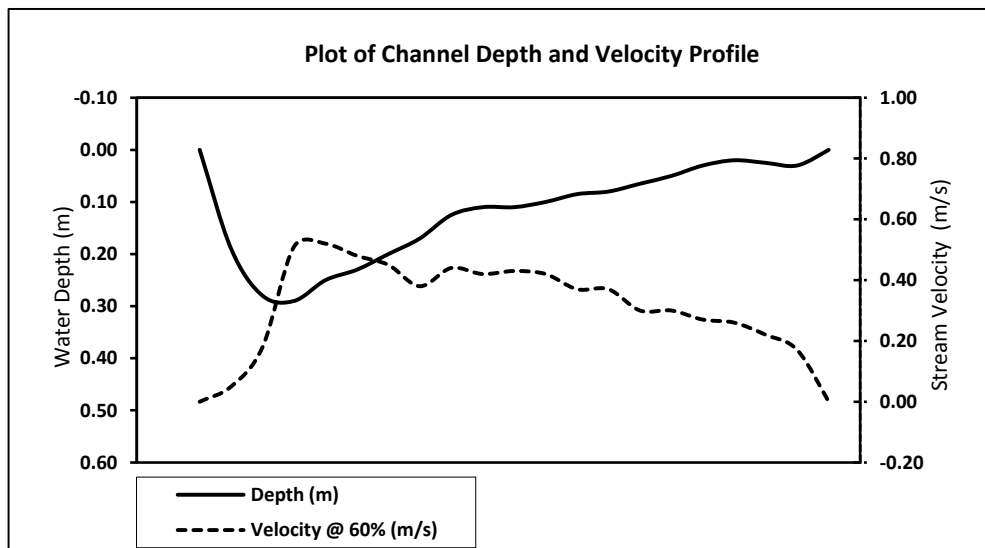
## Stream Flow & Discharge Calculation

|                       |                      |                                                                                                                                |      |
|-----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5             | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site   |                                                                                                                                |      |
| Stream Name:          | Upper Clinton Creek  |                                                                                                                                |      |
| Station Name:         | R1                   |                                                                                                                                |      |
| Date and Time:        | Sept.23/2016, 14:28  |                                                                                                                                |      |
| Staff:                | GR,NB                |                                                                                                                                |      |
| UTM Coordinates:      | 07w 05810604 7147490 |                                                                                                                                |      |
| Technique:            | Swoffer              | Left Bank                                                                                                                      | 7.97 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                                                                     | 0.73 |
| Crossing Number       | 2                    | Wet.Width                                                                                                                      | 7.24 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 7.97         | 0.180             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 7.61         | 0.360             | 0.19      | 0.05                 | 0.068                        | 0.0034                              |
| 2           | 7.25         | 0.360             | 0.28      | 0.18                 | 0.101                        | 0.0181                              |
| 3           | 6.89         | 0.360             | 0.29      | 0.51                 | 0.104                        | 0.0532                              |
| 4           | 6.53         | 0.360             | 0.25      | 0.52                 | 0.090                        | 0.0468                              |
| 5           | 6.17         | 0.360             | 0.23      | 0.48                 | 0.083                        | 0.0397                              |
| 6           | 5.81         | 0.360             | 0.20      | 0.45                 | 0.072                        | 0.0324                              |
| 7           | 5.45         | 0.360             | 0.17      | 0.38                 | 0.061                        | 0.0233                              |
| 8           | 5.09         | 0.360             | 0.13      | 0.44                 | 0.045                        | 0.0198                              |
| 9           | 4.73         | 0.360             | 0.11      | 0.42                 | 0.040                        | 0.0166                              |
| 10          | 4.37         | 0.360             | 0.11      | 0.43                 | 0.040                        | 0.0170                              |
| 11          | 4.01         | 0.360             | 0.10      | 0.42                 | 0.036                        | 0.0151                              |
| 12          | 3.65         | 0.360             | 0.09      | 0.37                 | 0.031                        | 0.0113                              |
| 13          | 3.29         | 0.360             | 0.08      | 0.37                 | 0.029                        | 0.0107                              |
| 14          | 2.93         | 0.360             | 0.07      | 0.30                 | 0.023                        | 0.0070                              |
| 15          | 2.57         | 0.360             | 0.05      | 0.30                 | 0.018                        | 0.0054                              |
| 16          | 2.21         | 0.360             | 0.03      | 0.27                 | 0.011                        | 0.0029                              |
| 17          | 1.85         | 0.360             | 0.02      | 0.26                 | 0.007                        | 0.0019                              |
| 18          | 1.49         | 0.360             | 0.03      | 0.22                 | 0.009                        | 0.0020                              |
| 19          | 1.13         | 0.380             | 0.03      | 0.17                 | 0.011                        | 0.0019                              |
| 20          | 0.73         | 0.200             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.73         |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.12  |
| Mean Velocity (m/s) | 0.311 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.3287 |
|-------------------------------|--------|

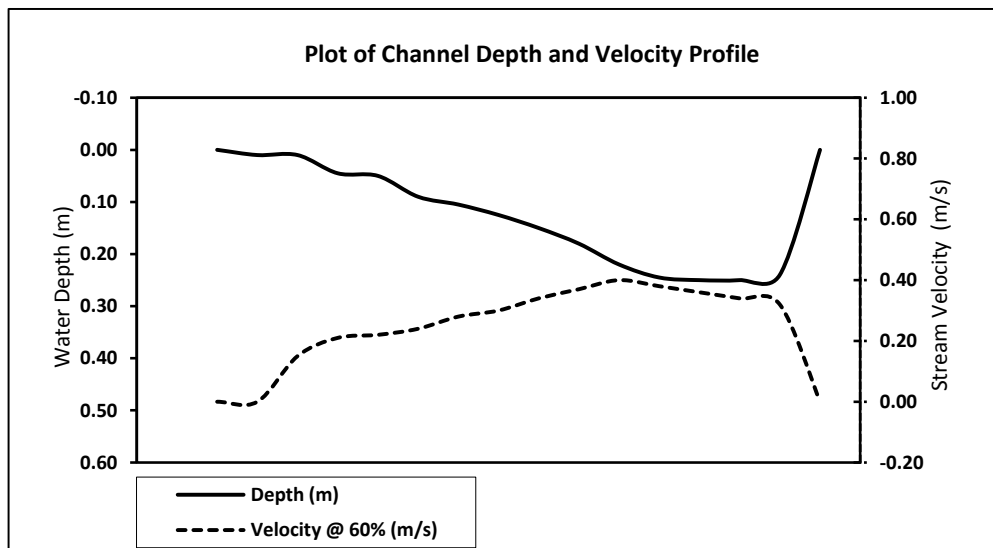


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |     |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.5            |  |     |
| Site / Location:      | Clinton Creek Site  |                                                                                     |     |
| Stream Name:          | Easter Creek        |                                                                                     |     |
| Station Name:         | R2                  |                                                                                     |     |
| Date and Time:        | Sept.23/2016, 15:55 |                                                                                     |     |
| Staff:                | GR,NB               |                                                                                     |     |
| UTM Coordinates:      | 07w 0512028 7148062 |                                                                                     |     |
| Technique:            | Swoffer             | Left Bank                                                                           | 3.6 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 1.3 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 2.3 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.30         | 0.075             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.45         | 0.150             | 0.01      | 0.00                 | 0.002                        | 0.0000                              |
| 2           | 1.60         | 0.150             | 0.01      | 0.15                 | 0.002                        | 0.0002                              |
| 3           | 1.75         | 0.150             | 0.05      | 0.21                 | 0.007                        | 0.0014                              |
| 4           | 1.90         | 0.150             | 0.05      | 0.22                 | 0.008                        | 0.0017                              |
| 5           | 2.05         | 0.150             | 0.09      | 0.24                 | 0.014                        | 0.0032                              |
| 6           | 2.20         | 0.150             | 0.11      | 0.28                 | 0.016                        | 0.0044                              |
| 7           | 2.35         | 0.150             | 0.13      | 0.30                 | 0.019                        | 0.0056                              |
| 8           | 2.50         | 0.150             | 0.15      | 0.34                 | 0.023                        | 0.0077                              |
| 9           | 2.65         | 0.150             | 0.18      | 0.37                 | 0.027                        | 0.0100                              |
| 10          | 2.80         | 0.150             | 0.22      | 0.40                 | 0.033                        | 0.0132                              |
| 11          | 2.95         | 0.150             | 0.25      | 0.38                 | 0.037                        | 0.0140                              |
| 12          | 3.10         | 0.150             | 0.25      | 0.36                 | 0.038                        | 0.0135                              |
| 13          | 3.25         | 0.150             | 0.25      | 0.34                 | 0.038                        | 0.0128                              |
| 14          | 3.40         | 0.175             | 0.24      | 0.32                 | 0.042                        | 0.0134                              |
| 15          | 3.60         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 3.60         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |                               |        |
|---------------------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.12  | Discharge (m <sup>3</sup> /s) | 0.1011 |
| Mean Velocity (m/s) | 0.244 |                               |        |



