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# 2014 Groundwater Quality Monitoring Beverly Channel Monitoring Wells

307076-06086-200 – WR-REP-2014 Groundwater Quality Monitoring

18 September 2014

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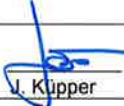
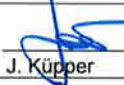

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**NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION**  
**2014 GROUNDWATER QUALITY MONITORING**  
**BEVERLY CHANNEL MONITORING WELLS**

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0	Issued as Final	 S. Gray	 J. Küpper	 J. Küpper	18-Sep-2014	 L. Danielson	08-Sep-2014





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## 1. INTRODUCTION

### 1.1 General

The Northeast Capital Industrial Association (NCIA) Beverly Channel Study Area is located within Sturgeon and Strathcona Counties and is comprised of Townships 54, 55, and 56, Ranges 21 and 22, W4M (Figure 1). Groundwater quality monitoring within the Study Area has been conducted since 2005 (Stantec Consulting Ltd. 2006a, 2006b, 2007, 2008, and 2009; and WorleyParsons 2010, 2011 2012, and 2013). The objective of the groundwater monitoring program is to monitor groundwater quality in the Beverly Channel in order to compile baseline groundwater data for use in the development of a long-term monitoring strategy and response plan. The monitoring well network in the Study Area consists of 13 wells completed in the Beverly Channel within the NCIA study area.

### 1.2 Previous Work

Previous work conducted within the Study Area was described by Stantec Consulting Ltd. (Stantec 2006a, 2006b, 2007, 2008, and 2009; and WorleyParsons 2010, 2011, 2012, and 2013) and is summarized as follows:

- Depth to the groundwater surface has historically ranged from approximately 15 to 35 m below ground surface (bgs). Annual groundwater level fluctuation has generally been 1 m or less.
- The lateral groundwater flow gradient within the Beverly Channel has historically ranged spatially from 0.0005 to 0.005 m/m. Groundwater flow velocity has been estimated to vary from 16 to 160 m/year for different areas of the Beverly Channel.
- Historically, total dissolved solids (TDS), iron and manganese have exceeded the applied guidelines at several locations within the Study Area.
- Sodium concentrations have historically exceeded the applied guideline at MW-07 and MW-09.
- Chloride concentrations at MW-04 are higher than at other locations in the Beverly Channel. These chloride concentrations, nevertheless, are considered to be natural, reflecting the water quality in the underlying bedrock, and are well below the applied guideline.

### 1.3 Scope of Work

The main objective of the 2014 program was to conduct annual groundwater quality monitoring of the monitoring network. One sampling event was conducted in the summer which included the following tasks:

- Field measurement of depth to groundwater at all monitoring wells;
- Field measurement of electrical conductivity (EC), pH, and temperature for groundwater;
- Sampling of groundwater and submission for laboratory analysis; and,
- Preparing a report summarizing the program methodology and results, and providing an analysis of the groundwater data.



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## 2. PHYSICAL SETTING

### 2.1 Topography and Drainage

The Study Area encompasses residential, agricultural and industrial areas. While local topography varies at each well location, the ground generally slopes toward the North Saskatchewan River, which crosses the Study Area from southwest to northeast. Surface drainage is expected to be generally toward the North Saskatchewan River or Astotin Creek, which ultimately discharges to the North Saskatchewan River (Figure 1).

### 2.2 Regional Geology and Hydrogeology

A detailed description of the geology and hydrogeology of the region is provided in Stantec (2006a). A brief summary is provided below.

Regional bedrock geology comprises Late Cretaceous-aged, non-marine, grey thick-bedded sandstone; grey and green mudstone; grey, clayey siltstone; coal beds; and rare intermittent ironstone beds of the Belly River Formation; or marine, dark grey blocky shale and silty shale; greenish glauconitic and grey clayey sandstone; thin concretionary ironstone and bentonitic beds of the Bearpaw Formation (Stein 1976). The Bearpaw Formation has been eroded over most of the Project Area, but seems to be present in the southwest of the project Area. The Bearpaw Formation is generally considered an aquitard. The Horseshoe Canyon Formation is present outside of the Study Area toward the southwest.

Quaternary deposits consisting of pre-glacial, glacial, lacustrine and aeolian deposited sediments overlie the bedrock. The Beverly Channel is a major pre-glacial valley in the area that consists of buried sand and gravel deposits. The channel is roughly coincident with the present-day North Saskatchewan River Valley. Deposited in fast-flowing braided streams, the sand and gravels of the Beverly Channel form an important regional aquifer in the area.

Clay till is present above the Beverly Channel sand and gravels and clay overlies the clay till. The clay and clay till units provide an effective protective barrier for the Beverly Channel over much of the region. A saturated surficial sand unit may overlie the clay unit in some areas.

Aquifers can be found in the Belly River Formation, the Beverly Channel, sand lenses in the till, and surficial sand and gravel deposits (Stein 1976). Aquifers within the Belly River Formation exhibit TDS ranging from 1,000 to more than 6,000 mg/L (Stein 1976). Areas of high TDS are typically associated with high chloride and/or high sulphate content (Stein 1976).

The Beverly Channel is hydraulically connected to the North Saskatchewan River (Stein 1976). Mineralization in the Beverly Channel generally ranges from less than 500 to 3,000 mg/L TDS. Iron concentration within the Channel can exceed 15 mg/L and iron staining and iron bacteria are common (Stein 1976).



### 2.3 Groundwater Use

A water well search of the Study Area was conducted in 2012. The Alberta Water Well Information Database indicated that there are 1091 water well records within the Study Area (Appendix 1). The majority of the wells were listed for domestic usage. About 90% of the water well records have a depth between 1 m and 74 m, with a median depth of 28.3 m. The existence and location of these water wells has not been field verified.

Groundwater analytical data is available for 258 of the 1091 water well records. Of the 258 records it can be deduced with reasonable confidence that eight of the wells have been completed within the Beverly Channel and six of the wells have been completed in the upper bedrock. Table A summarizes the range and mean concentrations calculated from available water well record chemistry data.

Several water wells were identified as being within the Beverly Channel in Shell Canada Limited's (Shell) Environmental Impact Assessment for the Scotford Upgrader Expansion (Shell 2005). Water well chemistry data were unavailable for most of the water wells.

**Table A: Select Parameter Concentrations from Available Water Well Records**

Parameter	Beverly Channel		Upper Bedrock	
	Range	Mean	Range	Mean
pH	7.3 – 8.5	8.1	7.8 – 8.7	8.0
Chloride (mg/L)	1 – 38	13.5	2 – 901	197
Sulphate (mg/L)	40 – 726	316	5 – 741	193
Iron (mg/L)	0.02 – 4.84	1.24	0.08 – 1.48	0.36
TDS (mg/L)	362 – 1732	975	331 – 2021	1059
Sodium (mg/L)	54 – 417	200	8 – 825	274

Notable differences between the aquifers include chloride, sulphate, and iron concentrations. Within the Beverly Channel chloride concentrations are lower while sulphate and iron are typically higher than in the upper bedrock.



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## 3. FIELD PROGRAM

### 3.1 Monitoring Network

The monitoring well network consists of 13 existing wells, which have been installed at 13 different locations within the Study Area (Figure 2). Borehole logs of the 13 wells have been compiled by Stantec (2006a) and are provided in Appendix 2.

### 3.2 Groundwater Sampling

Groundwater sampling was conducted according to the WorleyParsons groundwater sampling protocols. The following procedures were followed during sampling of all monitoring wells.

- Prior to sampling, the static groundwater level was measured with an electrical tape. The tape was cleaned by rinsing with distilled water after each reading.
- Wells were purged of standing water using a Geosub submersible pump, or by manual methods including a bailer, or a suitable length of Waterra tubing and a foot valve. The temperature, pH, and EC of the water were monitored during purging. The wells were purged until these field measured parameters stabilized.
- After purging and field measurements, groundwater samples were collected. Samples were collected in pre-cleaned bottles and vials provided by ALS Laboratory Group (ALS) in Edmonton, Alberta. Samples for dissolved metals, dissolved ammonia, and dissolved organic carbon (DOC) analyses were field-filtered using a 45 µm inline filter. Preservatives were added to select samples as directed by ALS.
- Groundwater samples were placed in coolers with ice for shipment to ALS.
- Quality assurance/quality control (QA/QC) for the field sampling program consisted of collecting one duplicate sample and one field blank.
- Standard chain-of-custody (COC) protocols were followed.

Measurements of water quality indicator parameters were conducted during the field sampling program. These measurements comprised the following:

- **Temperature and pH:** WTW 3150i pH meter, calibrated daily using pH 4 and pH 7 buffer solutions.
- **Electrical Conductivity:** WTW 3150i conductivity meter with a Tetracon 325 probe calibrated daily with standard KCl solution (1,413 µS/cm at 25°C).

QA/QC procedures utilized in the field program are listed below.

- Thorough rinsing with distilled water of all equipment entering a well (e.g. electrical tape and Geosub pump);

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- A field blank analyzed for major ions/ routine potability, benzene, toluene, ethyl-benzene and xylenes (BTEX), petroleum hydrocarbon fractions (PHC) F1 and F2, dissolved metals, trace elements, and phenols.
- A blind duplicate for analysis of major ions/routine potability, BTEX, PHC F1 and F2, dissolved metals, trace elements, and phenols.
- Storing of samples in ice chests cooled to approximately 4°C.
- Documentation of sample handling, transport, and delivery to the laboratory using appropriate COC procedures and documentation.

Groundwater samples were collected on June 12, 13, and 16, 2014. An additional groundwater sample was collected from monitoring well MW-02 on August 28, 2014 to confirm initial results for chloride. The second sample from MW-02 was submitted for the full suite of analysis. All groundwater samples were analyzed by ALS.

The analytical schedule for each monitoring well is summarized in Table B. Groundwater samples from all monitoring wells were analyzed for the following:

- major ions/routine potability parameters, including EC, pH, total alkalinity, chloride, sulphate, iron, manganese, TDS, calcium, magnesium, potassium, sodium, bicarbonate, carbonate, hydroxide, fluoride, ion balance, dissolved organic carbon (DOC), nitrate-as-nitrogen, nitrite-as-nitrogen, and total ammonia;
- petroleum hydrocarbon parameters (PHCs), including BTEX, PHC F1 and F2;
- dissolved metal and trace element parameters, including aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, titanium, uranium, vanadium, and zinc; and
- volatile organic compounds (VOCs), specifically phenols.

**Table B: 2014 Analytical Schedule**

Station	Major Ions/Routine Potability (see Table 3)	Dissolved Metals & Trace Elements (see Table 4)	Petroleum Hydrocarbons (see Table 5)	VOCs (see Table 6)
MW-01	✓	✓	✓	✓
MW-02	✓	✓	✓	✓
MW-03	✓	✓	✓	✓
MW-04	✓	✓	✓	✓



Station	Major Ions/Routine Potability (see Table 3)	Dissolved Metals & Trace Elements (see Table 4)	Petroleum Hydrocarbons (see Table 5)	VOCs (see Table 6)
MW-05	✓	✓	✓	✓
MW-06	✓	✓	✓	✓
MW-07	✓	✓	✓	✓
MW-08	✓	✓	✓	✓
MW-09	✓	✓	✓	✓
MW-10	✓	✓	✓	✓
MW-11	✓	✓	✓	✓
MW-12	✓	✓	✓	✓
MW-13	✓	✓	✓	✓

### 3.3 Assessment Criteria

Laboratory analytical results were compared to the following guidelines, where applicable:

Health Canada 2012: Guidelines for Canadian Drinking Water Quality (GCDWQ).

### 3.4 Data Analysis

Upon completion of the field program, groundwater field measurements and analytical data were tabulated. Tables include a summary of historical parameters and minimum, maximum, and mean concentrations for each well. Select parameters were then graphed and utilized for statistical and graphical analysis as described below.

#### 3.4.1 Statistical and Graphical Analysis

A Mann-Kendall test is a non-parametric test of a trend in a data set (Helsel and Hirsch 1992). The test evaluates whether parameter concentrations are rising or falling. Mann-Kendall analysis can be performed only on a monotonic time series data set with more than four sampling points. Sen's Method is used to assess the rate of change (increase or decrease) in a trending data set (Gilbert 1987). Mann-Kendall and Sen's Method analysis were applied to pH, chloride, sulphate, iron, manganese, TDS, and sodium data.

Following completion of the statistical calculations, the data were evaluated and trends were considered potentially significant if:

- The data set contained six or more data points;
- The Mann-Kendall probability was greater than 0.95;
- Sen's normalized slope (in % change per year) was 10% or greater (either positive or negative);
- Absolute slope (in mg/L/year) was greater than:
  - 2 mg/L/yr for chloride, TDS, sulphate, and sodium
  - 0.1 mg/L/yr for iron, manganese, and fluoride
  - 0.5 mg/L/yr for DOC; and
- The data is monotonic.

Trends apparent from visual inspection of the graphical control charts, but not indicated statistically, were also noted.

### **3.4.2 High, Low, and Average Charts**

The historical data for key indicator parameters at each monitoring well was summarized through charts that show the historical range (i.e. highest and lowest values), and the average value.