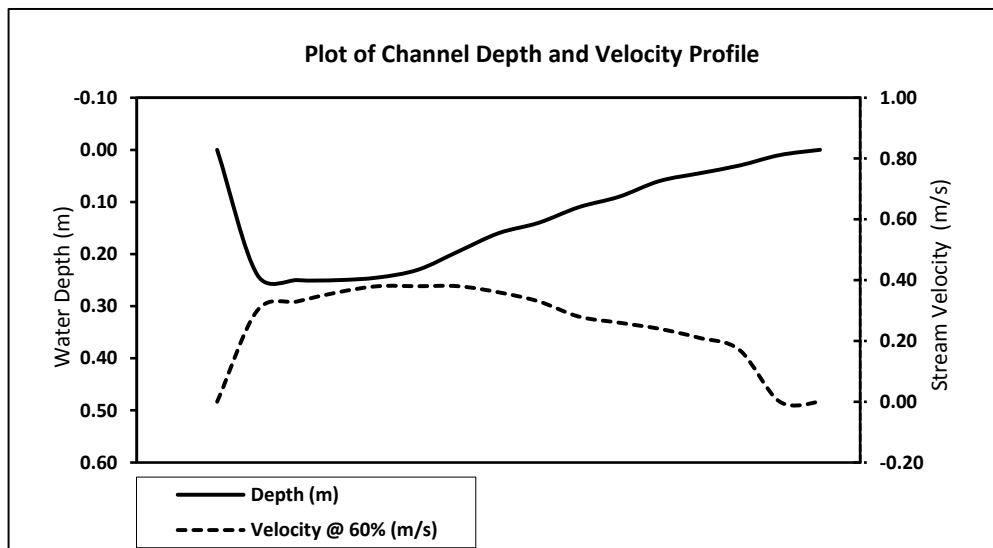
## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |     |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|-----|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |     |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |     |
| Stream Name:          | Easter Creek        |                                                                                                                                |     |
| Station Name:         | R2                  |                                                                                                                                |     |
| Date and Time:        | Sept.23/2016, 15:55 |                                                                                                                                |     |
| Staff:                | GR,NB               |                                                                                                                                |     |
| UTM Coordinates:      | 07w 0512028 7148062 |                                                                                                                                |     |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 3.6 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 1.3 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 2.3 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 3.60         | 0.075             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 3.45         | 0.150             | 0.24      | 0.30                 | 0.036                        | 0.0108                              |
| 2           | 3.30         | 0.150             | 0.25      | 0.33                 | 0.038                        | 0.0124                              |
| 3           | 3.15         | 0.150             | 0.25      | 0.36                 | 0.038                        | 0.0135                              |
| 4           | 3.00         | 0.150             | 0.25      | 0.38                 | 0.037                        | 0.0140                              |
| 5           | 2.85         | 0.150             | 0.23      | 0.38                 | 0.035                        | 0.0131                              |
| 6           | 2.70         | 0.150             | 0.20      | 0.38                 | 0.029                        | 0.0111                              |
| 7           | 2.55         | 0.150             | 0.16      | 0.36                 | 0.024                        | 0.0086                              |
| 8           | 2.40         | 0.150             | 0.14      | 0.33                 | 0.021                        | 0.0069                              |
| 9           | 2.25         | 0.150             | 0.11      | 0.28                 | 0.017                        | 0.0046                              |
| 10          | 2.10         | 0.150             | 0.09      | 0.26                 | 0.014                        | 0.0035                              |
| 11          | 1.95         | 0.150             | 0.06      | 0.24                 | 0.009                        | 0.0022                              |
| 12          | 1.80         | 0.150             | 0.05      | 0.21                 | 0.007                        | 0.0014                              |
| 13          | 1.65         | 0.150             | 0.03      | 0.17                 | 0.005                        | 0.0008                              |
| 14          | 1.50         | 0.175             | 0.01      | 0.00                 | 0.002                        | 0.0000                              |
| 15          | 1.30         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.30         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.13  |
| Mean Velocity (m/s) | 0.249 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.1029 |
|-------------------------------|--------|

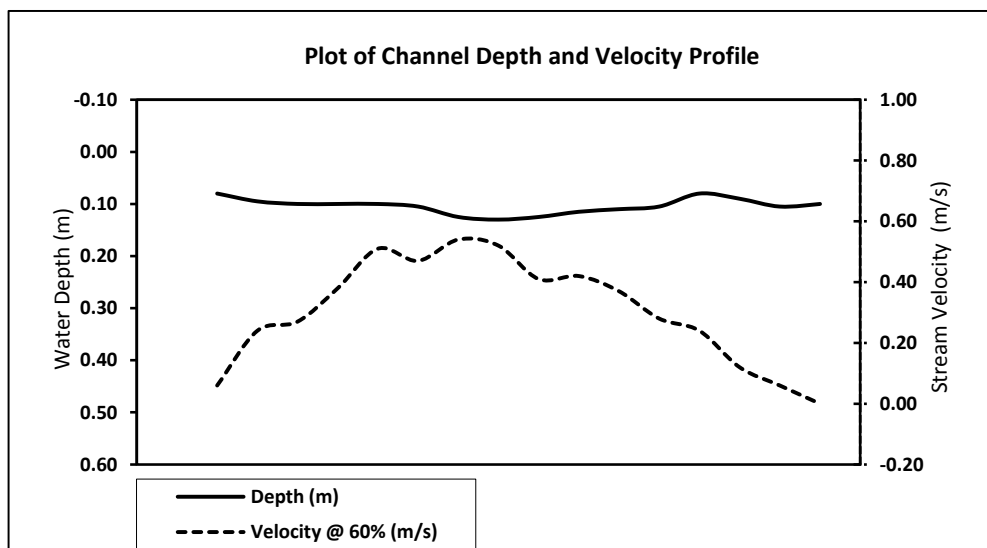


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Wolverine Creek     |                                                                                                                                |      |
| Station Name:         | R3                  |                                                                                                                                |      |
| Date and Time:        | Sept.20/2016, 14:56 |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0513948 7148677 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 3.37 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.77 |
| Crossing Number       | 1                   | Wet.Width                                                                                                                      | 2.6  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.77         | 0.085             | 0.08      | 0.06                 | 0.007                        | 0.0004                              |
| 1           | 0.94         | 0.175             | 0.10      | 0.24                 | 0.017                        | 0.0040                              |
| 2           | 1.12         | 0.180             | 0.10      | 0.27                 | 0.018                        | 0.0049                              |
| 3           | 1.30         | 0.180             | 0.10      | 0.38                 | 0.018                        | 0.0068                              |
| 4           | 1.48         | 0.180             | 0.10      | 0.51                 | 0.018                        | 0.0092                              |
| 5           | 1.66         | 0.180             | 0.11      | 0.47                 | 0.019                        | 0.0089                              |
| 6           | 1.84         | 0.180             | 0.13      | 0.54                 | 0.023                        | 0.0122                              |
| 7           | 2.02         | 0.180             | 0.13      | 0.52                 | 0.023                        | 0.0122                              |
| 8           | 2.20         | 0.180             | 0.13      | 0.41                 | 0.023                        | 0.0092                              |
| 9           | 2.38         | 0.180             | 0.12      | 0.42                 | 0.021                        | 0.0087                              |
| 10          | 2.56         | 0.180             | 0.11      | 0.37                 | 0.020                        | 0.0073                              |
| 11          | 2.74         | 0.180             | 0.11      | 0.28                 | 0.019                        | 0.0053                              |
| 12          | 2.92         | 0.180             | 0.08      | 0.24                 | 0.014                        | 0.0035                              |
| 13          | 3.10         | 0.170             | 0.09      | 0.12                 | 0.015                        | 0.0018                              |
| 14          | 3.26         | 0.135             | 0.11      | 0.06                 | 0.014                        | 0.0009                              |
| 15          | 3.37         | 0.055             | 0.10      | 0.00                 | 0.006                        | 0.0000                              |
| end         | 3.37         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |                               |        |
|---------------------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.10  | Discharge (m <sup>3</sup> /s) | 0.0952 |
| Mean Velocity (m/s) | 0.306 |                               |        |

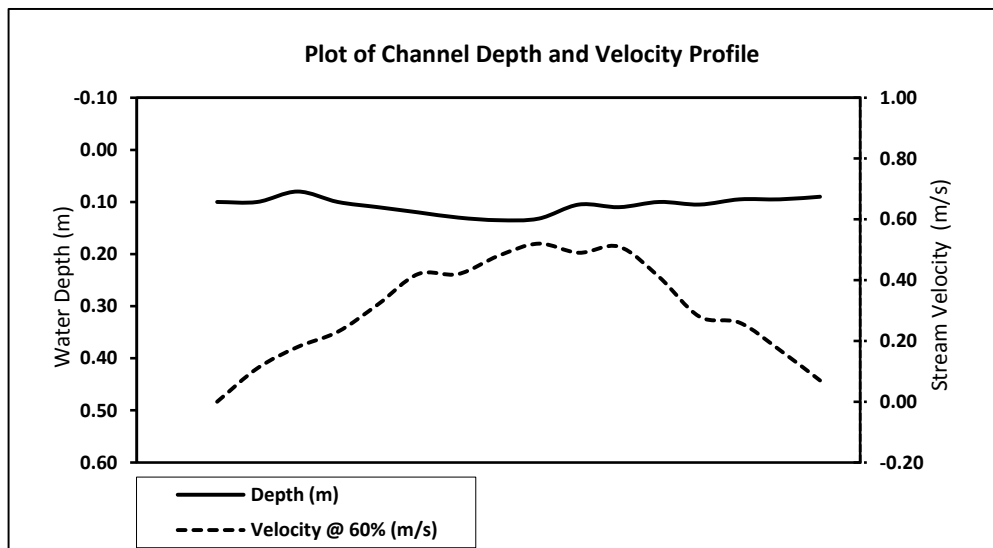


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Wolverine Creek     |                                                                                                                                |      |
| Station Name:         | R3                  |                                                                                                                                |      |
| Date and Time:        | Sept.20/2016, 14:56 |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0513948 7148677 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 3.37 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.77 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 2.6  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 3.37         | 0.095             | 0.10      | 0.00                 | 0.010                        | 0.0000                              |
| 1           | 3.18         | 0.185             | 0.10      | 0.11                 | 0.019                        | 0.0020                              |
| 2           | 3.00         | 0.180             | 0.08      | 0.18                 | 0.014                        | 0.0026                              |
| 3           | 2.82         | 0.180             | 0.10      | 0.23                 | 0.018                        | 0.0041                              |
| 4           | 2.64         | 0.180             | 0.11      | 0.32                 | 0.020                        | 0.0063                              |
| 5           | 2.46         | 0.180             | 0.12      | 0.42                 | 0.022                        | 0.0091                              |
| 6           | 2.28         | 0.180             | 0.13      | 0.42                 | 0.023                        | 0.0098                              |
| 7           | 2.10         | 0.180             | 0.14      | 0.48                 | 0.024                        | 0.0117                              |
| 8           | 1.92         | 0.180             | 0.13      | 0.52                 | 0.024                        | 0.0124                              |
| 9           | 1.74         | 0.180             | 0.11      | 0.49                 | 0.019                        | 0.0093                              |
| 10          | 1.56         | 0.180             | 0.11      | 0.51                 | 0.020                        | 0.0101                              |
| 11          | 1.38         | 0.180             | 0.10      | 0.41                 | 0.018                        | 0.0074                              |
| 12          | 1.20         | 0.180             | 0.11      | 0.28                 | 0.019                        | 0.0053                              |
| 13          | 1.02         | 0.150             | 0.10      | 0.26                 | 0.014                        | 0.0037                              |
| 14          | 0.90         | 0.125             | 0.10      | 0.17                 | 0.012                        | 0.0020                              |
| 15          | 0.77         | 0.065             | 0.09      | 0.07                 | 0.006                        | 0.0004                              |
| end         | 0.77         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |                               |        |
|---------------------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.11  | Discharge (m <sup>3</sup> /s) | 0.0962 |
| Mean Velocity (m/s) | 0.304 |                               |        |

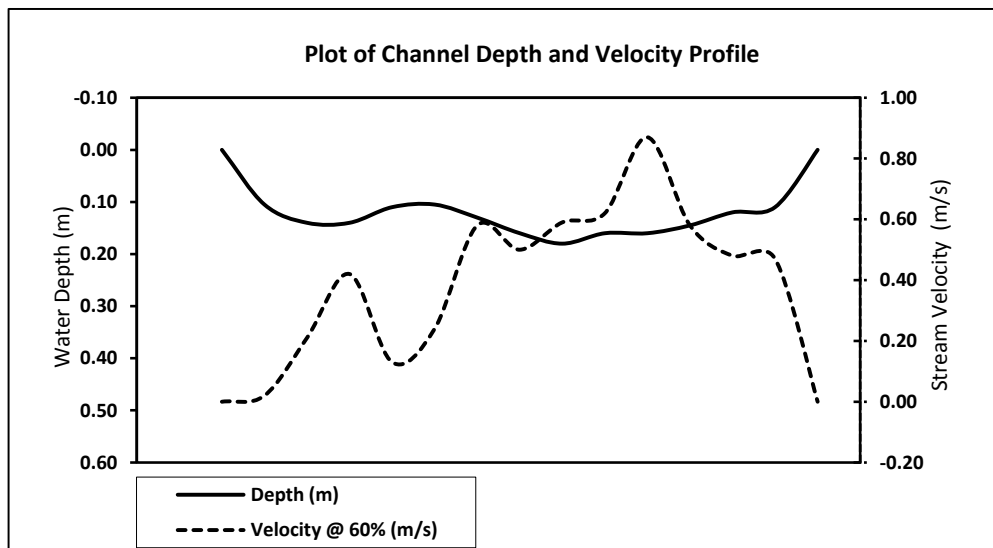


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Eagle Creek         |                                                                                     |      |
| Station Name:         | R4                  |                                                                                     |      |
| Date and Time:        | Sept.22/2016, 16:08 |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0515985 7145352 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 2.54 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 0.35 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 2.19 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 2.54         | 0.075             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 2.39         | 0.150             | 0.11      | 0.02                 | 0.016                        | 0.0003                              |
| 2           | 2.24         | 0.150             | 0.14      | 0.21                 | 0.021                        | 0.0044                              |
| 3           | 2.09         | 0.150             | 0.14      | 0.42                 | 0.021                        | 0.0088                              |
| 4           | 1.94         | 0.150             | 0.11      | 0.13                 | 0.017                        | 0.0021                              |
| 5           | 1.79         | 0.150             | 0.11      | 0.24                 | 0.016                        | 0.0038                              |
| 6           | 1.64         | 0.150             | 0.13      | 0.58                 | 0.020                        | 0.0113                              |
| 7           | 1.49         | 0.150             | 0.16      | 0.50                 | 0.024                        | 0.0120                              |
| 8           | 1.34         | 0.150             | 0.18      | 0.59                 | 0.027                        | 0.0159                              |
| 9           | 1.19         | 0.150             | 0.16      | 0.62                 | 0.024                        | 0.0149                              |
| 10          | 1.04         | 0.150             | 0.16      | 0.87                 | 0.024                        | 0.0209                              |
| 11          | 0.89         | 0.150             | 0.15      | 0.58                 | 0.022                        | 0.0126                              |
| 12          | 0.74         | 0.170             | 0.12      | 0.48                 | 0.020                        | 0.0098                              |
| 13          | 0.55         | 0.195             | 0.11      | 0.47                 | 0.021                        | 0.0101                              |
| 14          | 0.35         | 0.100             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 0.35         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
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|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |       |                               |        |
|---------------------|-------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.12  | 0.376 | Discharge (m <sup>3</sup> /s) | 0.1270 |
| Mean Velocity (m/s) | 0.381 |       |                               |        |