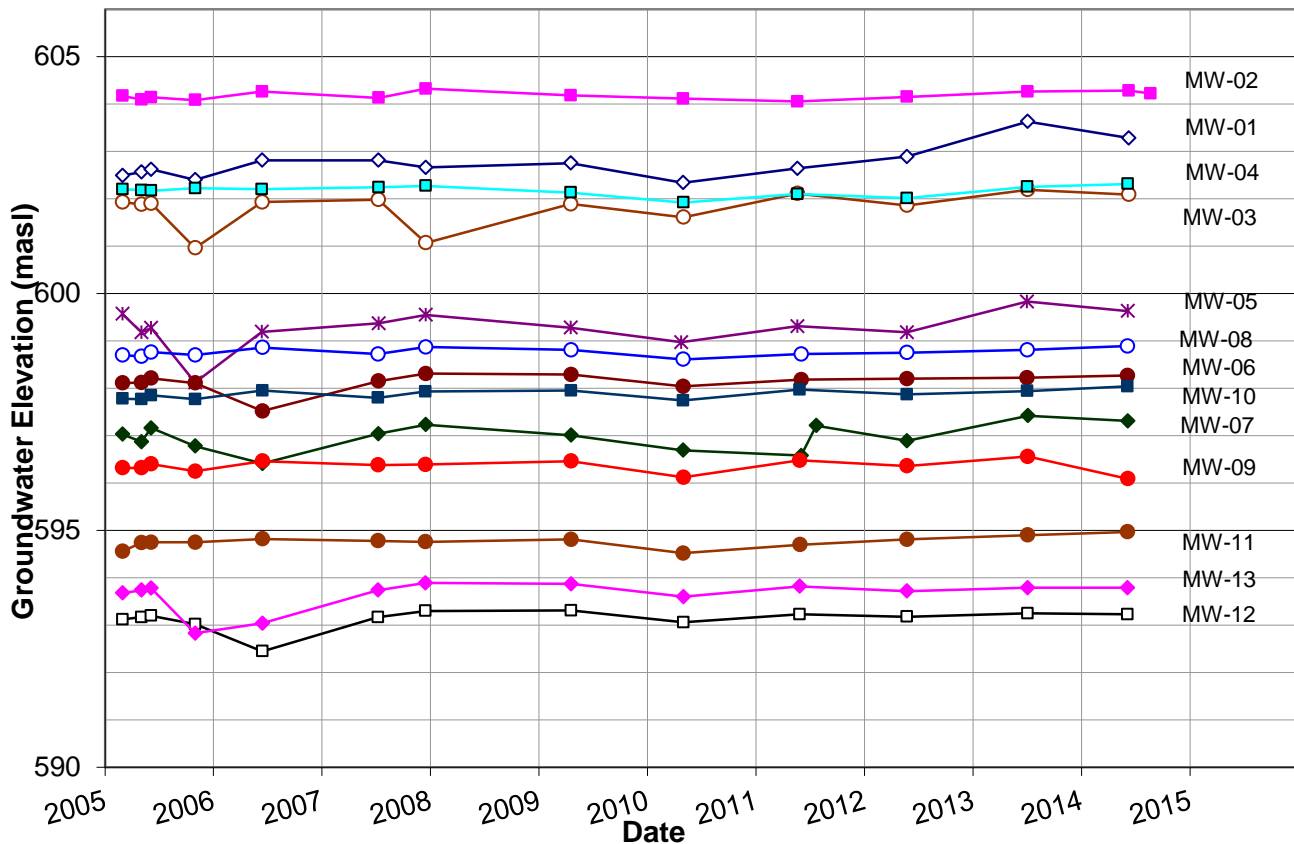
## 4. RESULTS

### 4.1 Groundwater Flow

#### 4.1.1 Groundwater Elevations

Groundwater hydrographs are provided in Appendix 3 and summarized in Figure A (below). Groundwater surface elevations within the Beverly Channel ranged from 593.23 (MW-12) to 604.28 (MW-02) metres above sea level (masl) in 2014 (Table 1). All water levels are consistent with historical values.

Figure A: Historical Groundwater Surface Elevation in Beverly Channel Monitoring Wells



#### 4.1.2 Horizontal Groundwater Flow

Groundwater flow in the Beverly Channel was consistent with previous analyses, and was generally to the northwest towards the North Saskatchewan River (Figure 3). The lateral hydraulic gradient across the Beverly Channel ranged from approximately 0.002 m/m in the south to approximately 0.001 m/m in

the north. Based on a geometric mean hydraulic conductivity of  $2.3 \times 10^{-4}$  m/s, the hydraulic gradients of 0.001 and 0.002 m/m, and an assumed effective porosity of 0.25, the linear groundwater flow velocity ranged from approximately 30 m/year (in the north) to 60 m/year (in the south).

## 4.2 Field Measured Parameters

Results of the field parameters are presented in Table 2. Groundwater temperatures ranged from 6.7 to 9.1°C; EC values ranged from 765 to 2910  $\mu\text{S}/\text{cm}$ ; and pH ranged from 7.12 to 7.77 in 2014, and were consistent with the previous year's results.

## 4.3 Groundwater Quality

Groundwater analytical data are presented in Tables 3, 4, 5, and 6. Original laboratory analytical reports are included in Appendix 4. Hydrochemical control charts and Mann-Kendall analysis are provided in Appendix 5. Statistical tables for each monitoring well including, but not limited to, parameter minimum, maximum, mean and count are included in Appendix 6.

### 4.3.1 Select Inorganic Data

Select inorganic parameter data are presented in Tables 3 and 4. Results from 2014 sampling are summarized as follows:

- Concentrations of dissolved iron and manganese exceeded the applied guideline at all monitoring wells in 2014. Their respective concentrations were generally within historical ranges.
- Concentrations of TDS exceeded the applied guideline at most monitoring wells in 2014, excluding MW-01 and MW-13. TDS concentrations were within the historical range for each well.
- Concentrations of dissolved sulphate continued to exceed the applied guideline at MW-07.
- Concentrations of sodium also continued to exceed the applied guideline at MW-07 and MW-09.
- Elevated concentrations of DOC at MW-02, MW-07, MW-08, and MW-12 noted in 2011 appear to have decreased to stable levels through 2012 - 2014.
- The concentration of chloride at MW-02 was 211 mg/L in June 2014 (below the applied guideline of 250 mg/L). Chloride concentrations have historically been less than 40 mg/L. All other parameters at this monitoring location were consistent with historical data. The ion balance (80.2%) was also below acceptable margin of error ( $\pm 10\%$ ). The laboratory was requested to verify the June 2014 results; however, their verifications were inconclusive.

MW-02 was re-sampled on August 28, 2014 to verify the suspected data (chloride and ion balance). Analytical data from the re-sampling were consistent with historical ranges (i.e. chloride was 42 mg/L; ion balance was 98%). Therefore, the June 2014 results were considered anomalous and were further excluded from statistical calculations and charting.



### 4.3.2 Dissolved Metals and Trace Elements

Dissolved metals parameter data are presented in Table 4, and the results from the 2014 sampling event are summarized below:

- Dissolved metals and trace elements were measured at concentrations below the applied guidelines at all monitoring wells (where guidelines exist), except for the previously discussed concentrations of dissolved iron, manganese, and sodium.

### 4.3.3 Petroleum Hydrocarbons

PHC results are presented in Table 5. No PHCs were detected in 2014.

### 4.3.4 Volatile Organic Compounds

VOC results are presented in Table 6. Phenols were the only VOC analyzed in 2014. No phenols were detected in 2014.

### 4.3.5 Trends and Statistical Analysis

Hydrochemical control charts and Mann-Kendall/Sen's slope analysis are presented in Appendix 5. Results are summarized in Table C below:

**Table C: Summarized Results from Mann-Kendall/Sen's Slope Analysis and Visual Inspections**

Monitoring Station	Parameter	Trend
MW-01	DOC	↑?
MW-02	Iron	↑
MW-03	Chloride	↑?
MW-05	Chloride	↑?

Note: ↑ indicates a statistically significant increasing trend, ↓ indicates a statistically significant decreasing trend, ↑? Indicates a visual increasing trend, ↓? Indicates a visual decreasing trend.

## 4.4 QA/QC Results and Summary

Zeiner (1994), states that the relative percent difference (RPD) between sample and duplicate results should be less than 20 percent for aqueous samples. Zeiner (1994) also states that when one or both values are less than five times the RDL, then the absolute value of the difference of the results should be less than or equal to the RDL for aqueous samples. A comparison of sample and duplicate results (Appendix 7) at MW-10 indicated that all results met the above criteria, except for DOC where the absolute difference in values was 1.9 mg/L (RDL is 1 mg/L).



Standard Methods (2005) indicates an ion balance of  $\pm 10\%$  is typically acceptable for water with an anion sum between 30 and 800 meq/L. Values outside the commonly acceptable limits may arise for a number of reasons (e.g. analytical interference, unknown constituents, or reporting errors). Ion balance results were within this criterion, except for at MW-02 (80.2% in June 2014) and MW-05 (111%, Table 3). The lab reviewed major ion and dissolved metal concentrations by repeat analysis. The ion balance was ultimately outside of the acceptable range due to interference or elevated concentrations of non-measured components in both samples. The results from the groundwater resampled on August 28, 2014 from MW-02 were within the acceptable ion balance range (98.4%).

A field blank was collected and analyzed for major ions/ routine potability, BTEX, PHC F1 and F2, dissolved metals, trace elements, and phenols. All parameters were below their RDLs in the field blank, indicating that cross-contamination did not occur during sampling.

The laboratory blank, replicated and control samples for groundwater analyses were within the acceptable limits.

#### **4.5 Note on MW-02 Re-sample**

Since MW-02 was re-sampled on August 28, 2014, and the groundwater sample was submitted for the full suite of analysis, higher reliance is placed on the August 2014 results. Therefore, all of the original results for the groundwater sample collected on June 16, 2014 have been excluded from statistical analysis and charting.



## 5. DISCUSSION OF KEY GROUNDWATER QUALITY INDICATORS

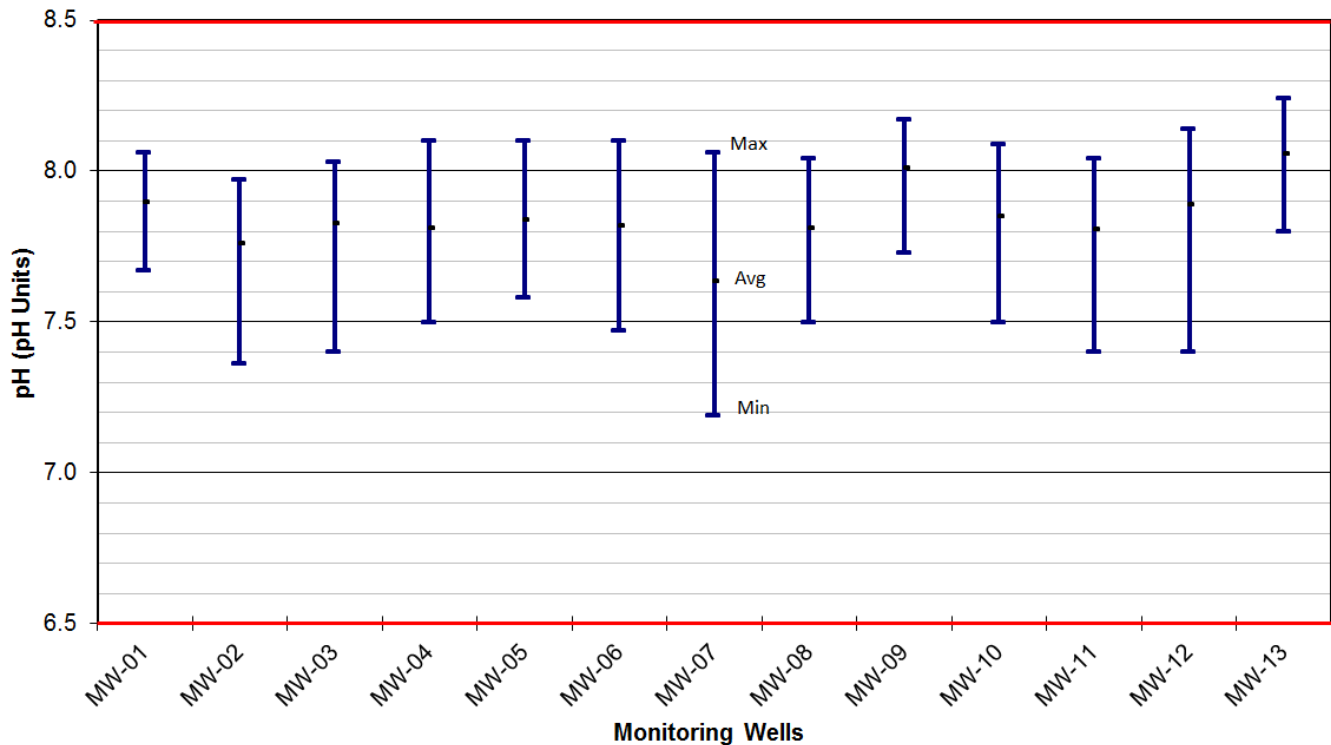
### 5.1 pH

Hem (1992) indicated that most groundwater in the United States have pH values ranging from about 6.0 to about 8.5, while river water in areas not influenced by pollution reportedly have a pH that ranged between 6.5 and 8.5.

The GCDWQ suggests an acceptable pH range of 6.5 to 8.5 for drinking water (Health Canada 2012, indicated by red lines on Figure B). As there are no specific health effects noted on which to base limits for the pH of drinking water, this guideline is an aesthetic objective (AO) rather than a maximum acceptable concentration (MAC). At a pH below 6.5, corrosion effects may become significant in the drinking water supply and distribution system, and at a pH above 8.5, encrustations and scaling may become an issue (Health Canada 1979a).

In the Beverly Channel, since the groundwater sampling began in 2005, groundwater pH values have ranged from 7.19 to 8.24 (Figure B) and are within the range of natural waters as defined by Hem (1992) and within the AO guideline range established by Health Canada (2012).