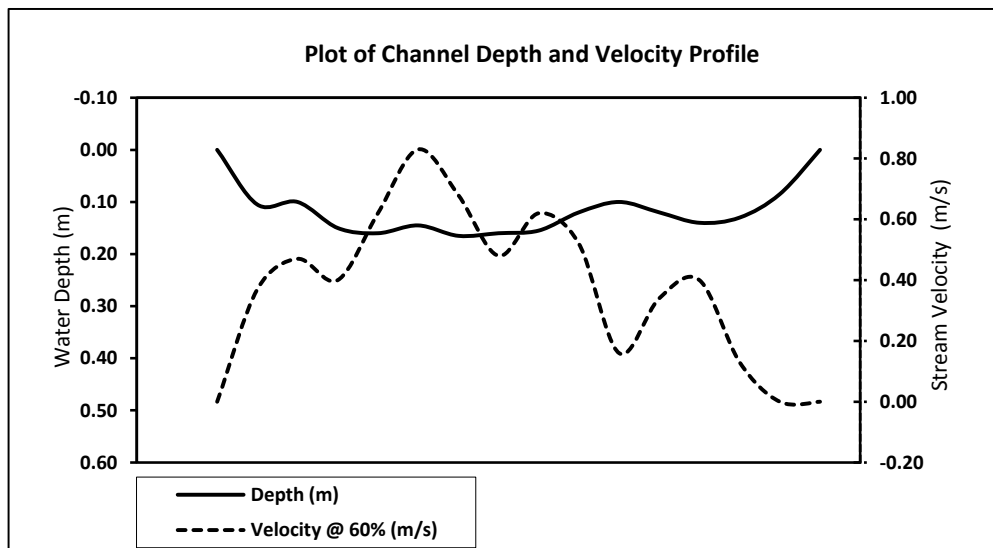


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Eagle Creek         |                                                                                                                                |      |
| Station Name:         | R4                  |                                                                                                                                |      |
| Date and Time:        | Sept.22/2016, 16:08 |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0515985 7145352 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 2.54 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.35 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 2.19 |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.35         | 0.075             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 0.50         | 0.150             | 0.11      | 0.37                 | 0.016                        | 0.0058                              |
| 2           | 0.65         | 0.150             | 0.10      | 0.47                 | 0.015                        | 0.0071                              |
| 3           | 0.80         | 0.150             | 0.15      | 0.40                 | 0.023                        | 0.0090                              |
| 4           | 0.95         | 0.150             | 0.16      | 0.62                 | 0.024                        | 0.0149                              |
| 5           | 1.10         | 0.150             | 0.15      | 0.83                 | 0.022                        | 0.0181                              |
| 6           | 1.25         | 0.150             | 0.17      | 0.68                 | 0.025                        | 0.0168                              |
| 7           | 1.40         | 0.150             | 0.16      | 0.48                 | 0.024                        | 0.0115                              |
| 8           | 1.55         | 0.150             | 0.16      | 0.62                 | 0.023                        | 0.0144                              |
| 9           | 1.70         | 0.150             | 0.12      | 0.52                 | 0.018                        | 0.0094                              |
| 10          | 1.85         | 0.150             | 0.10      | 0.16                 | 0.015                        | 0.0024                              |
| 11          | 2.00         | 0.150             | 0.12      | 0.34                 | 0.018                        | 0.0061                              |
| 12          | 2.15         | 0.150             | 0.14      | 0.40                 | 0.021                        | 0.0084                              |
| 13          | 2.30         | 0.135             | 0.13      | 0.13                 | 0.018                        | 0.0023                              |
| 14          | 2.42         | 0.120             | 0.09      | 0.00                 | 0.010                        | 0.0000                              |
| 15          | 2.54         | 0.060             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 2.54         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |                               |        |
|---------------------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.11  | Discharge (m <sup>3</sup> /s) | 0.1261 |
| Mean Velocity (m/s) | 0.376 |                               |        |







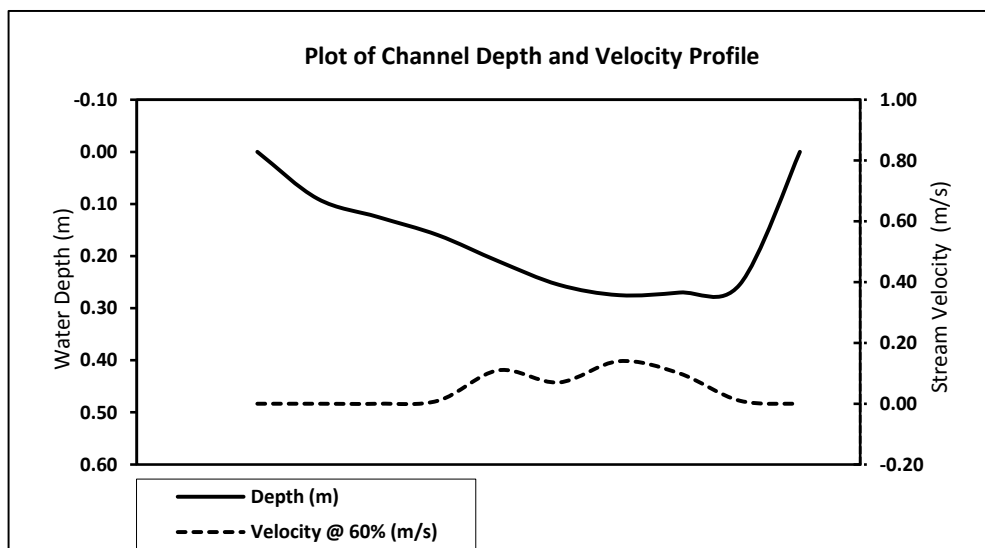
Ecological Logistics  
& Research Ltd.

|                              |                     |                                                                                     |      |
|------------------------------|---------------------|-------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.5            |  |      |
| <b>Site / Location:</b>      | Clinton Creek Site  |                                                                                     |      |
| <b>Stream Name:</b>          | Porcupine Creek     |                                                                                     |      |
| <b>Station Name:</b>         | R7                  |                                                                                     |      |
| <b>Date and Time:</b>        | Sept.21/2016, 9:34  |                                                                                     |      |
| <b>Staff:</b>                | GR,NB               |                                                                                     |      |
| <b>UTM Coordinates:</b>      | 07w 0513003 7145649 |                                                                                     |      |
| <b>Technique:</b>            | Swoffer             | <b>Left Bank</b>                                                                    | 1.84 |
| <b>Temp., Water/Air (°C)</b> | N/A                 | <b>Right Bank</b>                                                                   | 1.1  |
| <b>Crossing Number</b>       | 1                   | <b>Wet.Width</b>                                                                    | 0.74 |

[illegible]

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.16  |
| Mean Velocity (m/s) | 0.044 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0089 |
|-------------------------------|--------|





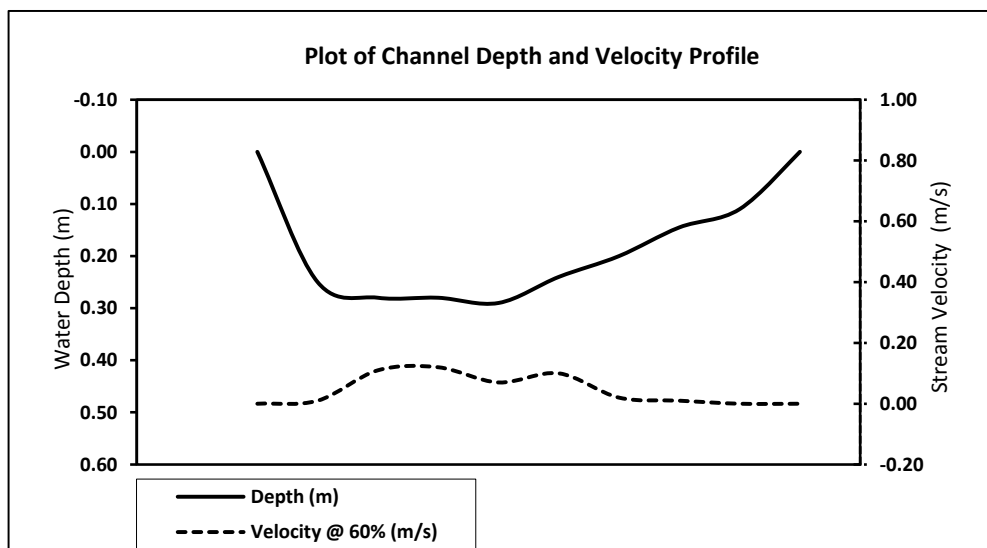
Ecological Logistics  
& Research Ltd.

|                              |                     |                                                                                     |      |
|------------------------------|---------------------|-------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.5            |  |      |
| <b>Site / Location:</b>      | Clinton Creek Site  |                                                                                     |      |
| <b>Stream Name:</b>          | Porcupine Creek     |                                                                                     |      |
| <b>Station Name:</b>         | R7                  |                                                                                     |      |
| <b>Date and Time:</b>        | Sept.21/2016, 9:34  |                                                                                     |      |
| <b>Staff:</b>                | GR,NB               |                                                                                     |      |
| <b>UTM Coordinates:</b>      | 07w 0513003 7145649 |                                                                                     |      |
| <b>Technique:</b>            | Swoffer             |                                                                                     |      |
| <b>Temp., Water/Air (°C)</b> | N/A                 | <b>Left Bank</b>                                                                    | 1.84 |
| <b>Crossing Number</b>       | 2                   | <b>Right Bank</b>                                                                   | 1.1  |
|                              |                     | <b>Wet.Width</b>                                                                    | 0.74 |

[illegible]

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.18  |
| Mean Velocity (m/s) | 0.044 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0093 |
|-------------------------------|--------|

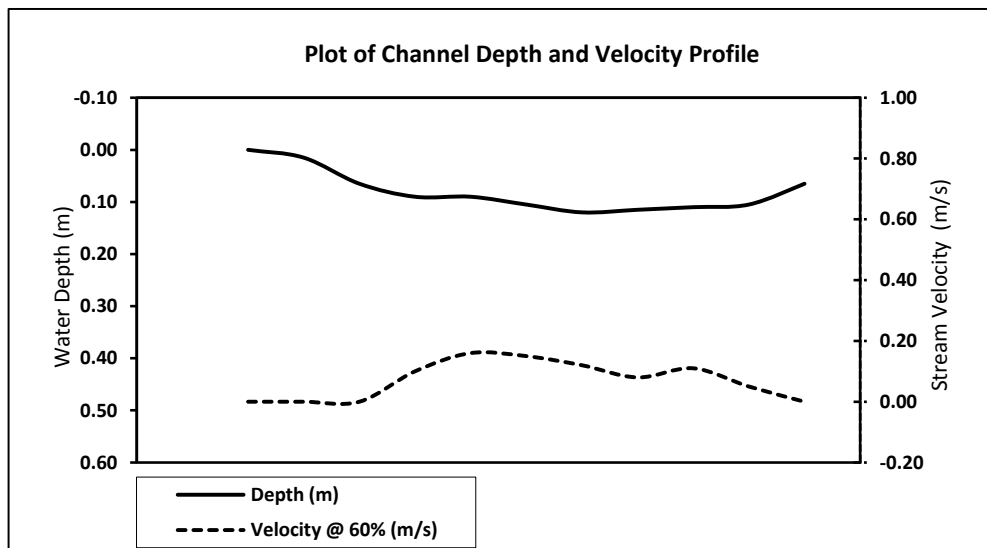




|                              |                     |                                                                                     |      |
|------------------------------|---------------------|-------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.5            |  |      |
| <b>Site / Location:</b>      | Clinton Creek Site  |                                                                                     |      |
| <b>Stream Name:</b>          | Unnamed Creek       |                                                                                     |      |
| <b>Station Name:</b>         | R8                  |                                                                                     |      |
| <b>Date and Time:</b>        | Sept.23/2016, 17:06 |                                                                                     |      |
| <b>Staff:</b>                | GR,NB               |                                                                                     |      |
| <b>UTM Coordinates:</b>      | 07w 0511894 7147906 |                                                                                     |      |
| <b>Technique:</b>            | Swoffer             | <b>Left Bank</b>                                                                    | 1.85 |
| <b>Temp., Water/Air (°C)</b> | N/A                 | <b>Right Bank</b>                                                                   | 0.9  |
| <b>Crossing Number</b>       | 1                   | <b>Wet.Width</b>                                                                    | 0.95 |

[illegible]

|                     |       |       |                               |        |
|---------------------|-------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.08  | 0.058 | Discharge (m <sup>3</sup> /s) | 0.0073 |
| Mean Velocity (m/s) | 0.070 |       |                               |        |



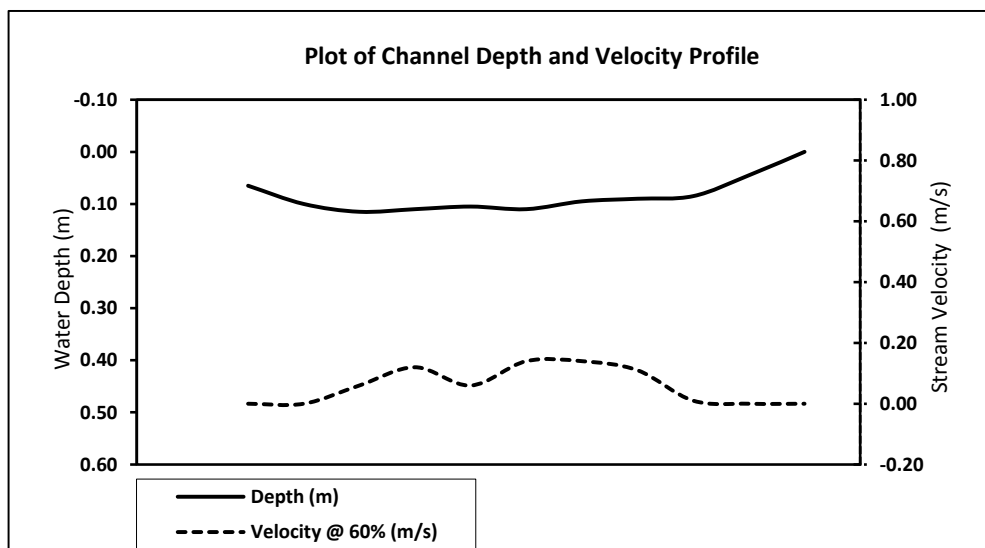


|                              |                     |                                                                                     |      |
|------------------------------|---------------------|-------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.5            |  |      |
| <b>Site / Location:</b>      | Clinton Creek Site  |                                                                                     |      |
| <b>Stream Name:</b>          | Unnamed Creek       |                                                                                     |      |
| <b>Station Name:</b>         | R8                  |                                                                                     |      |
| <b>Date and Time:</b>        | Sept.23/2016, 17:06 |                                                                                     |      |
| <b>Staff:</b>                | GR,NB               |                                                                                     |      |
| <b>UTM Coordinates:</b>      | 07w 0511894 7147906 |                                                                                     |      |
| <b>Technique:</b>            | Swoffer             | <b>Left Bank</b>                                                                    | 1.85 |
| <b>Temp., Water/Air (°C)</b> | N/A                 | <b>Right Bank</b>                                                                   | 0.9  |
| <b>Crossing Number</b>       | 2                   | <b>Wet.Width</b>                                                                    | 0.95 |

[illegible]

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.08  |
| Mean Velocity (m/s) | 0.058 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0059 |
|-------------------------------|--------|





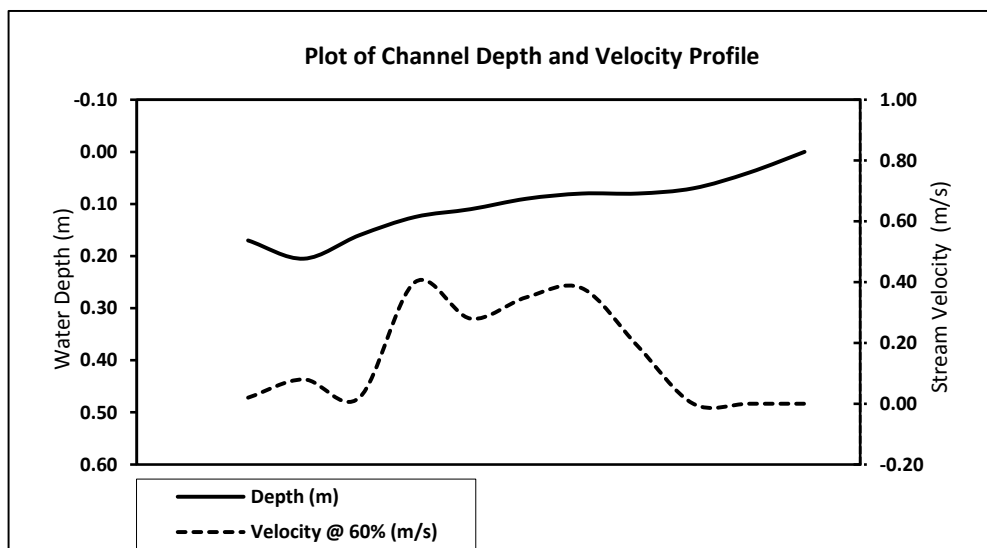
Ecological Logistics  
& Research Ltd.

|                              |                      |                                                                                     |      |
|------------------------------|----------------------|-------------------------------------------------------------------------------------|------|
| <b>ELR Project No.</b>       | 16-240.5             |  |      |
| <b>Site / Location:</b>      | Clinton Creek Site   |                                                                                     |      |
| <b>Stream Name:</b>          | Unnamed Creek        |                                                                                     |      |
| <b>Station Name:</b>         | R9                   |                                                                                     |      |
| <b>Date and Time:</b>        | Sept.23/2016. 18:07  |                                                                                     |      |
| <b>Staff:</b>                | GR,NB                |                                                                                     |      |
| <b>UTM Coordinates:</b>      | 07w 05123441 7146751 |                                                                                     |      |
| <b>Technique:</b>            | Swoffer              | <b>Left Bank</b>                                                                    | 1.23 |
| <b>Temp., Water/Air (°C)</b> | N/A                  | <b>Right Bank</b>                                                                   | 0.34 |
| <b>Crossing Number</b>       | 1                    | <b>Wet.Width</b>                                                                    | 0.89 |

[illegible]

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.10  |
| Mean Velocity (m/s) | 0.156 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0161 |
|-------------------------------|--------|