**Figure B: High, Low, and Average Values of pH in Beverly Channel Monitoring Wells**

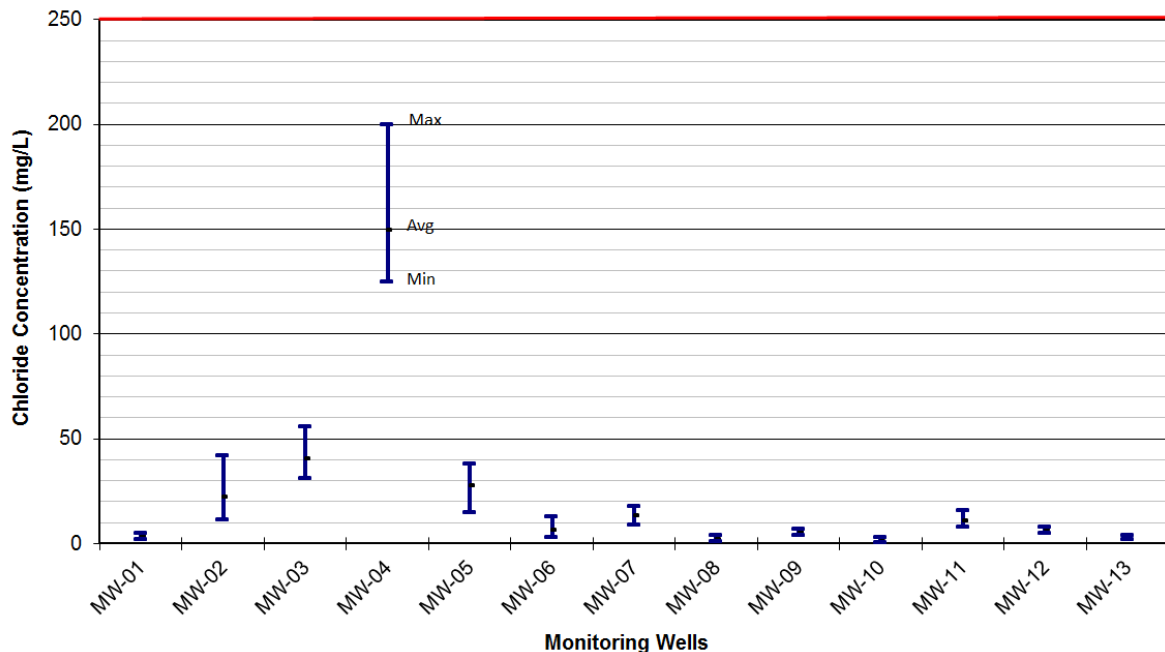


## 5.2 Chloride

Chloride is an inorganic, non-reactive compound that occurs widely in nature. When introduced into groundwater, chloride is highly mobile and difficult to remove due to its high solubility (Health Canada 1979b). With high mobility, high solubility, and its wide usage in anthropogenic activities, chloride is generally utilized as an indicator of groundwater contamination. Typical anthropogenic uses of chloride include control of ice and snow, effluents from chemical industries, oil well operations, sewage, irrigation drainage, and refuse leachates. Naturally occurring salt deposits also occur throughout Canada (Health Canada 1979b). Chloride concentrations in quaternary and bedrock groundwater are typically less than 50 mg/L in Sturgeon and Strathcona Counties (HCL 2001a and 2001b) but can be naturally elevated in regional discharge areas. Health Canada (2012) suggests an AO guideline of less than or equal to 250 mg/L for chloride (indicated by the red line on Figure C) to minimize undesirable tastes in beverages. At higher concentrations chloride may cause corrosion in distribution systems as well (Health Canada 1979b).

Chloride concentrations in the Beverly Channel were typically less than 50 mg/L and in several cases less than 10 mg/L (Figure C). Elevated chloride concentrations between 125 mg/L and 200 mg/L were observed at MW-04 and are considered natural, reflecting water quality in bedrock (WorleyParsons 2010). Increasing trends in chloride concentrations noted at MW-03 and MW-05 may also be caused by well screen proximity to shale bedrock (of marine origin). In 2014, chloride concentration (42 mg/L) at MW-02 were the highest on record, showing a consistent, but low rate, increasing trend.

**Figure C: High, Low, and Average Values of Chloride Concentrations in Beverly Channel Monitoring Wells**





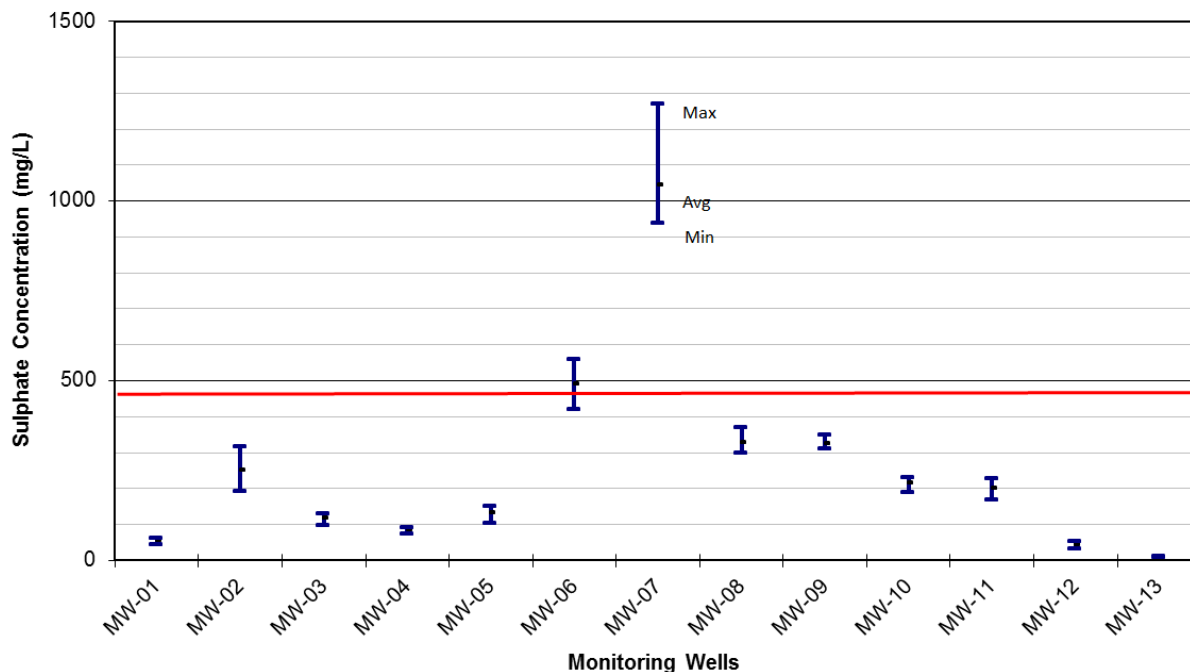
## 5.3 Sulphate

Sources of sulphur that can be found in the natural environment include certain igneous rock minerals, evaporite sediment (e.g. gypsum), and geothermal water (Hem 1992). Anthropogenic sources of sulphate are mainly introduced by the combustion of fuels and the smelting of ores (Hem 1992). Industrial uses of sulphur, usually in the form of sulphuric acid, include production of fertilizer, manufacturing of chemicals, dyes, glass, paper, soaps, textiles, fungicides, insecticides, astringents and emetics (review by Health Canada 1987).

The GCDWQ for sulphate suggested by Health Canada (2012) is less than or equal to 500 mg/L (indicated by the red line on Figure D). This value is an AO based on taste considerations, although there is the possibility of adverse physiological effects at higher concentrations. The lethal dose in humans, in the form of potassium or zinc sulphate, is 45g, making it one of the least toxic anions (Health Canada 1987).

In the Study Area, background sulphate concentrations are generally less than 100 mg/L in the surficial sand deposits, range from 100 mg/L to over 1,000 mg/L in shallow bedrock, and range from less than 1,000 mg/L to over 4,000 mg/L in till and clay deposits (BA Energy 2004; Komex 2006; PCOSI 2006; Shell 2005, 2007; TOTAL 2007). In the Beverly Channel, sulphate concentrations are generally less than 500 mg/L (Figure D). One monitoring well (MW-07) has sulphate concentrations in the range of 600 to 1,300 mg/L, which is similar to concentrations observed in shallow bedrock.

**Figure D: High, Low, and Average Values of Sulphate Concentrations in Beverly Channel Monitoring Wells**



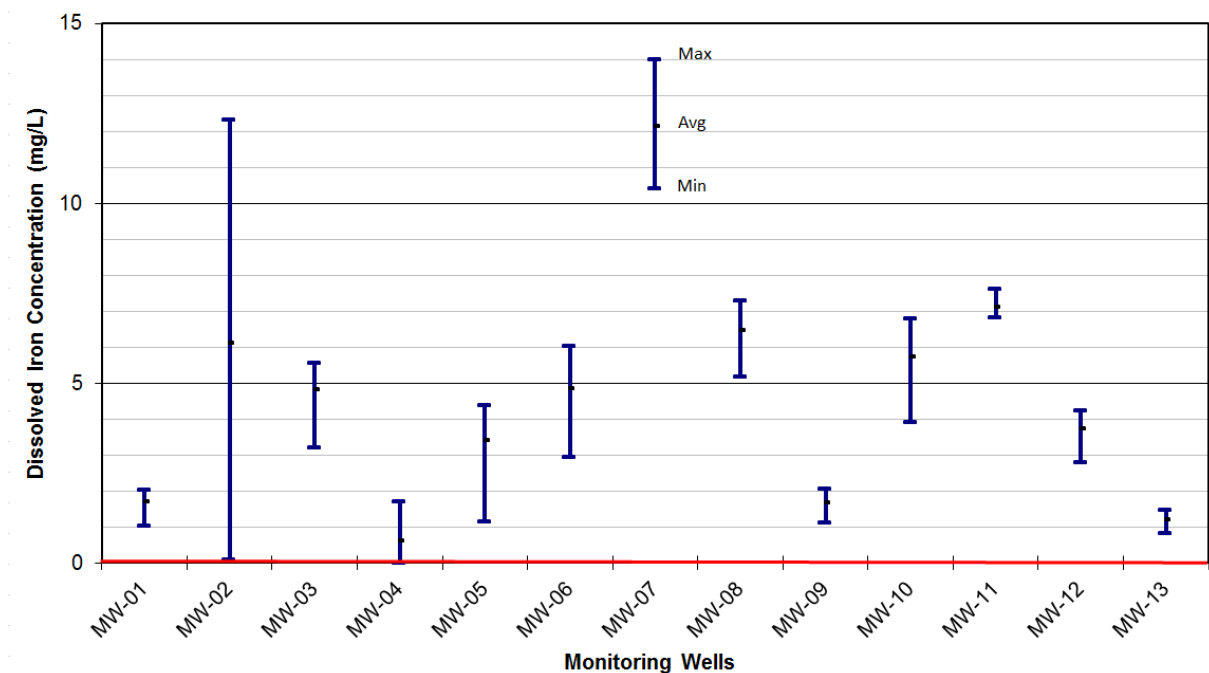
## 5.4 Dissolved Iron

A number of igneous rock minerals have a relatively high iron content which can act as a source of iron in groundwater. When iron is released into water, it is generally re-precipitated nearby as sedimentary species involving sulphide, carbonate, oxide or oxyhydroxide (Hem 1992). The availability of iron to aqueous solutions is strongly affected by environmental conditions, particularly the oxidation/reduction capacity and pH. Iron is also present in organic wastes, and in plant debris in soils (Hem 1992), which can then be released into groundwater via biodegradation processes. In aerated waters, the concentration of iron in waters is seldom high (Health Canada 1978a).

The AO suggested by Health Canada (2012) for iron in drinking water is less than or equal to 0.3 mg/L (indicated by the red line on Figure E). This objective is aimed to minimize objectionable taste and appearance, as well as inefficiency in the distribution system which can result from the precipitation of insoluble hydroxides and the development of slime produced by iron oxidizing bacteria. The reported lethal dose for an adult male is between 14 and 17.5 g (National Academy of Sciences, 1980).

Within the Beverly Channel, elevated iron concentrations are generally expected. Stein (1976) indicates that iron concentrations in excess of 15 mg/L are not uncommon. HCL (2001a) reports iron concentrations in excess of 7 mg/L for a Beverly Channel water supply well for the Village of Bruderheim. Iron concentrations in the Beverly Channel monitoring wells range from non-detected values to 14 mg/L (Figure E).

**Figure E: High, Low, and Average Values of Dissolved Iron Concentrations in Beverly Channel Monitoring Wells**





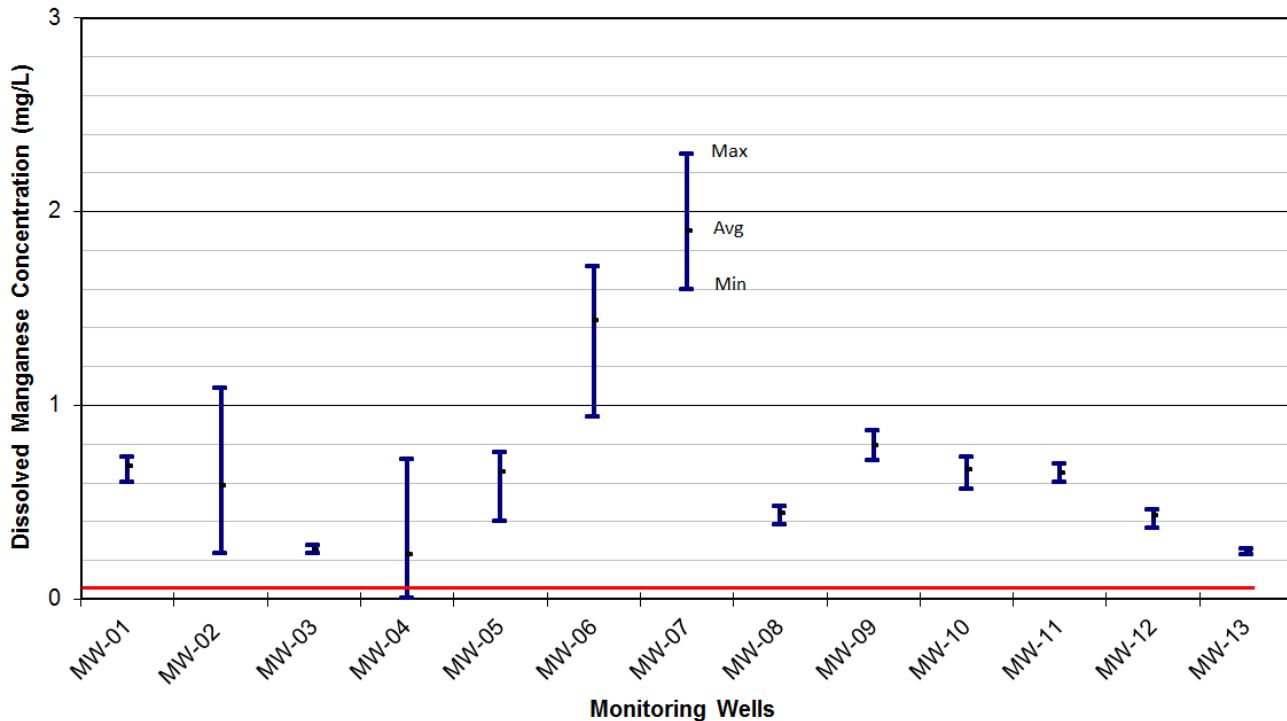
### 5.5 Dissolved Manganese

Manganese is most often present as a dioxide, carbonate or silicate mineral (Health Canada 1979b), and many igneous and metamorphic minerals contain manganese as a minor constituent (Hem 1992). As was the case for iron, the presence of dissolved manganese in water is dependent on both redox and pH conditions, although it is somewhat more stable toward oxidation than ferrous iron (Hem 1992).

Health Canada (2012) suggests an AO guideline of less than or equal to 0.05 mg/L (indicated by the red line on Figure F) to minimize staining and undesirable tastes in beverages, as well as the accumulation of microbial growths in distribution systems (black precipitates; Health Canada 1979b). Higher concentrations of manganese are expected to be more prevalent in groundwater than surface water as a result of the higher likelihood of reducing conditions in the subsurface (Health Canada 1979b).