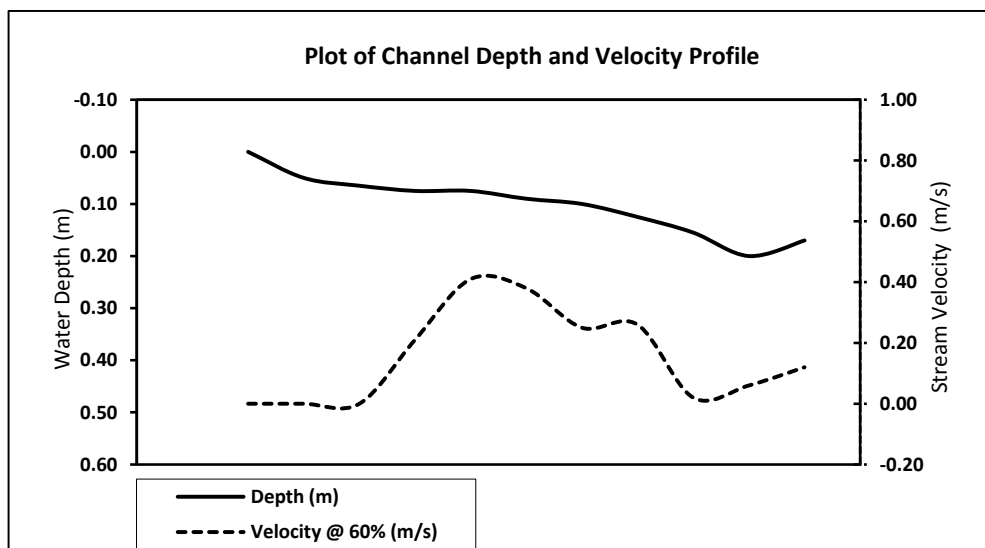
Ecological Logistics  
& Research Ltd.

|                       |                      |                                                                                     |      |
|-----------------------|----------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5             |  |      |
| Site / Location:      | Clinton Creek Site   |                                                                                     |      |
| Stream Name:          | Unnamed Creek        |                                                                                     |      |
| Station Name:         | R9                   |                                                                                     |      |
| Date and Time:        | Sept.23/2016. 18:07  |                                                                                     |      |
| Staff:                | GR,NB                |                                                                                     |      |
| UTM Coordinates:      | 07w 05123441 7146751 |                                                                                     |      |
| Technique:            | Swoffer              | Left Bank                                                                           | 1.23 |
| Temp., Water/Air (°C) | N/A                  | Right Bank                                                                          | 0.34 |
| Crossing Number       | 2                    | Wet.Width                                                                           | 0.89 |

[illegible]

|                     |       |
|---------------------|-------|
| Mean Depth (m)      | 0.10  |
| Mean Velocity (m/s) | 0.155 |

|                               |        |
|-------------------------------|--------|
| Discharge (m <sup>3</sup> /s) | 0.0146 |
|-------------------------------|--------|

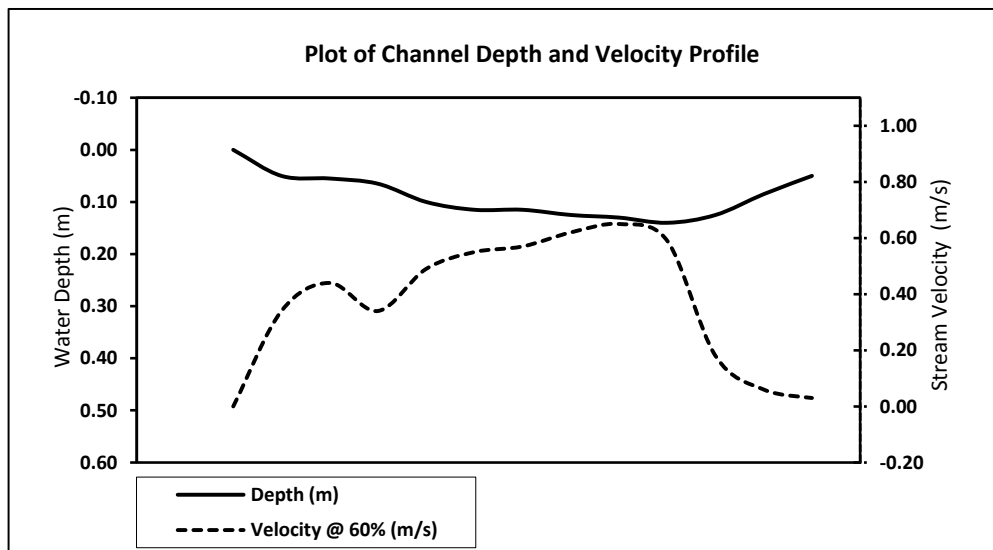


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                     |      |
|-----------------------|---------------------|-------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            |  |      |
| Site / Location:      | Clinton Creek Site  |                                                                                     |      |
| Stream Name:          | Unnamed Creek       |                                                                                     |      |
| Station Name:         | R11(H)              |                                                                                     |      |
| Date and Time:        | Sept.20/2016, 13:20 |                                                                                     |      |
| Staff:                | GR,NB               |                                                                                     |      |
| UTM Coordinates:      | 07w 0514161 7147784 |                                                                                     |      |
| Technique:            | Swoffer             | Left Bank                                                                           | 1.97 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                          | 0.57 |
| Crossing Number       | 1                   | Wet.Width                                                                           | 1.4  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 1.97         | 0.185             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| 1           | 1.60         | 0.210             | 0.05      | 0.34                 | 0.011                        | 0.0036                              |
| 2           | 1.55         | 0.050             | 0.06      | 0.44                 | 0.003                        | 0.0012                              |
| 3           | 1.50         | 0.075             | 0.07      | 0.34                 | 0.005                        | 0.0017                              |
| 4           | 1.40         | 0.100             | 0.10      | 0.49                 | 0.010                        | 0.0049                              |
| 5           | 1.30         | 0.100             | 0.12      | 0.55                 | 0.012                        | 0.0066                              |
| 6           | 1.20         | 0.100             | 0.12      | 0.57                 | 0.012                        | 0.0068                              |
| 7           | 1.10         | 0.100             | 0.13      | 0.62                 | 0.013                        | 0.0078                              |
| 8           | 1.00         | 0.100             | 0.13      | 0.65                 | 0.013                        | 0.0085                              |
| 9           | 0.90         | 0.100             | 0.14      | 0.59                 | 0.014                        | 0.0083                              |
| 10          | 0.80         | 0.100             | 0.13      | 0.18                 | 0.013                        | 0.0023                              |
| 11          | 0.70         | 0.115             | 0.09      | 0.06                 | 0.010                        | 0.0006                              |
| 12          | 0.57         | 0.065             | 0.05      | 0.03                 | 0.003                        | 0.0001                              |
| end         | 0.57         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |                               |        |
|---------------------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.09  | Discharge (m <sup>3</sup> /s) | 0.0516 |
| Mean Velocity (m/s) | 0.374 |                               |        |

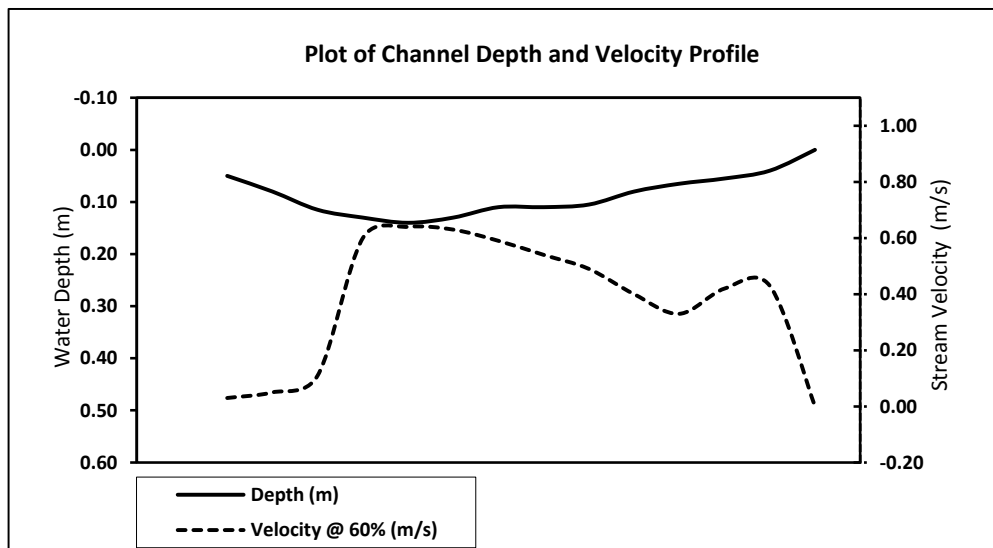


## Stream Flow & Discharge Calculation

|                       |                     |                                                                                                                                |      |
|-----------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------|
| ELR Project No.       | 16-240.5            | <br>Ecological Logistics<br>& Research Ltd. |      |
| Site / Location:      | Clinton Creek Site  |                                                                                                                                |      |
| Stream Name:          | Unnamed Creek       |                                                                                                                                |      |
| Station Name:         | R11(H)              |                                                                                                                                |      |
| Date and Time:        | Sept.20/2016, 13:20 |                                                                                                                                |      |
| Staff:                | GR,NB               |                                                                                                                                |      |
| UTM Coordinates:      | 07w 0514161 7147784 |                                                                                                                                |      |
| Technique:            | Swoffer             | Left Bank                                                                                                                      | 1.97 |
| Temp., Water/Air (°C) | N/A                 | Right Bank                                                                                                                     | 0.57 |
| Crossing Number       | 2                   | Wet.Width                                                                                                                      | 1.4  |

| Station No. | Distance (m) | Station Width (m) | Depth (m) | Velocity @ 60% (m/s) | Panel Area (m <sup>2</sup> ) | Panel Discharge (m <sup>3</sup> /s) |
|-------------|--------------|-------------------|-----------|----------------------|------------------------------|-------------------------------------|
| 0           | 0.57         | 0.050             | 0.05      | 0.03                 | 0.003                        | 0.0001                              |
| 1           | 0.67         | 0.100             | 0.08      | 0.05                 | 0.008                        | 0.0004                              |
| 2           | 0.77         | 0.100             | 0.12      | 0.11                 | 0.012                        | 0.0013                              |
| 3           | 0.87         | 0.100             | 0.13      | 0.60                 | 0.013                        | 0.0078                              |
| 4           | 0.97         | 0.100             | 0.14      | 0.64                 | 0.014                        | 0.0090                              |
| 5           | 1.07         | 0.100             | 0.13      | 0.63                 | 0.013                        | 0.0082                              |
| 6           | 1.17         | 0.100             | 0.11      | 0.59                 | 0.011                        | 0.0065                              |
| 7           | 1.27         | 0.100             | 0.11      | 0.54                 | 0.011                        | 0.0059                              |
| 8           | 1.37         | 0.100             | 0.11      | 0.49                 | 0.011                        | 0.0051                              |
| 9           | 1.47         | 0.075             | 0.08      | 0.40                 | 0.006                        | 0.0024                              |
| 10          | 1.52         | 0.050             | 0.07      | 0.33                 | 0.003                        | 0.0011                              |
| 11          | 1.57         | 0.040             | 0.06      | 0.42                 | 0.002                        | 0.0009                              |
| 12          | 1.60         | 0.200             | 0.04      | 0.43                 | 0.008                        | 0.0034                              |
| 13          | 1.97         | 0.185             | 0.00      | 0.00                 | 0.000                        | 0.0000                              |
| end         | 1.97         |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |
|             |              |                   |           |                      |                              |                                     |

|                     |       |                               |        |
|---------------------|-------|-------------------------------|--------|
| Mean Depth (m)      | 0.09  | Discharge (m <sup>3</sup> /s) | 0.0521 |
| Mean Velocity (m/s) | 0.376 |                               |        |





## **APPENDIX 6**

### **Survey Data**

# Appendix 6: Survey Data - HL BM Calcs

## Hudgeon Lake Instruments

|                                | Jul-15 |        |       | Jun-16 |        |       | Jul-16 |        |       | Aug-16 |        |       | Sep-16 |        |       |
|--------------------------------|--------|--------|-------|--------|--------|-------|--------|--------|-------|--------|--------|-------|--------|--------|-------|
|                                | m      |        |       | m      |        |       | m      |        |       | m      |        |       | m      |        |       |
|                                | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  |
| <b>BM 1</b>                    | 3.222  | 3.221  | 3.222 | 2.765  | 2.763  | 2.764 | 3.147  | 3.148  | 3.148 | 3.193  | 3.194  | 3.194 | 3.010  | 3.011  | 3.011 |
| <b>BM 2</b>                    | 2.659  | 2.658  | 2.659 | 2.119  | 2.119  | 2.119 | 2.502  | 2.502  | 2.502 | 2.550  | 2.549  | 2.550 | 2.366  | 2.369  | 2.368 |
| <b>BM3</b>                     |        |        |       |        |        |       | 2.058  | 2.058  | 2.058 | 2.104  | 2.103  | 2.104 | 1.921  | 1.921  | 1.921 |
| <b>Top of Staff Gauge (SG)</b> | 4.130  | 4.129  | 4.130 | 3.478  | 3.479  | 3.479 | 3.864  | 3.864  | 3.864 | 3.910  | 3.910  | 3.910 | 3.726  | 3.726  | 3.726 |
| <b>Station Casing (SC)</b>     | 3.616  | 3.616  | 3.616 | 3.188  | 3.188  | 3.188 | 3.569  | 3.569  | 3.569 | 3.616  | 3.616  | 3.616 | 3.433  | 3.433  | 3.433 |
| <b>BM1-BM2 difference</b>      |        |        | 0.563 |        |        | 0.645 |        |        | 0.646 |        |        | 0.644 |        |        | 0.643 |
| <b>BM1-BM3 difference</b>      |        |        | -     |        |        | -     |        |        | 1.090 |        |        | 1.090 |        |        | 1.090 |
| <b>BM2-BM3 difference</b>      |        |        | -     |        |        | -     |        |        | 0.444 |        |        | 0.446 |        |        | 0.447 |
| <b>SG-BM1 difference</b>       |        |        | 0.908 |        |        | 0.715 |        |        | 0.717 |        |        | 0.717 |        |        | 0.716 |
| <b>SG-BM2 difference</b>       |        |        | 1.471 |        |        | 1.360 |        |        | 1.362 |        |        | 1.361 |        |        | 1.359 |
| <b>SG-BM3 difference</b>       |        |        | -     |        |        | -     |        |        | 1.806 |        |        | 1.807 |        |        | 1.805 |
| <b>SC-BM1 difference</b>       |        |        | 0.395 |        |        | 0.424 |        |        | 0.422 |        |        | 0.423 |        |        | 0.423 |
| <b>SC-BM2 difference</b>       |        |        | 0.958 |        |        | 1.069 |        |        | 1.067 |        |        | 1.067 |        |        | 1.066 |
| <b>SC-BM3 difference</b>       |        |        | -     |        |        | -     |        |        | 1.511 |        |        | 1.513 |        |        | 1.512 |

# Appendix 6 Survey data - WC BM Calcs check

## Wolverine Creek Instruments

|                         | Jul-15 |        |       | Jun-16 |        |       | Jul-16 |        |       | Aug-16 |        |       | Sep-16 |        |       |
|-------------------------|--------|--------|-------|--------|--------|-------|--------|--------|-------|--------|--------|-------|--------|--------|-------|
|                         | m      |        |       | m      |        |       | m      |        |       | m      |        |       | m      |        |       |
|                         | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean  |
| BM1                     | 0.947  | 0.948  | 0.948 | 0.951  | 0.952  | 0.952 | 0.944  | 0.946  | 0.945 | 1.052  | 1.053  | 1.053 | 1.037  | 1.036  | 1.037 |
| BM2                     | 0.332  | 0.331  | 0.332 | 0.340  | 0.341  | 0.341 | 0.334  | 0.335  | 0.335 | 0.441  | 0.440  | 0.441 | 0.425  | 0.423  | 0.424 |
| BM3                     | -      | -      | -     | -      | -      | -     | -      | -      | -     | -      | -      | -     | 0.648  | 0.649  | 0.649 |
| Top of Staff Gauge (SG) | 1.248  | 1.249  | 1.249 | 1.234  | 1.233  | 1.234 | 1.230  | 1.231  | 1.231 | 1.339  | 1.339  | 1.339 | 1.320  | 1.320  | 1.320 |
| Station casing (SC)     | 0.337  | 0.337  | 0.337 | 0.357  | 0.357  | 0.357 | 0.348  | 0.349  | 0.349 | 0.458  | 0.458  | 0.458 | 0.440  | 0.441  | 0.441 |
| BM1-BM2 Difference      |        |        | 0.616 |        |        | 0.611 |        |        | 0.611 |        |        | 0.612 |        |        | 0.613 |
| BM1-BM3 difference      |        |        | -     |        |        | -     |        |        | -     |        |        | -     |        |        | 0.388 |
| BM2-BM3 difference      |        |        | -     |        |        | -     |        |        | -     |        |        | -     |        |        | 0.225 |
| SG-BM1 difference       |        |        | 0.301 |        |        | 0.282 |        |        | 0.286 |        |        | 0.287 |        |        | 0.284 |
| SG-BM2 difference       |        |        | 0.917 |        |        | 0.893 |        |        | 0.896 |        |        | 0.899 |        |        | 0.896 |
| SG-BM3 difference       |        |        | -     |        |        | -     |        |        | -     |        |        | -     |        |        | 0.672 |
| SC-BM1 difference       |        |        | 0.611 |        |        | 0.595 |        |        | 0.597 |        |        | 0.595 |        |        | 0.596 |
| SC-BM2 difference       |        |        | 0.006 |        |        | 0.017 |        |        | 0.014 |        |        | 0.018 |        |        | 0.017 |
| SC-BM3 difference       |        |        | -     |        |        | -     |        |        | -     |        |        | -     |        |        | -     |