The manganese concentrations in the Beverly Channel (Figure F) are within the combined range of surface water/groundwater from data compiled by Hem (1992). Generally, manganese concentrations may be expected to be higher in the Beverly Channel than in shallower geological units as there is a higher likelihood of reducing conditions with depth. Lowest concentrations of manganese were observed at monitoring well MW-03, MW-04, and MW-13; the highest concentrations occur at MW-06 and MW-07.

**Figure F: High, Low, and Average Values of Dissolved Manganese Concentrations in Beverly Channel Monitoring Wells**



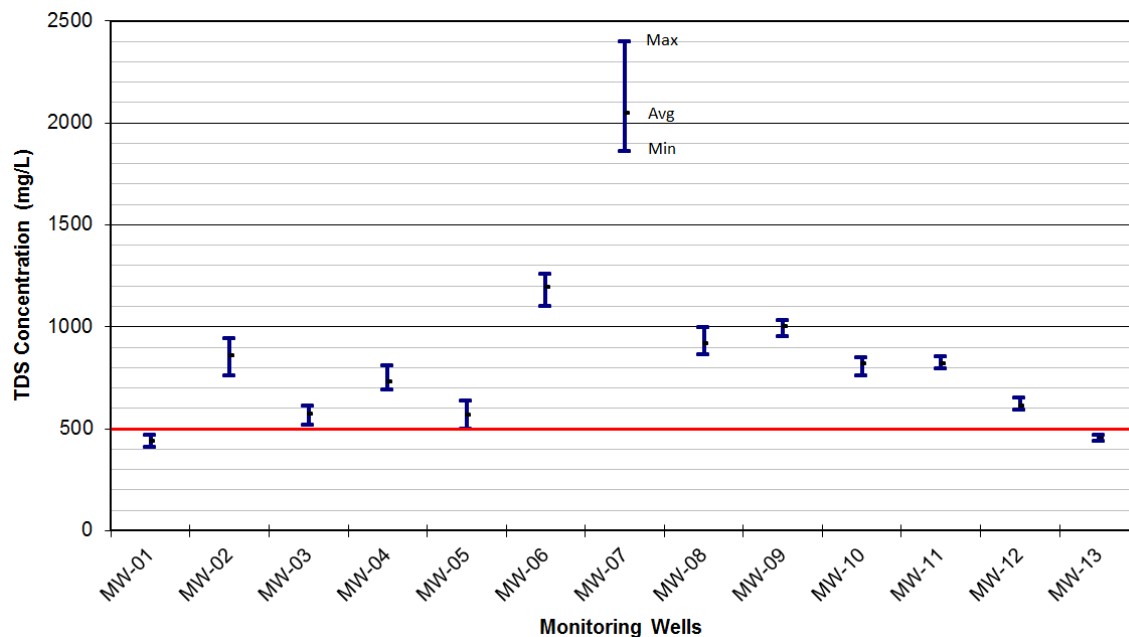
## 5.6 Total Dissolved Solids

TDS are dissolved constituents which comprise inorganic salts, primarily the major cations and anions used for groundwater characterization, nitrate (when introduced by agricultural use), and small amounts of organic matter (Health Canada 1978b). Potential sources of TDS include natural mineral sources, sewage, urban and agricultural runoff and industrial water (Health Canada 1978b). Concentrations of TDS resulting from mineral dissolution vary with the solubility of the minerals present.

Health Canada (2012) suggests an AO of less than or equal to 500 mg/L for TDS (indicated by the red line on Figure G) to minimize hardness, un-palatability, mineral deposition and corrosion (Health Canada 1978b). Recent data on health effects associated with the ingestion of TDS in drinking water is limited, and the data that are available are unclear; however, some individual components of TDS (e.g., chloride, sodium, nitrates) can affect human health (Health Canada 1978b; as updated 1991).

Mineralization in the Beverly Channel ranged from 410 to 2,400 mg/L (Figure G), with only two monitoring wells illustrating TDS concentrations of less than 500 mg/L (MW-01 and MW-13). This is generally consistent with TDS values in excess of 1,000 mg/L, reported by HCL (2001a; 2001b), for the Beverly Channel. The higher TDS concentration at MW-07 may be related to local groundwater discharge from bedrock. TDS in bedrock is generally in the range of 1,000 to 2,000 mg/L (Stein 1976), but may exceed 3,000 mg/L (HCL 2001a; 2001b).

**Figure G: High, Low, and Average Values of TDS Concentrations in Beverly Channel Monitoring Wells**





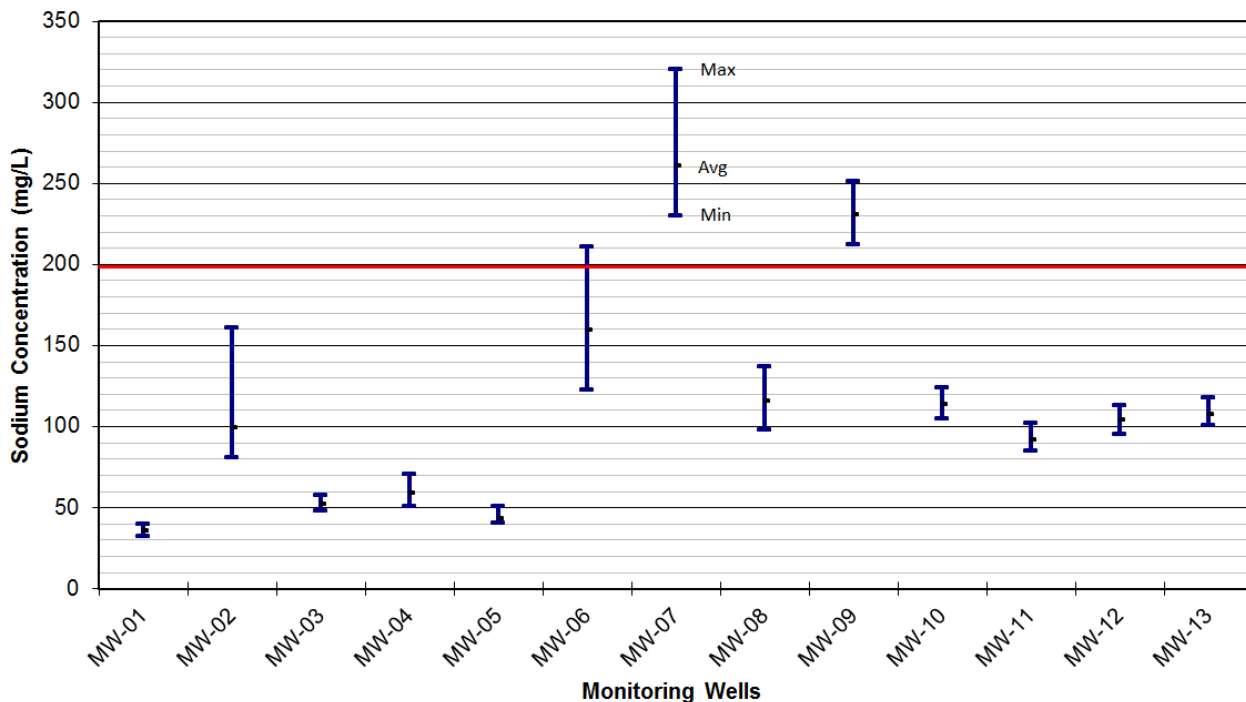
## 5.7 Sodium

Sodium may be present in feldspar minerals, which can release sodium into water through weathering. Sodium may be present as readily soluble salts, such as those left behind in the uplift of land surface or decline of sea level (Hem 1992). Anthropogenic sources of sodium include the use of salt for de-icing, brine disposal or leakage from oil wells, and water reuse for irrigation purposes (Hem 1992). Other potential anthropogenic sources include sewage and industrial effluents, and the use of sodium compounds for corrosion control and water-softening processes (Health Canada 1979c).

Health Canada (2012) suggests an AO of less than or equal to 200 mg/L for sodium (indicated by the red line on (Figure H). Because the human body has very effective mechanisms to control sodium levels, sodium is not acutely toxic in the normal range of environmental or dietary concentrations (Health Canada 1979d). However, there is a relation in the human body between fluid volume and sodium retention, and changes in sodium intake may result in disturbances such as changes in hypertension, congestive cardiac failure, renal disease, cirrhosis, toxemia of pregnancy, and Meniere's disease (Health Canada 1979c).

Within the Beverly Channel, sodium concentrations ranged from approximately 33 to 320 mg/L (Figure H). The elevated sodium concentrations at MW-06, MW-07, and MW-09 could be a reflection of discharging groundwater from bedrock.

**Figure H: High, Low, and Average Values of Sodium Concentrations in Beverly Channel Monitoring Wells**





## 6. SUMMARY AND RECOMMENDATIONS

Annual groundwater quality monitoring was completed for the Northeast Capital Industrial Association in June 2014. Results are summarized as follows:

- Lateral groundwater flow was generally to the northwest. The linear groundwater flow velocity ranged spatially from approximately 30 to 60 m/year.
- Chloride concentrations were generally below 50 mg/L and within ranges established by previous monitoring. Elevated chloride concentrations noted at MW-04 are considered natural and potentially illustrate bedrock conditions (WorleyParsons 2010).
- Iron, manganese, total dissolved solids, and sodium appear to be naturally elevated within the Study Area. However their concentrations remain well within naturally occurring ranges (Stein 1976).
- The cause of the elevated sulphate at MW-07 is unknown. Elevated sulphate concentrations may result from saltwater intrusion, mineral dissolution, and domestic or industrial waste. Due to the absence of industry in the immediate area it is likely that the elevated sulphate is naturally occurring. Other parameters including dissolved iron, manganese, TDS, and sodium are also generally higher at MW-07. These elevated concentrations are likely natural and could be caused by interactions with bedrock material.
- Petroleum hydrocarbons and VOCs (phenols) were not detected at any sampling location in 2014.
- Statistically significant trends were observed at MW-02 (increasing iron).
- Visually assessed trends were observed at MW-01 (increasing DOC), MW-03 (increasing chloride), and MW-05 (increasing chloride). Elevated chloride concentrations may be due to well screen proximity to chloride rich shale bedrock of the Bearpaw Formation.
- Groundwater data to date has shown that indicator parameter concentrations are generally within natural ranges for groundwater within Sturgeon and Strathcona County.

Recommendations are as follows:

- Install a monitoring well at the location of MW-02 in the bedrock to confirm bedrock groundwater quality.
- Complete annual groundwater monitoring in 2015. The analytical schedule should be the same as presented in Table B above, except to additionally include stable isotopes deuterium ( $H^2$ ) and oxygen ( $O^{18}$ ) in the suite of analysis.



## 7. CLOSURE

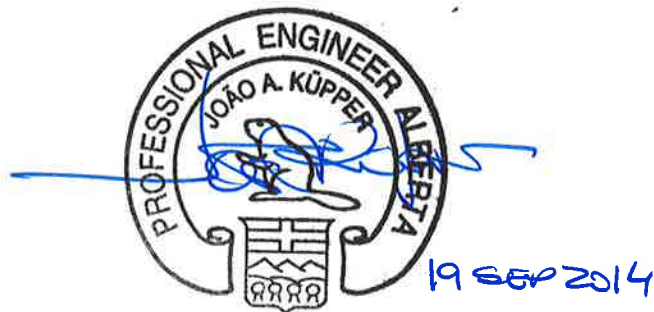
We trust that this report satisfies your current requirements and provides suitable documentation for your records. If you have any questions or require further details, please contact the undersigned at any time.

Report Prepared by



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Senior Review by



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Principal Hydrogeologist

**Water Business Unit  
Infrastructure & Environment  
WorleyParsons Canada Services Ltd.**

APEGGA PERMIT TO PRACTICE NO. P0725.



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**NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
2014 GROUNDWATER QUALITY MONITORING  
BEVERLY CHANNEL MONITORING WELLS**

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## Tables



## Groundwater Analytical Results: Datum/Groundwater Surface Elevations, and Hydraulic Conductivities

PROJECT No.: 307076-06086-200

Monitoring Station	Status	Easting (m)	Northing (m)	Longitude (Dec °)	Latitude (Dec °)	Ground Elevation (masl)	Datum Elevation (masl)	Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbmtoc)	Observed Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbgs)	Hydraulic Conductivity (m/s)	Saturated Sand Pack Lithology	Completion Interval Comments
<b>Groundwater Monitoring</b>																					
MW-01		350335.040000	5951040.450000			617.52	618.04	0.52	19.80	597.72	15.5 - 19.8	602.02 - 597.72	14.3 - 19.8	603.22 - 597.72	07-Mar-2005	15.55	602.49		6.8e-005	Sand and Gravel	
															04-May-2005	15.48	602.56				
															06-Jun-2005	15.42	602.62				
															17-Nov-2005	15.64	602.40				
															15-Jun-2006	15.23	602.81				
															12-Jul-2007	15.23	602.81				
															19-Dec-2007	15.38	602.66				
															21-Apr-2009	15.29	602.75				
															05-May-2010	15.70	602.34				
															25-May-2011	15.40	602.65				
															29-May-2012	15.15	602.89	19.62			
															10-Jul-2013	14.41	603.63	19.04			
16-Jun-2014	14.76	603.28	18.78																		
MW-02		352457.800000	5950583.370000			630.71	631.31	0.60	33.80	596.91	27.6 - 33.8	603.11 - 596.91	26.2 - 33.8	604.51 - 596.91	07-Mar-2005	27.14	604.17		0.00018	Sand and Gravel	
															04-May-2005	27.22	604.09				
															06-Jun-2005	27.17	604.14				
															17-Nov-2005	27.23	604.08				
															15-Jun-2006	27.05	604.26				
															13-Jul-2007	27.18	604.13				
															19-Dec-2007	26.99	604.32				
															21-Apr-2009	27.13	604.18				
															05-May-2010	27.20	604.11				
															25-May-2011	27.26	604.05				
															29-May-2012	27.16	604.15	26.56			
															10-Jul-2013	27.05	604.26	33.70			
16-Jun-2014	27.03	604.28	33.57																		
28-Aug-2014	27.09	604.22	34.18																		
MW-03		353030.210000	5952940.900000			623.79	624.43	0.64	29.60	594.19	25.0 - 29.6	598.79 - 594.19	23.5 - 29.6	600.29 - 594.19	08-Mar-2005	22.50	601.93		0.00022	Sand and Gravel	
															04-May-2005	22.55	601.88				
															06-Jun-2005	22.53	601.90				
															17-Nov-2005	23.47	600.96				
															15-Jun-2006	22.50	601.93				
															12-Jul-2007	22.45	601.98				
															19-Dec-2007	23.36	601.07				
															21-Apr-2009	22.54	601.89				
															06-May-2010	22.82	601.61				
															25-May-2011	22.32	602.11				
															29-May-2012	22.57	601.86	29.48			
															10-Jul-2013	22.24	602.19	29.57			
16-Jun-2014	22.34	602.09	29.44																		

## Groundwater Analytical Results: Datum/Groundwater Surface Elevations, and Hydraulic Conductivities

PROJECT No.: 307076-06086-200

Monitoring Station	Status	Easting (m)	Northing (m)	Longitude (Dec °)	Latitude (Dec °)	Ground Elevation (masl)	Datum Elevation (masl)	Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbmtoc)	Observed Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbgs)	Hydraulic Conductivity (m/s)	Saturated Sand Pack Lithology	Completion Interval Comments
MW-04		354823.410000	5953959.760000			620.25	620.79	0.54	26.20	594.05	21.6 - 26.2	598.65 - 594.05	19.5 - 26.2	600.75 - 594.05	08-Mar-2005	18.59	602.20		0.00018	Sand and Gravel	
															04-May-2005	18.61	602.18				
															06-Jun-2005	18.62	602.17				
															17-Nov-2005	18.57	602.22				
															14-Jun-2006	18.59	602.20				
															13-Jul-2007	18.55	602.24				
															19-Dec-2007	18.52	602.27				
															21-Apr-2009	18.66	602.13				
															06-May-2010	18.87	601.92				
															07-Jun-2011	18.70	602.10				
															30-May-2012	18.78	602.01	26.39			
															09-Jul-2013	18.54	602.25	27.26			
															13-Jun-2014	18.48	602.31	26.21			
															MW-05		354293.740000	5954889.460000			
04-May-2005	25.71	599.18																			
06-Jun-2005	25.62	599.27																			
17-Nov-2005	26.77	598.12																			
14-Jun-2006	25.70	599.19																			
13-Jul-2007	25.52	599.37																			
19-Dec-2007	25.34	599.55																			
21-Apr-2009	25.61	599.28																			
29-Apr-2010	25.92	598.97																			
25-May-2011	25.58	599.31																			
29-May-2012	25.71	599.18	30.22																		
08-Jul-2013	25.06	599.83	30.27																		
13-Jun-2014	25.26	599.63	30.05																		
MW-06		361559.340000	5958812.220000			629.61	630.28	0.67	39.00	590.61	34.4 - 39.0	595.21 - 590.61	32.9 - 39.0	596.71 - 590.61						08-Mar-2005	32.17
															04-May-2005	32.16	598.12				
															06-Jun-2005	32.07	598.21				
															17-Nov-2005	32.17	598.11				
															16-Jun-2006	32.76	597.52				
															12-Jul-2007	32.13	598.15				
															19-Dec-2007	31.97	598.31				
															22-Apr-2009	31.99	598.29				
															05-May-2010	32.24	598.04				
															07-Jun-2011	32.10	598.18				
															29-May-2012	32.08	598.20	38.57			
															08-Jul-2013	32.06	598.22	39.03			
															12-Jun-2014	32.01	598.27	38.50			

## Groundwater Analytical Results: Datum/Groundwater Surface Elevations, and Hydraulic Conductivities

PROJECT No.: 307076-06086-200

Monitoring Station	Status	Easting (m)	Northing (m)	Longitude (Dec °)	Latitude (Dec °)	Ground Elevation (masl)	Datum Elevation (masl)	Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbmtoc)	Observed Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbgs)	Hydraulic Conductivity (m/s)	Saturated Sand Pack Lithology	Completion Interval Comments	
MW-07		359089.700000	5959604.240000			630.41	631.01	0.60	43.90	586.51	37.8 - 43.9	592.61 - 586.51	36.3 - 43.9	594.11 - 586.51	09-Mar-2005	33.98	597.03				Sand and Gravel	
															04-May-2005	34.14	596.87					
															06-Jun-2005	33.85	597.16					
															17-Nov-2005	34.23	596.78					
															16-Jun-2006	34.60	596.41					
															12-Jul-2007	33.97	597.04					
															19-Dec-2007	33.78	597.23					
															22-Apr-2009	34.00	597.01					
															05-May-2010	34.32	596.69					
															08-Jun-2011	34.43	596.58					
															28-Jul-2011	33.80	597.21					
															30-May-2012	34.12	596.89	44.06				
															11-Jul-2013	33.59	597.42	41.40				
															13-Jun-2014	33.70	597.31	41.40				
MW-08		363133.770000	5961204.950000			625.87	626.44	0.57	33.50	592.37	30.5 - 33.5	595.37 - 592.37	28.7 - 33.5	597.17 - 592.37	09-Mar-2005	27.74	598.70		0.00095	Gravel		
															04-May-2005	27.77	598.67					
															06-Jun-2005	27.68	598.76					
															15-Nov-2005	27.74	598.70					
															16-Jun-2006	27.58	598.86					
															11-Jul-2007	27.72	598.72					
															19-Dec-2007	27.57	598.87					
															22-Apr-2009	27.63	598.81					
															05-May-2010	27.83	598.61					
															07-Jun-2011	27.72	598.72					
															30-May-2012	27.69	598.75	33.50				
															09-Jul-2013	27.63	598.81	30.60				
															12-Jun-2014	27.55	598.89	33.43				
															MW-09		361003.460000	5962032.280000				
04-May-2005	28.41	596.32																				
06-Jun-2005	28.33	596.40																				
17-Nov-2005	28.48	596.25																				
16-Jun-2006	28.27	596.46																				
11-Jul-2007	28.35	596.38																				
18-Dec-2007	28.34	596.39																				
22-Apr-2009	28.27	596.46																				
06-May-2010	28.61	596.12																				
02-Jun-2011	28.25	596.48																				
29-May-2012	28.37	596.36	36.39																			
10-Jul-2013	28.17	596.56	36.58																			
13-Jun-2014	28.64	596.09	36.03																			

## Groundwater Analytical Results: Datum/Groundwater Surface Elevations, and Hydraulic Conductivities

PROJECT No.: 307076-06086-200

Monitoring Station	Status	Easting (m)	Northing (m)	Longitude (Dec °)	Latitude (Dec °)	Ground Elevation (masl)	Datum Elevation (masl)	Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbmtoc)	Observed Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbgs)	Hydraulic Conductivity (m/s)	Saturated Sand Pack Lithology	Completion Interval Comments
MW-10				364954.620000	5963505.110000	624.06	624.67	0.61	41.80	582.26	35.7 - 41.8	588.36 - 582.26	N/A	N/A	09-Mar-2005	26.89	597.78			Gravel, Sand and Gravel	
															04-May-2005	26.90	597.77				
															06-Jun-2005	26.82	597.85				
															16-Nov-2005	26.90	597.77				
															16-Jun-2006	26.72	597.95				
															11-Jul-2007	26.87	597.80				
															18-Dec-2007	26.74	597.93				
															22-Apr-2009	26.72	597.95				
															05-May-2010	26.93	597.74				
															02-Jun-2011	26.70	597.97				
															30-May-2012	26.80	597.87	41.17			
															09-Jul-2013	26.73	597.94	42.26			
															12-Jun-2014	26.63	598.04	41.18			
MW-11				362564.360000	5965300.710000	624.49	625.16	0.67	44.20	580.29	38.1 - 44.2	586.39 - 580.29	35.1 - 47.2	589.39 - 577.29	10-Mar-2005	30.60	594.56		0.00015	Sand and Gravel	
															04-May-2005	30.42	594.74				
															06-Jun-2005	30.41	594.75				
															16-Nov-2005	30.41	594.75				
															16-Jun-2006	30.34	594.82				
															11-Jul-2007	30.38	594.78				
															18-Dec-2007	30.40	594.76				
															22-Apr-2009	30.35	594.81				
															05-May-2010	30.64	594.52				
															02-Jun-2011	30.46	594.70				
															30-May-2012	30.35	594.81	44.11			
															10-Jul-2013	30.26	594.90	44.21			
															12-Jun-2014	30.19	594.97	44.64			
MW-12				366805.930000	5968379.850000	625.46	626.07	0.61	38.10	587.36	35.1 - 38.1	590.36 - 587.36	33.5 - 38.1	591.96 - 587.36	10-Mar-2005	32.95	593.12		0.00014	Sand, Sand and Gravel	
															04-May-2005	32.90	593.17				
															06-Jun-2005	32.87	593.20				
															16-Nov-2005	33.05	593.02				
															16-Jun-2006	33.62	592.45				
															11-Jul-2007	32.90	593.17				
															18-Dec-2007	32.77	593.30				
															22-Apr-2009	32.76	593.31				
															06-May-2010	33.01	593.06				
															02-Jun-2011	32.84	593.23				
															29-May-2012	32.89	593.18	38.11			
															10-Jul-2013	32.82	593.25	38.84			
															12-Jun-2014	32.84	593.23	38.09			

Groundwater Analytical Results: Datum/Groundwater Surface Elevations, and Hydraulic Conductivities

PROJECT No.: 307076-06086-200																					
Monitoring Station	Status	Easting (m)	Northing (m)	Longitude (Dec °)	Latitude (Dec °)	Ground Elevation (masl)	Datum Elevation (masl)	Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbmtoc)	Observed Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbgs)	Hydraulic Conductivity (m/s)	Saturated Sand Pack Lithology	Completion Interval Comments
MW-13		365292.720000	5968147.120000			625.65	626.28	0.63	40.50	585.15	37.5 - 40.5	588.15 - 585.15	36.0 - 40.5	589.65 - 585.15	10-Mar-2005	32.60	593.68			Gravel	
															04-May-2005	32.54	593.74				
															06-Jun-2005	32.50	593.78				
															16-Nov-2005	33.45	592.83				
															16-Jun-2006	33.24	593.04				
															11-Jul-2007	32.54	593.74				
															18-Dec-2007	32.39	593.89				
															22-Apr-2009	32.41	593.87				
															06-May-2010	32.68	593.60				
															02-Jun-2011	32.46	593.82				
															30-May-2012	32.56	593.72	40.44			
															10-Jul-2013	32.49	593.79	40.51			
															12-Jun-2014	32.49	593.79	40.37			

- NOTES:**
1. Data may be entered to the nearest mm, but are reported above to the nearest cm.  
Apparent rounding errors may occasionally occur in calculated fields (e.g. Groundwater Surface Elevation).
  2. All coordinates are provided in the coordinate system.
  3. N/M - Denotes not measured.
  4. N/A - Denotes not available.
  5. masl - Denotes metres above sea level.
  6. mbgs - Denotes metres below ground surface.
  7. mbtoc - Denotes metres below top of PVC casing.



Water Quality Results: Field Measurements

PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Electrical Conductivity			Sample Comment
		(uS/cm)	pH (pH Units)	Temperature (°C)	
<b>Groundwater Monitoring</b>					
MW-01	05-May-2010	749	6.95	5.6	
	25-May-2011	741	7.11	7.67	
	29-May-2012	749	6.88	7.6	
	10-Jul-2013	720	7.21	6.8	Clear
	16-Jun-2014	765	7.38	7.0	Clear
MW-02	05-May-2010	1306	7.04	4.8	
	25-May-2011	1397	7.02	8.3	
	29-May-2012	1023	7.49	7.3	
	29-Jul-2013	1161	7.10	10.9	Cloudy brown
	16-Jun-2014	1298	7.19	6.7	Clear, orange
	28-Aug-2014	1355	7.12	7.0	Clear, yellow tint
MW-03	06-May-2010	974	7.14	6.6	
	25-May-2011	976	7.08	8.9	Clear
	29-May-2012	958	7.72	8.3	
	10-Jul-2013	966	7.14	8.4	Cloudy brown
	16-Jun-2014	1003	7.35	8.2	Clear
MW-04	06-May-2010	1213	7.14	8.2	
	07-Jun-2011	1230	7.12	8.1	Clear
	30-May-2012	1420	7.14	7.8	
	09-Jul-2013	1216	7.10	8.3	Clear
	13-Jun-2014	1289	7.27	8.0	Clear, yellow
MW-05	29-Apr-2010	985	7.08	7.6	
	25-May-2011	1070	7.06	8.3	
	29-May-2012	982	7.28	9.7	
	08-Jul-2013	987	7.34	7.1	Silty
	13-Jun-2014	1004	7.41	7.6	Light grey
MW-06	06-May-2010	1773	7.21	5.7	
	07-Jun-2011	1762	7.215	11.1	
	29-May-2012	1699	7.29	7.6	
	08-Jul-2013	1683	7.23	8.6	Clear
	12-Jun-2014	1755	7.33	8.6	Clear
MW-07	05-May-2010	2640	6.91	7.2	
	08-Jun-2011	1750	7.73	6.6	
	28-Jul-2011	2680	7.11	7.2	
	30-May-2012	2540	7.04	8.1	
	11-Jul-2013	2610	6.98	7.5	Clear
	13-Jun-2014	2910	7.12	9.1	Clear. F14-01
MW-08	05-May-2010	1359	7.09	5.4	
	07-Jun-2011	1378	7.408	9	Slight silt
	30-May-2012	1363	7.31	7.3	
	09-Jul-2013	1198	7.34	6.9	Clear / Silty
	12-Jun-2014	1387	7.41	7.3	Murky brown
MW-09	06-May-2010	1538	7.35	6.8	
	02-Jun-2011	1548	7.49	9.1	Very silty
	29-May-2012	1507	7.43	7.7	
	10-Jul-2013	1463	7.43	8.9	Cloudy brown
	13-Jun-2014	1537	7.67	7.1	Light brown
MW-10	05-May-2010	1287	7.11	6.6	
	25-May-2011	1192	7.36	9.1	Clear
	30-May-2012	1267	7.29	7.4	
	09-Jul-2013	1247	7.24	7.0	Clear
	12-Jun-2014	1292	7.42	7.8	Clear. D14-01
MW-11	05-May-2010	1303	7.06	7.2	
	03-Jun-2011	1341	7.42	6.9	
	30-May-2012	1282	7.19	9.8	
	10-Jul-2013	1258	7.18	7.4	Silty grey
	12-Jun-2014	1322	7.38	7.3	Cloudy brown
MW-12	06-May-2010	1032	7.32	5.1	
	02-Jun-2011	983	6.95	8.7	Clear
	29-May-2012	1024	7.37	7.3	
	10-Jul-2013	998	7.34	6.1	Murky brown
	12-Jun-2014	1020	7.42	7.6	Cloudy brown
MW-13	06-May-2010	776	7.53	7	
	02-Jun-2011	841	7.06	8.5	Clear
	30-May-2012	733	7.69	6.9	
	10-Jul-2013	759	7.60	10.1	Cloudy brown
	12-Jun-2014	775	7.77	7.2	Cloudy brown

**NOTES:**

1. --- in guideline row(s) denotes no criteria for that parameter.
2. --- in detail data row(s) denotes parameter not analyzed.