# Appendix 6: Survey data - SL BM Calcs Check

## Snowshoe Pit Lake Instruments

|                                    | Jul-15 |        |       | Jun-16 |        |        | Jul-16 |        |        | Aug-16 |        |                | Sep-16 |        |                |
|------------------------------------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|
|                                    | m      |        |       | m      |        |        | m      |        |        | m      |        |                | m      |        |                |
|                                    | Pass 1 | Pass 2 | Mean  | Pass 1 | Pass 2 | Mean   | Pass 1 | Pass 2 | Mean   | Pass 1 | Pass 2 | Mean           | Pass 1 | Pass 2 | Mean           |
| <b>BM 1</b>                        | 1.372  | 1.372  | 1.372 | 1.272  | 1.272  | 1.272  | 0.574  | 0.574  | 0.574  | 1.901  | 1.902  | 1.902          | 1.839  | 1.839  | 1.839          |
| <b>BM 2</b>                        | 1.282  | 1.282  | 1.282 | 1.182  | 1.182  | 1.182  | 0.484  | 0.484  | 0.484  | 1.812  | 1.812  | 1.812          | 1.748  | 1.749  | 1.749          |
| <b>Top of Staff Gauge (SG)</b>     | 1.369  | 1.368  | 1.369 | 1.267  | 1.269  | 1.268  | 0.568  | 0.569  | 0.569  |        |        | Not collected* |        |        | Not collected* |
| <b>Water Surface</b>               | -      | -      | 0.625 | 3.070  | 3.070  | 3.070  | 1.962  | 1.963  | 1.963  |        |        | -              | 1.841  | 1.841  | 1.841          |
| <b>BM1-BM2 Difference</b>          |        |        | 0.090 |        |        | 0.090  |        |        | 0.090  |        |        | 0.089          |        |        | 0.091          |
| <b>SG-BM1 difference</b>           |        |        | 0.004 |        |        | 0.004  |        |        | 0.005  |        |        | Not collected* |        |        | Not collected* |
| <b>SG-BM2 difference</b>           |        |        | 0.087 |        |        | 0.086  |        |        | 0.085  |        |        | Not collected* |        |        | Not collected* |
| <b>SG-Water Surface Difference</b> |        |        | 0.744 |        |        | -1.802 |        |        | -1.394 |        |        | 0.200          |        |        | 0.010          |

### Notes:

\* Data not collected because water level was too high to access the gauge.

## **APPENDIX 7**

### **Response to Client Comments on Draft Report**

**Response to Comments from Draft Report Version (as Received from AAM on January 6, 2017)**

| Comment No. | Page | Comment                                                                                                                                                                                                                                                                                                                  | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1           | 2    | The waste rock slope failures have dammed Clinton Creek, forming Hudgeon Lake (i.e., not the tailings).                                                                                                                                                                                                                  | The text has been updated to state waste rock (i.e., slumping waste rock formed Hudgeon Lake, not the tailings).                                                                                                                                                                                                                                                                                                                                                                    |
| 2           | 4    | 10 months?                                                                                                                                                                                                                                                                                                               | The contract was originally for 11 months (May to March but could not be initiated soon enough to complete the May event. Have changed this to 10 months for clarity.                                                                                                                                                                                                                                                                                                               |
| 3           | 6    | Insert table note 3?                                                                                                                                                                                                                                                                                                     | Table note reference “3” inserted into Table 2 at R11(H).                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 4           | 10   | Good summary of methods, however, I noticed that there were no mention of methods for the profiling of Hudgeon Lake.                                                                                                                                                                                                     | A method summary for in-situ lake parameter measurements has been added under Section 2.3.                                                                                                                                                                                                                                                                                                                                                                                          |
| 5           | 11   | (see Table 2).                                                                                                                                                                                                                                                                                                           | Additional note at the bottom of Table 3 accepted.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 6           | 11   | Ice or ice packs?                                                                                                                                                                                                                                                                                                        | Ice was purchased in Dawson and ice packs were also used for transporting and shipping samples. The text has been updated.                                                                                                                                                                                                                                                                                                                                                          |
| 7           | 12   | these?                                                                                                                                                                                                                                                                                                                   | Word changed from “there” to “these”                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 8           | 12   | I think it might be worth mentioning the purpose of these QA/QC samples (i.e., replicate to check accuracy/precision of lab analysis, field blank to determine any contamination introduced during field sampling, travel blank to determine any contamination caused during transportation/storage).                    | A short explanation of the purpose of duplicates, field blanks travel blanks has been added to the text.                                                                                                                                                                                                                                                                                                                                                                            |
| 9           | 14   | Sentence needs to be completed.                                                                                                                                                                                                                                                                                          | The sentence about where to find flow measurements and discharge calculations has been completed.                                                                                                                                                                                                                                                                                                                                                                                   |
| 10          | 18   | i.e., decrease from those observed in July/August?                                                                                                                                                                                                                                                                       | Sentence clarified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 11          | 19   | Do the italicized values differ from the last two rows of the table?                                                                                                                                                                                                                                                     | No values should be italicized. Table formatting updated.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 12          | 30   | Throughout this section, Table 5.1 is referenced, but I think it should be 9.1.                                                                                                                                                                                                                                          | Yes, Table number should be 9.1.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 13          | 30   | I appreciate the comparison of exceedances between reference and exposed stations, but unsure of the point that this paragraph is alluding to. More metals present upstream of HL? More metals present in reference sample? I think this just needs an additional sentence or two to clarify the point of the paragraph. | Following a discussion with Emilie Hamm of AAM it was decided that the analytical/interpretive comments originally included in the water quality results section were outside the scope of work of ELR/Hemmera and have been deleted. However, the results section and the Figures in the report do provide sufficient information for a report reader to complete a reasonable interpretation regarding downstream water quality and any likely upstream water quality influences. |

| Comment No. | Page | Comment                                                                                                                                                                                                                                                                                        | Response                                                                                                                                                                                                                                                                     |
|-------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14          | 31   | Similar to the above comment, I appreciate the summary, but an intro summary sentence of what was explained above would be helpful to the reader and put the data into context.<br>i.e. – The analytical results for station E1(H) show X exceedances of CCME for dissolved and X for total... | As above.                                                                                                                                                                                                                                                                    |
| 15          | 32   | Same comment as above. [purpose of comparison]                                                                                                                                                                                                                                                 | As above                                                                                                                                                                                                                                                                     |
| 16          | 33   | Same comments as above (summary of E3 exceedances and clearer point to paragraph).                                                                                                                                                                                                             | As above                                                                                                                                                                                                                                                                     |
| 17          | 34   | i.e., exceedances of CCME are not necessarily mine-related?                                                                                                                                                                                                                                    | As above                                                                                                                                                                                                                                                                     |
| 18          | 35   | Same comment as above.                                                                                                                                                                                                                                                                         | As above                                                                                                                                                                                                                                                                     |
| 19          | 36   | Same comments as above (summary of E8 exceedances and clearer point to paragraph).                                                                                                                                                                                                             | As above                                                                                                                                                                                                                                                                     |
| 20          | 41   | If possible, in Appendix 4 please put title on PDF of June Results (i.e., In-situ Monitoring Data – June)                                                                                                                                                                                      | A title has been added as requested.                                                                                                                                                                                                                                         |
| 21          | 55   | Is this the max daily rainfall?                                                                                                                                                                                                                                                                | Sentence about calculated rainfall for August 8 was removed as it was not relevant to the data set.                                                                                                                                                                          |
| 22          | 57   | The title at the top of Figure 11 indicates the temporal range of data in that figure is November 2015 to January 2016 (although the data period at the bottom of the page appears correct).                                                                                                   | Figure 11 has been updated with the correct dates.                                                                                                                                                                                                                           |
| 23          | 58   | I noticed that the total % column on the right added up to 100.1 and did some math checking.                                                                                                                                                                                                   | The additional 0.1 was caused by rounding the numbers to 1 decimal place. One value has (for WNW) has been rounded down from 32.1 to 32.0 as this represents the smallest change that could be made to the originally presented value. All the other values remain the same. |
| 24          | 61   | Was this data point removed from the dataset for mean calculations?<br>(Note: I went back to the section and it is specified that the anomalous datum was removed. May be worth mentioning in the QA/QC section here as well.)                                                                 | A sentence was added to confirm that the anomalous data point was removed before the mean pressure was calculated.                                                                                                                                                           |
| 25          |      | If it's not a huge pain, are you able to rearrange the order of these pages so that the general chemistry and dissolved metals results immediately precede the total metals results for the same station? (i.e., for station R1, general chem and dissolved metals are on                      |                                                                                                                                                                                                                                                                              |

| Comment No. | Page | Comment                                                                                                                                                                                 | Response |
|-------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|             |      | <p>page 1, while the dissolved metals for R1 are presented on page 5 of the table).</p> <p>Otherwise, data for each sampling event was presented well in Table 9.1 (lots of data!).</p> |          |