**Groundwater Analytical Results: Indicator Single Analysis Parameters**

PROJECT No.: 307076-06086-200		Anions						General					Inorganic Nitrogen Compound				Ion Balance	Miscellaneous	
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Sulphate (mg/L)	Alkalinity (Total; as CaCO <sub>3</sub> ) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO <sub>3</sub> ) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Ion Balance (%)	Dissolved Organic Carbon (mg/L)
Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup>		---	---	250	---	---	500	---	---	---	(6.5 - 8.5)	500	500	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup>		---	---	---	---	1.5	---	---	---	---	---	---	---	---	10	1	10	---	---
<b>Groundwater Monitoring</b>																			
MW-01	07-Mar-2005	444	< 5	4	< 5	0.19	57.4	364	762	338	7.7	---	442	0.39	< 0.1	< 0.05	< 0.1	100	3
	17-Nov-2005	451	< 5	4	< 5	0.13	61.1	370	760	347	7.9	---	447	0.212	< 0.1	< 0.05	< 0.1	97.6	3
	15-Jun-2006	448	< 5	4	< 5	0.14	56.8	367	748	361	8	---	448	0.274	< 0.1	< 0.05	< 0.1	103	3
	12-Jul-2007	445	< 5	3	< 5	0.13	54.6	365	718	345	7.8	---	433	0.185	< 0.1	< 0.05	< 0.1	98.6	3
	19-Dec-2007	470	< 1	2	< 1	0.2	60	390	770	310	7.8	---	442	0.26	< 0.2	< 0.06	< 0.2	0.87	2
	21-Apr-2009	450	< 0.5	5	< 0.5	0.14	44	370	770	310	7.67	---	410	0.22	0.003	< 0.003	0.003	93	2.3
	05-May-2010	453	< 5.0	3.46	< 5.0	0.150	62.0	371	762	363	8.06	---	456	0.221	< 0.050	< 0.050	< 0.071	102	3.0
	25-May-2011	446	< 5.0	3.02	< 5.0	0.109	57.1	366	768	332	8.04	---	432	0.271	< 0.050	< 0.050	< 0.071	94.9	3.4
	29-May-2012	450	< 5.0	3.13	< 5.0	0.106	56.2	369	769	330	8.00	---	435	0.228	< 0.050	< 0.050	< 0.071	94.7	3.1
	10-Jul-2013	438	< 5.0	3.49	< 5.0	0.124	52.3	359	727	349	7.94	445	433	0.246	< 0.050	< 0.050	< 0.071	103	3.5
16-Jun-2014	408	< 5.0	4.58	< 5.0	0.119	59.8	334	677	326	7.94	470	414	0.254	< 0.050	< 0.020	< 0.054	99.4	4.5	
MW-02	07-Mar-2005	514	< 5	13	< 5	0.21	227	422	1210	424	7.7	---	759 <sup>#1</sup>	1.75	0.1	< 0.05	0.1	101	8
	17-Nov-2005	575	< 5	38	< 5	0.11	270	471	1400	523	7.9	---	894 <sup>#1</sup>	1.34	< 0.1	< 0.05	< 0.1	98.4	6
	15-Jun-2006	629	< 5	23	< 5	0.09	274	516	1420	633	7.9	---	925 <sup>#1</sup>	1.17	< 0.1	< 0.05	< 0.1	102	5
	13-Jul-2007	630	< 5	12	< 5	0.09	263	516	1360	609	7.9	---	880 <sup>#1</sup>	0.756	< 0.1	< 0.05	< 0.1	98.7	6
	19-Dec-2007	660	< 1	13	< 1	0.1	290	540	1400	530	7.4	---	895 <sup>#1</sup>	0.1	< 0.2	< 0.06	< 0.2	0.84	5
	21-Apr-2009	610	< 0.5	18	< 0.5	0.08	230	500	1400	500	7.36	---	810 <sup>#1</sup>	0.56	0.005	< 0.003	0.005	89	4.1
	05-May-2010	597	< 5.0	11.6	< 5.0	0.094	268	489	1290	589	7.97	---	866 <sup>#1</sup>	0.539	< 0.050	< 0.050	< 0.071	100	5.4
	25-May-2011	628	< 5.0	22.3	< 5.0	< 0.050	318	515	1500	563	7.90	---	944 <sup>#1</sup>	0.728	< 0.050	< 0.050	< 0.071	89.1	11.3
	30-May-2012	605	< 5.0	29.6	< 5.0	0.061	231	496	1350	522	7.80	---	826 <sup>#1</sup>	0.538	< 0.050	< 0.050	< 0.071	91.0	4.9
	10-Jul-2013	588	< 5.0	24.2	< 5.0	0.080	194	482	1220	662	7.69	805 <sup>#1</sup>	902 <sup>#1</sup>	0.726	< 0.050	< 0.050	< 0.071	142	5.4
16-Jun-2014	563	< 5.0	211 <sup>(a)</sup>	< 5.0	0.08	282	461	1850	574	8.02	1180 <sup>#1</sup>	1090 <sup>#1</sup>	0.682	< 0.050	< 0.020	< 0.054	80.2 <sup>(a)</sup>	4.5	
28-Aug-2014	590	< 5.0	41.9	< 5.0	0.067	211	484	1340	547	7.85	861 <sup>#1</sup>	826 <sup>#1</sup>	0.545	< 0.050	< 0.020	< 0.054	98.4	5.3	



**Groundwater Analytical Results: Indicator Single Analysis Parameters**

PROJECT No.: 307076-06086-200

PROJECT No.: 307076-06086-200		Anions						General					Inorganic Nitrogen Compound				Ion Balance	Miscellaneous	
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Sulphate (mg/L)	Alkalinity (Total; as CaCO <sub>3</sub> ) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO <sub>3</sub> ) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Ion Balance (%)	Dissolved Organic Carbon (mg/L)
Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup>		---	---	250	---	---	500	---	---	---	(6.5 - 8.5)	500	500	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup>		---	---	---	---	1.5	---	---	---	---	---	---	---	---	10	1	10	---	---
MW-03	07-Mar-2005	442	< 5	31	< 5	0.14	113	362	937	413	7.4	---	563 <sup>#1</sup>	0.38	< 0.1	< 0.05	< 0.1	103	5
	17-Nov-2005	445	< 5	35	< 5	0.1	122	365	949	410	7.8	---	573 <sup>#1</sup>	0.306	< 0.1	< 0.05	< 0.1	98.1	4
	15-Jun-2006	439	< 5	35	< 5	0.1	116	360	943	423	8	---	568 <sup>#1</sup>	0.359	< 0.1	< 0.05	< 0.1	102	3
	12-Jul-2007	440	< 5	36	< 5	0.11	122	361	930	425	8	---	578 <sup>#1</sup>	0.291	< 0.1	< 0.05	< 0.1	102	3
	19-Dec-2007	460	< 1	35	< 1	0.1	130	380	960	370	7.7	---	571 <sup>#1</sup>	0.06	< 0.2	< 0.06	< 0.2	0.87	3
	21-Apr-2009	430	< 0.5	35	< 0.5	0.11	98	350	950	360	7.57	---	520 <sup>#1</sup>	0.33	0.009	< 0.003	0.009	95	2.5
	06-May-2010	435	< 5.0	44.3	< 5.0	0.117	124	357	967	411	8.03	---	579 <sup>#1</sup>	0.339	< 0.050	< 0.050	< 0.071	96.4	5.3
	02-Jun-2011	433	< 5.0	44.2	< 5.0	0.105	120	355	1000	452	7.98	---	588 <sup>#1</sup>	0.302	< 0.050	< 0.050	< 0.071	105	3.3
	29-May-2012	434	< 5.0	45.9	< 5.0	0.080	115	355	988	386	7.83	---	560 <sup>#1</sup>	0.327	< 0.050	< 0.050	< 0.071	91.7	3.4
	10-Jul-2013	427	< 5.0	48.3	< 5.0	0.105	119	350	963	430	7.81	608 <sup>#1</sup>	586 <sup>#1</sup>	0.369	< 0.050	< 0.050	< 0.071	103	3.0
	16-Jun-2014	395	< 5.0	55.9	< 5.0	0.073	129	324	933	402	7.96	612 <sup>#1</sup>	568 <sup>#1</sup>	0.377	< 0.050	< 0.020	< 0.054	95.1	5.9
MW-04	08-Mar-2005	458	< 5	137	< 5	0.15	81.4	375	1200	510	7.5	---	694 <sup>#1</sup>	< 0.05	0.8	< 0.05	0.8	98.5	1
	17-Nov-2005	449	< 5	157	< 5	0.12	87	368	1280	532	7.8	---	726 <sup>#1</sup>	0.013	1.2	< 0.05	1.2	98.2	5
(Duplicate)	17-Nov-2005	452	< 5	157	< 5	0.12	89	371	1290	533	7.9	---	731 <sup>#1</sup>	0.01	1.2	< 0.05	1.2	98.1	4
	14-Jun-2006	455	< 5	155	< 5	0.13	86.2	373	1280	543	7.7	---	724 <sup>#1</sup>	0.007	0.5	< 0.05	0.5	99.4	4
	13-Jul-2007	449	< 5	190	< 5	0.14	84.5	368	1360	564	7.9	---	774 <sup>#1</sup>	0.008	0.5	< 0.05	0.5	99.9	3
	19-Dec-2007	460	< 1	200	< 1	0.1	82	380	1400	500	7.7	---	763 <sup>#1</sup>	0.01	0.6	< 0.06	0.6	0.9	3
	21-Apr-2009	450	< 0.5	150	< 0.5	0.14	74	370	1200	500	7.62	---	690 <sup>#1</sup>	< 0.05	0.4	< 0.003	0.4	99	2.8
	06-May-2010	470	< 5.0	131	< 5.0	0.129	92.1	385	1220	561	8.01	---	724 <sup>#1</sup>	< 0.050	0.090	< 0.050	0.090	107	3.0
	07-Jun-2011	482	< 5.0	125	< 5.0	0.119	88.9	395	1280	520	7.95	---	693 <sup>#1</sup>	< 0.050	0.264	< 0.050	0.264	96.3	3.0
	30-May-2012	500	< 5.0	126	< 5.0	0.089	88.2	409	1280	509	7.88	---	699 <sup>#1</sup>	< 0.050	< 0.050	< 0.050	< 0.071	92.8	3.2
(Duplicate)	30-May-2012	499	< 5.0	126	< 5.0	0.094	88.6	409	1280	587	7.94	---	736 <sup>#1</sup>	< 0.050	< 0.050	< 0.050	< 0.071	107	3.3
	09-Jul-2013	493	< 5.0	129	< 5.0	0.082	87.8	404	1230	566	7.76	761 <sup>#1</sup>	724 <sup>#1</sup>	< 0.050	< 0.050	< 0.050	< 0.071	103	3.3
	13-Jun-2014	426	< 5.0	146	< 5.0	0.093	92.8	350	1190	525	8.10	808 <sup>#1</sup>	695 <sup>#1</sup>	< 0.050	< 0.050	< 0.020	< 0.054	100	3.0



**Groundwater Analytical Results: Indicator Single Analysis Parameters**

PROJECT No.: 307076-06086-200

PROJECT No.: 307076-06086-200		Anions						General					Inorganic Nitrogen Compound				Ion Balance	Miscellaneous	
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Sulphate (mg/L)	Alkalinity (Total; as CaCO <sub>3</sub> ) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO <sub>3</sub> ) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Ion Balance (%)	Dissolved Organic Carbon (mg/L)
Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup>		---	---	250	---	---	500	---	---	---	(6.5 - 8.5)	500	500	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup>		---	---	---	---	1.5	---	---	---	---	---	---	---	---	10	1	10	---	---
MW-05	08-Mar-2005	403	< 5	15	< 5	0.18	105	330	831	353	7.6	---	499	0.63	< 0.1	< 0.05	< 0.1	103	5
	17-Nov-2005	422	< 5	21	< 5	0.11	115	346	881	370	7.9	---	522 <sup>#1</sup>	0.331	< 0.1	< 0.05	< 0.1	95.4	4
	14-Jun-2006	421	< 5	22	< 5	0.11	124	345	902	405	7.7	---	545 <sup>#1</sup>	0.338	< 0.1	< 0.05	< 0.1	101	4
	13-Jul-2007	426	< 5	25	< 5	0.11	135	349	931	416	8.1	---	563 <sup>#1</sup>	0.216	< 0.1	< 0.05	< 0.1	98.5	4
	19-Dec-2007	440	< 1	22	< 1	0.1	150	360	930	380	7.6	---	566 <sup>#1</sup>	0.05	< 0.2	< 0.06	< 0.2	0.88	3
	21-Apr-2009	420	< 0.5	30	< 0.5	0.12	130	350	960	430	7.58	---	570 <sup>#1</sup>	0.22	0.007	< 0.003	0.007	100	2.5
	29-Apr-2010	428	< 5.0	30.6	< 5.0	0.107	144	351	969	451	7.95	---	596 <sup>#1</sup>	0.234	< 0.050	< 0.050	< 0.071	103	3.3
	25-May-2011	433	< 5.0	30.9	< 5.0	0.075	141	355	990	397	8.05	---	572 <sup>#1</sup>	0.261	< 0.050	< 0.050	< 0.071	91.1	4.4
	29-May-2012	442	< 5.0	33.7	< 5.0	0.061	138	362	1000	409	7.93	---	583 <sup>#1</sup>	0.233	< 0.050	< 0.050	< 0.071	92.3	6.9
	08-Jul-2013	448	< 5.0	36.3	< 5.0	0.092	139	367	998	433	7.83	614 <sup>#1</sup>	599 <sup>#1</sup>	0.234	< 0.050	< 0.050	< 0.071	95.3	4.1
13-Jun-2014	341	< 5.0	37.8	< 5.0	0.073	143	279	853	435	8.00	635 <sup>#1</sup>	550 <sup>#1</sup>	0.272	< 0.050	< 0.020	< 0.054	111	6.6	
MW-06	08-Mar-2005	560	< 5	4	< 5	0.18	451	459	1580	670	7.5	---	1100 <sup>#1</sup>	1.46	< 0.1	< 0.05	< 0.1	105	5
	17-Nov-2005	641	< 5	13	< 5	0.15	471	526	1780	584	8	---	1220 <sup>#1</sup>	1.95	< 0.1	< 0.05	< 0.1	101	8
	16-Jun-2006	633	< 5	10	< 5	0.14	482	519	1700	657	7.7	---	1220 <sup>#1</sup>	2.38	< 0.1	< 0.05	< 0.1	104	7
	12-Jul-2007	637	< 5	10	< 5	0.17	478	522	1760	620	7.9	---	1200 <sup>#1</sup>	1.92	< 0.1	< 0.05	< 0.1	99.4	7
	19-Dec-2007	630	< 1	3	< 1	0.2	560 <sup>#1</sup>	510	1700	620	7.7	---	1230 <sup>#1</sup>	1.9	< 0.2	< 0.06	< 0.2	0.85	6
	22-Apr-2009	590	< 0.5	6	< 0.5	0.14	420	490	1700	710	7.47	---	1100 <sup>#1</sup>	1.7	0.004	< 0.003	0.004	110	5.1
	06-May-2010	626	< 5.0	8.45	< 5.0	0.173	520 <sup>#1</sup>	513	1770	625	8.06	---	1250 <sup>#1</sup>	1.88	< 0.050	< 0.050	< 0.071	98.8	6.7
	07-Jun-2011	603	< 5.0	3.45	< 5.0	0.129	501 <sup>#1</sup>	494	1760	658	7.96	---	1150 <sup>#1</sup>	1.57	< 0.050	< 0.050	< 0.071	91.3	8.0
	29-May-2012	602	< 5.0	2.95	< 5.0	0.128	494	493	1730	650	7.81	---	1160 <sup>#1</sup>	1.55	< 0.050	< 0.050	< 0.071	94.7	6.8
	08-Jul-2013	611	< 5.0	4.57	< 5.0	0.128	499	501	1720	647	7.81	1240 <sup>#1</sup>	1170 <sup>#1</sup>	1.66	< 0.050	< 0.050	< 0.071	92.2	6.4
	12-Jun-2014	528	< 5.0	6.67	< 5.0	0.119	519 <sup>#1</sup>	433	1630	644	8.10	1260 <sup>#1</sup>	1160 <sup>#1</sup>	1.84	< 0.050	< 0.020	< 0.054	99.9	5.8



**Groundwater Analytical Results: Indicator Single Analysis Parameters**

PROJECT No.: 307076-06086-200

PROJECT No.: 307076-06086-200		Anions						General					Inorganic Nitrogen Compound				Ion Balance	Miscellaneous	
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Sulphate (mg/L)	Alkalinity (Total; as CaCO <sub>3</sub> ) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO <sub>3</sub> ) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Ion Balance (%)	Dissolved Organic Carbon (mg/L)
Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup>		---	---	250	---	---	500	---	---	---	(6.5 - 8.5)	500	500	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup>		---	---	---	---	1.5	---	---	---	---	---	---	---	---	10	1	10	---	---
MW-07	09-Mar-2005	664	< 5	13	< 5	0.11	1130 <sup>#1</sup>	544	2680	1130	7.5	---	2150 <sup>#1</sup>	2.24	0.1	< 0.05	0.1	102	5
	17-Nov-2005	666	< 5	16	< 5	0.08	1010 <sup>#1</sup>	546	2670	1060	7.7	---	1990 <sup>#1</sup>	2.03	< 0.1	< 0.05	< 0.1	102	6
	16-Jun-2006	661	< 5	15	< 5	0.07	1010 <sup>#1</sup>	542	2530	1110	7.5	---	2010 <sup>#1</sup>	2.28	0.1	< 0.05	0.1	105	6
	12-Jul-2007	641	< 5	12	< 5	0.09	940 <sup>#1</sup>	526	2290	1010	7.6	---	1870 <sup>#1</sup>	2.03	< 0.1	< 0.05	< 0.1	103	6
	19-Dec-2007	660	< 1	9	< 1	0.1	1000 <sup>#1</sup>	540	2500	850	7.5	---	1890 <sup>#1</sup>	0.26	< 0.2	< 0.06	< 0.2	0.84	6
	22-Apr-2009	730	< 0.5	18	< 0.5	0.08	1200 <sup>#1</sup>	600	3000	1300	7.19	---	2400 <sup>#1</sup>	2.5	0.004	< 0.003	0.004	110	6.6
	05-May-2010	657	< 5.0	13.2	< 5.0	0.135	1040 <sup>#1</sup>	538	2600	1040	7.90	---	2010 <sup>#1</sup>	2.33	< 0.050	< 0.050	< 0.071	100	5.8
	08-Jun-2011	537	< 5.0	8.07	< 5.0	0.116	622 <sup>#1</sup>	440	1900	728	7.69	---	1330 <sup>#1</sup>	1.83	< 0.050	< 0.050	< 0.071	104	11.5
	28-Jul-2011	659	< 5.0	11.8	< 5.0	0.128	1020 <sup>#1</sup>	540	2670	1000	7.98	---	1950 <sup>#1</sup>	2.39	< 0.050	< 0.050	< 0.071	95.2	6.3
	30-May-2012	648	< 5.0	12.6	< 5.0	0.093	949 <sup>#1</sup>	531	2570	948	7.71	---	1860 <sup>#1</sup>	2.22	< 0.050	< 0.050	< 0.071	96.9	6.0
MW-08	11-Jul-2013	716	< 5.0	11.5	< 5.0	0.110	1020 <sup>#1</sup>	586	2680	1010	7.30	2180 <sup>#1</sup>	1980 <sup>#1</sup>	2.39	< 0.050	< 0.050	< 0.071	92.6	6.2
	13-Jun-2014	636	< 5.0	13.2	< 5.0	0.047	1270 <sup>#1</sup>	521	2800	1120	8.06	2320 <sup>#1</sup>	2260 <sup>#1</sup>	2.68	< 0.050	< 0.020	< 0.054	92.3	5.8
	09-Mar-2005	593	< 5	3	< 5	0.13	369	486	1470	552	7.7	---	999 <sup>#1</sup>	1.83	0.1	< 0.05	0.1	98.8	5
	15-Nov-2005	549	< 5	4	< 5	0.11	300	450	1310	486	7.5	---	862 <sup>#1</sup>	1.5	< 0.1	< 0.05	< 0.1	95.9	6
	16-Jun-2006	594	< 5	3	< 5	0.09	341	487	1240	584	7.7	---	980 <sup>#1</sup>	1.89	< 0.1	< 0.05	< 0.1	104	6
	11-Jul-2007	583	< 5	2	< 5	0.08	316	478	1390	551	7.9	---	918 <sup>#1</sup>	1.61	< 0.1	< 0.05	< 0.1	100	7
	19-Dec-2007	630	< 1	2	< 1	0.1	370	520	1400	480	7.7	---	977 <sup>#1</sup>	0.25	< 0.2	< 0.06	< 0.2	0.84	5
	21-Apr-2009	560	< 0.5	3	< 0.5	0.11	300	450	1400	530	7.62	---	880 <sup>#1</sup>	1.7	0.007	< 0.003	0.007	100	5.3
	05-May-2010	558	< 5.0	1.43	< 5.0	0.130	333	458	1360	542	8.04	---	927 <sup>#1</sup>	1.74	< 0.050	< 0.050	< 0.071	101	5.3
	07-Jun-2011	565	< 5.0	0.97	< 5.0	0.082	320	463	1400	497	7.95	---	876 <sup>#1</sup>	1.71	< 0.050	< 0.050	< 0.071	89.8	10.3
30-May-2012	560	< 5.0	0.86	< 5.0	0.084	308	459	1360	481	7.93	---	867 <sup>#1</sup>	1.76	< 0.050	< 0.050	< 0.071	92.3	5.7	
09-Jul-2013	535	< 5.0	1.37	< 5.0	0.093	304	439	1290	538	7.96	876 <sup>#1</sup>	877 <sup>#1</sup>	1.76	< 0.050	< 0.050	< 0.071	104	5.5	
12-Jun-2014	474	< 5.0	1.23	< 5.0	0.083	345	388	1260	518	7.94	938 <sup>#1</sup>	878 <sup>#1</sup>	1.90	< 0.050	< 0.020	< 0.054	102	5.1	



**Groundwater Analytical Results: Indicator Single Analysis Parameters**

PROJECT No.: 307076-06086-200		Anions						General					Inorganic Nitrogen Compound				Ion Balance	Miscellaneous	
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Sulphate (mg/L)	Alkalinity (Total; as CaCO <sub>3</sub> ) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO <sub>3</sub> ) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Ion Balance (%)	Dissolved Organic Carbon (mg/L)
Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup>		---	---	250	---	---	500	---	---	---	(6.5 - 8.5)	500	500	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup>		---	---	---	---	1.5	---	---	---	---	---	---	---	---	10	1	10	---	---
MW-09 (Duplicate)	09-Mar-2005	626	< 5	5	< 5	0.29	313	513	1520	286	7.9	---	954 <sup>#1</sup>	1.81	0.1	< 0.05	0.1	93.2	5
	09-Mar-2005	628	< 5	5	< 5	0.29	340	515	1520	312	7.9	---	1010 <sup>#1</sup>	1.79	0.1	< 0.05	0.1	97.4	5
	17-Nov-2005	640	< 5	7	< 5	0.22	312	524	1550	344	8.1	---	984 <sup>#1</sup>	1.85	< 0.1	< 0.05	< 0.1	98	6
	16-Jun-2006	644	< 5	7	< 5	0.23	316	528	1520	359	7.9	---	1000 <sup>#1</sup>	2.09	< 0.1	< 0.05	< 0.1	99.9	8
	11-Jul-2007	656	< 5	6	< 5	0.21	322	538	1530	351	8.1	---	1010 <sup>#1</sup>	1.8	< 0.1	< 0.05	< 0.1	97.9	7
	18-Dec-2007	670	< 1	4	< 1	0.2	350	550	1500	300	8	---	1020 <sup>#1</sup>	0.23	< 0.2	< 0.06	< 0.2	0.86	9
	22-Apr-2009	630	< 0.5	6	< 0.5	0.22	330	520	1500	350	7.73	---	1000 <sup>#1</sup>	1.9	0.005	< 0.003	0.005	100	5.5
	06-May-2010	639	< 5.0	5.57	< 5.0	0.251	342	524	1540	347	8.17	---	1030 <sup>#1</sup>	2.02	< 0.050	< 0.050	< 0.071	98.4	5.6
	06-May-2010	641	< 5.0	5.63	< 5.0	0.243	345	526	1540	346	8.17	---	1040 <sup>#1</sup>	2.00	< 0.050	< 0.050	< 0.071	99.2	5.5
	02-Jun-2011	646	< 5.0	5.64	< 5.0	< 0.050	325	530	1570	331	8.22	---	988 <sup>#1</sup>	2.09	< 0.050	< 0.050	< 0.071	93.0	7.1
	02-Jun-2011	646	< 5.0	5.84	< 5.0	< 0.050	325	530	1580	322	8.17	---	978 <sup>#1</sup>	2.05	< 0.050	< 0.050	< 0.071	90.0	8.0
	29-May-2012	643	< 5.0	4.82	< 5.0	0.184	319	527	1550	318	8.04	---	982 <sup>#1</sup>	2.02	< 0.050	< 0.050	< 0.071	94.1	6.0
	10-Jul-2013	644	< 5.0	5.29	< 5.0	0.203	327	527	1530	351	7.89	1030 <sup>#1</sup>	1030 <sup>#1</sup>	2.10	< 0.050	< 0.050	< 0.071	103	5.9
13-Jun-2014	525	< 5.0	5.39	< 5.0	0.199	341	430	1390	325	8.12	1030 <sup>#1</sup>	944 <sup>#1</sup>	2.17	< 0.050	< 0.020	< 0.054	102	5.8	
MW-10 (Duplicate)	09-Mar-2005	628	< 5	< 1	< 5	0.18	221	514	1270	476	7.7	---	819 <sup>#1</sup>	1.68	0.1	< 0.05	0.1	99.7	5
	16-Nov-2005	634	< 5	3	< 5	0.12	222	520	1260	467	7.5	---	814 <sup>#1</sup>	1.36	< 0.1	< 0.05	< 0.1	93.8	6
	16-Jun-2006	641	< 5	2	< 5	0.13	212	525	1120	503	7.7	---	831 <sup>#1</sup>	1.76	< 0.1	< 0.05	< 0.1	103	6
	11-Jul-2007	651	< 5	2	< 5	0.12	208	533	1270	482	8	---	814 <sup>#1</sup>	1.65	< 0.1	< 0.05	< 0.1	97.2	5
	18-Dec-2007	660	< 1	< 1	< 1	0.2	230	540	1300	410	7.8	---	822 <sup>#1</sup>	1.8	< 0.2	< 0.06	< 0.2	0.84	5
	22-Apr-2009	620	< 0.5	2	< 0.5	0.14	190	510	1300	490	7.51	---	800 <sup>#1</sup>	1.8	0.005	< 0.003	0.005	110	4.7
	05-May-2010	633	< 5.0	0.73	< 5.0	0.169	227	519	1270	508	8.07	---	847 <sup>#1</sup>	1.71	< 0.050	< 0.050	< 0.071	104	5.1
	02-Jun-2011	607	< 5.0	1.19	< 5.0	< 0.050	206	497	1260	407	8.04	---	759 <sup>#1</sup>	1.60	< 0.050	< 0.050	< 0.071	89.9	6.7
	30-May-2012	639	< 5.0	0.53	< 5.0	0.113	211	524	1290	447	7.89	---	801 <sup>#1</sup>	1.79	< 0.050	< 0.050	< 0.071	93.5	5.9
	09-Jul-2013	638	< 5.0	0.68	< 5.0	0.107	215	523	1250	506	8.09	833 <sup>#1</sup>	832 <sup>#1</sup>	1.88	< 0.050	< 0.050	< 0.071	103	5.4
	09-Jul-2013	643	< 5.0	0.85	< 5.0	0.115	216	527	1250	506	8.04	837 <sup>#1</sup>	833 <sup>#1</sup>	1.93	< 0.050	< 0.050	< 0.071	101	5.4
	12-Jun-2014	507	< 5.0	0.67	< 5.0	0.11	229	416	1110	453	8.05	845 <sup>#1</sup>	752 <sup>#1</sup>	1.77	< 0.050	< 0.020	< 0.054	106	6.9



**Groundwater Analytical Results: Indicator Single Analysis Parameters**

PROJECT No.: 307076-06086-200

PROJECT No.: 307076-06086-200		Anions						General					Inorganic Nitrogen Compound				Ion Balance	Miscellaneous	
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Sulphate (mg/L)	Alkalinity (Total; as CaCO <sub>3</sub> ) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO <sub>3</sub> ) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Ion Balance (%)	Dissolved Organic Carbon (mg/L)
Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup>		---	---	250	---	---	500	---	---	---	(6.5 - 8.5)	500	500	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup>		---	---	---	---	1.5	---	---	---	---	---	---	---	---	10	1	10	---	---
(Duplicate)	12-Jun-2014	543	< 5.0	0.82	< 5.0	0.104	229	445	1140	452	8.04	834 <sup>#1</sup>	771 <sup>#1</sup>	1.78	< 0.050	< 0.020	< 0.054	102	5.0
MW-11	10-Mar-2005	642	< 5	8	< 5	0.14	196	526	1270	563	7.7	---	813 <sup>#1</sup>	1.5	0.1	< 0.05	0.1	104	15
	16-Nov-2005	654	< 5	16	< 5	0.09	199	536	1270	525	7.4	---	809 <sup>#1</sup>	1.41	< 0.1	< 0.05	< 0.1	93.4	7
	16-Jun-2006	672	< 5	11	< 5	0.09	194	551	1100	570	7.7	---	831 <sup>#1</sup>	1.56	< 0.1	< 0.05	< 0.1	101	7
	11-Jul-2007	662	< 5	8	< 5	0.09	193	542	1280	544	8	---	806 <sup>#1</sup>	1.43	< 0.1	< 0.05	< 0.1	98.6	8
	18-Dec-2007	680	< 1	10	< 1	0.1	210	560	1300	480	7.7	---	810 <sup>#1</sup>	0.2	< 0.2	< 0.06	< 0.2	0.87	6
	22-Apr-2009	640	< 0.5	10	< 0.5	0.11	170	530	1300	560	7.51	---	800 <sup>#1</sup>	1.5	0.003	< 0.003	0.003	110	5.5
	05-May-2010	650	< 5.0	15.2	< 5.0	0.132	212	533	1290	549	8.04	---	840 <sup>#1</sup>	1.48	< 0.050	< 0.050	< 0.071	99.1	6.0
	02-Jun-2011	653	< 5.0	9.69	< 5.0	< 0.050	203	536	1320	561	8.00	---	830 <sup>#1</sup>	1.55	< 0.050	< 0.050	< 0.071	102	6.8
	30-May-2012	648	< 5.0	8.71	< 5.0	0.067	202	531	1300	494	7.90	---	795 <sup>#1</sup>	1.51	< 0.050	< 0.050	< 0.071	91.8	6.6
	10-Jul-2013	640	< 5.0	8.92	< 5.0	0.105	213	525	1270	551	7.93	828 <sup>#1</sup>	836 <sup>#1</sup>	1.57	< 0.050	< 0.050	< 0.071	103	6.2
MW-12	12-Jun-2014	473	< 5.0	14.1	< 5.0	0.074	227	388	1090	510	7.99	856 <sup>#1</sup>	746 <sup>#1</sup>	1.58	< 0.050	< 0.020	< 0.054	110	5.6
	10-Mar-2005	636	< 5	6	< 5	0.13	45.9	521	1000	354	7.9	---	600 <sup>#1</sup>	1.39	0.1	< 0.05	0.1	102	6
	16-Nov-2005	712	< 5	8	< 5	0.07	52.5	584	1020	354	7.4	---	651 <sup>#1</sup>	1.2	< 0.1	< 0.05	< 0.1	92.7	7
	16-Jun-2006	669	< 5	7	< 5	0.07	44.2	549	904	370	7.8	---	621 <sup>#1</sup>	1.34	< 0.1	< 0.05	< 0.1	100	7
	11-Jul-2007	670	< 5	7	< 5	0.08	42.4	550	1020	358	8	---	609 <sup>#1</sup>	1.16	< 0.1	< 0.05	< 0.1	97.4	7
	18-Dec-2007	700	< 1	5	< 1	< 0.1	43	570	1000	300	7.8	---	601 <sup>#1</sup>	0.29	< 0.2	< 0.06	< 0.2	0.84	7
	22-Apr-2009	650	< 0.5	8	< 0.5	0.09	32	540	1000	360	7.66	---	610 <sup>#1</sup>	1.3	0.005	< 0.003	0.005	110	6.4
	06-May-2010	667	< 5.0	7.05	< 5.0	0.114	46.8	547	1030	365	8.13	---	623 <sup>#1</sup>	1.32	< 0.050	< 0.050	< 0.071	100	10.5
	02-Jun-2011	662	< 5.0	6.40	< 5.0	0.071	44.6	543	1050	372	8.14	---	606 <sup>#1</sup>	1.31	0.054	< 0.050	< 0.071	97.9	13.5
	30-May-2012	660	< 5.0	6.25	< 5.0	0.076	43.3	541	1030	330	8.03	---	591 <sup>#1</sup>	1.32	< 0.050	< 0.050	< 0.071	91.5	6.6
10-Jul-2013	649	< 5.0	6.89	< 5.0	0.083	44.4	532	1000	371	7.89	628 <sup>#1</sup>	618 <sup>#1</sup>	1.36	< 0.050	< 0.050	< 0.071	106	6.9	
12-Jun-2014	598	< 5.0	7.20	< 5.0	0.064	47.4	490	915	348	8.02	619 <sup>#1</sup>	573 <sup>#1</sup>	1.36	< 0.050	< 0.020	< 0.054	103	8.3	



**Groundwater Analytical Results: Indicator Single Analysis Parameters**

PROJECT No.: 307076-06086-200		Anions						General					Inorganic Nitrogen Compound				Ion Balance	Miscellaneous	
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Sulphate (mg/L)	Alkalinity (Total; as CaCO <sub>3</sub> ) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO <sub>3</sub> ) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (as N) (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Ion Balance (%)	Dissolved Organic Carbon (mg/L)
<b>Canadian Drinking Water AO Guidelines 2012<sup>#1</sup></b>		---	---	250	---	---	500	---	---	---	(6.5 - 8.5)	500	500	---	---	---	---	---	---
<b>Canadian Drinking Water MAC Guidelines 2012<sup>#2</sup></b>		---	---	---	---	1.5	---	---	---	---	---	---	---	---	10	1	10	---	---
<b>MW-13</b>	10-Mar-2005	531	< 5	2	< 5	0.2	10.6	435	784	202	8.1	---	460	1.4	0.1	< 0.05	0.1	100	4
	16-Nov-2005	537	< 5	4	< 5	0.14	12.5	440	782	195	7.8	---	454	1.29	< 0.1	< 0.05	< 0.1	92.2	5
	16-Jun-2006	715	541	4	< 5	0.14	10.1	443	715	209	8	---	470	1.31	0.2	< 0.05	0.2	99.4	5
	11-Jul-2007	541	< 5	2	< 5	0.13	9.1	444	782	202	8.2	---	456	1.22	< 0.1	< 0.05	< 0.1	96.3	5
	18-Dec-2007	560	< 1	2	< 1	0.2	9	460	790	170	8	---	457	0.23	< 0.2	< 0.06	< 0.2	0.87	5
	22-Apr-2009	520	< 0.5	3	< 0.5	0.15	9	430	770	200	7.81	---	460	1.3	0.005	< 0.003	0.005	100	4.5
	06-May-2010	530	< 5.0	2.15	< 5.0	0.160	9.54	435	776	192	8.22	---	453	1.30	< 0.050	< 0.050	< 0.071	97.5	4.1
	02-Jun-2011	530	< 5.0	1.92	< 5.0	0.162	9.12	434	796	183	8.24	---	442	1.36	< 0.050	< 0.050	< 0.071	92.1	5.2
	30-May-2012	529	< 5.0	1.81	< 5.0	0.119	9.24	433	786	179	8.18	---	438	1.31	< 0.050	< 0.050	< 0.071	90.5	4.6
	10-Jul-2013	525	< 5.0	2.28	< 5.0	0.147	10.0	430	769	191	7.92	464	458	1.38	< 0.050	< 0.050	< 0.071	102	4.4
	12-Jun-2014	485	< 5.0	2.63	< 5.0	0.129	11.0	398	698	185	8.16	457	425	1.33	< 0.050	< 0.020	< 0.054	101	6.3
<b>QA/QC</b>																			
<b>FIELD BLANK</b>	05-May-2010	< 5.0	< 5.0	< 0.50	< 5.0	< 0.050	< 0.50	< 5.0	1.07	< 1.0	6.06 <sup>#1</sup>	---	< 1.0	< 0.050	< 0.050	< 0.050	< 0.071	LowTDS	< 1.0
	25-May-2011	< 5.0	< 5.0	< 0.50	< 5.0	< 0.050	< 0.50	< 5.0	1.06	< 1.0	6.02 <sup>#1</sup>	---	< 1.0	< 0.050	< 0.050	< 0.050	< 0.071	LowTDS	< 1.0
	09-Jul-2013	< 5.0	< 5.0	< 0.50	< 5.0	< 0.020	< 0.50	< 2.0	1.90	< 1	6.19 <sup>#1</sup>	< 10	< 1	< 0.050	< 0.050	< 0.050	< 0.071	Low TDS	3.5
	13-Jun-2014	< 5.0	< 5.0	< 0.50	< 5.0	< 0.020	< 0.50	< 2.0	1.80	< 1	5.52 <sup>#1</sup>	< 10	< 1	< 0.050	< 0.050	< 0.020	< 0.054	Low TDS	< 1.0

**NOTES:**

1. --- in guideline row(s) denotes no criteria for that parameter.
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates parameters above applied guideline/criteria.
4. Highlighting indicates non-detect parameters above applied guideline/criteria.
5. Superscript <sup>#1</sup> denotes values exceeding

(Health Canada, August 2012. Guidelines for Canadian Drinking Water Quality. Aesthetic Objective. Summary Table. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment)

6. Superscript <sup>#2</sup> denotes values exceeding

(Health Canada, August 2012. Guidelines for Canadian Drinking Water Quality. Maximum Acceptable Concentration. Summary Table. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment)

7. Superscript <sup>(a)</sup> denotes that the 16-Jun-2014 chloride and ion balance results for MW-02 are considered anomalous. This was confirmed by re-sampling on 28-Aug-2014.

## Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	
Canadian Drinking Water AO Guidelines 2012 #1		0.1	---	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.05	---	---	---	---	---	---	200	---	---	---	---	---	---	---	5
Canadian Drinking Water MAC Guidelines 2012 #2		---	0.006	0.01	1	---	---	5	0.005	---	0.05	---	---	---	0.01	---	---	0.001	---	---	0.01	---	---	---	---	---	---	---	0.02	---	---	
Groundwater Monitoring																																
MW-01	07-Mar-2005	0.02	0.0008	0.0008	0.199	< 0.0005	< 0.00005	0.053	< 0.0001	94.6	0.0009	0.0017	< 0.0006	1.02 <sup>#1</sup>	0.0004	24.8	0.605 <sup>#1</sup>	< 0.0001	0.0007	0.0004	3.1	< 0.0004	< 0.0002	40	0.579	< 0.0005	< 0.0002	0.0013	0.0026	0.0003	0.004	
	17-Nov-2005	0.01	0.0005	0.0009	0.143	< 0.0005	< 0.0001	0.046	< 0.0001	94.8	< 0.0004	0.0015	0.0007	1.67 <sup>#1</sup>	< 0.0001	26.9	0.662 <sup>#1</sup>	< 0.0001	0.0013	0.0012	2.3	< 0.0004	< 0.0002	36	0.551	< 0.0001	< 0.0002	0.0012	0.0023	0.0001	< 0.002	
	15-Jun-2006	< 0.01	0.0006	0.0009	0.134	< 0.0005	< 0.00005	0.045	< 0.0001	99.7	0.0027	0.0008	< 0.0006	1.81 <sup>#1</sup>	< 0.0001	27.3	0.7 <sup>#1</sup>	< 0.0001	0.0004	< 0.0001	2.9	< 0.0004	< 0.0002	37	0.554	< 0.00005	< 0.0002	0.001	0.0022	< 0.0001	0.005	
	12-Jul-2007	< 0.01	0.0004	0.0009	0.127	< 0.0005	< 0.00005	0.054	< 0.0001	95.1	0.0011	0.0009	< 0.0006	1.84 <sup>#1</sup>	< 0.0001	26.1	0.664 <sup>#1</sup>	< 0.0001	0.0009	0.003	2.3	0.0005	< 0.0002	33	0.558	< 0.00005	< 0.0002	0.0008	0.0022	< 0.0001	< 0.002	
	19-Dec-2007	< 0.001	< 0.0002	< 0.001	0.11	< 0.001	---	0.05	< 0.0002	87	< 0.001	0.0009	< 0.0002	< 0.06	< 0.0002	23	0.67 <sup>#1</sup>	< 0.00005	0.0008	0.0027	2.2	< 0.001	< 0.0001	34	0.53	< 0.0002	< 0.001	0.001	0.0024	< 0.001	< 0.003	
	21-Apr-2009	< 0.001	< 0.0002	0.0008	---	< 0.001	---	---	< 0.000005	84	< 0.001	0.0008	0.0005	< 0.06	< 0.0002	24	0.66 <sup>#1</sup>	0.000001	0.0004	0.0009	2.4	< 0.0002	< 0.0001	36	---	< 0.0002	< 0.001	< 0.001	0.0021	< 0.001	< 0.003	
	05-May-2010	< 0.0050	< 0.00040	0.00095	0.132	< 0.00050	---	0.053	< 0.00010	98.6	< 0.0050	0.00088	< 0.0010	2.02 <sup>#1</sup>	< 0.00010	28.4	0.730 <sup>#1</sup>	< 0.00010	0.00046	0.0025	---	< 0.00040	< 0.00010	38.1	---	< 0.000050	---	0.00081	0.00209	< 0.00010	< 0.0020	
	25-May-2011	0.0051	< 0.00040	0.00093	0.147	< 0.00050	---	< 0.050	< 0.00010	91.1	< 0.0050	0.00084	0.0017	1.53 <sup>#1</sup>	< 0.00010	25.4	0.675 <sup>#1</sup>	< 0.000020	0.00039	< 0.0020	2.68	< 0.00040	< 0.00010	33.3	---	< 0.000050	---	< 0.00030	0.00205	0.00016	0.0074	
	29-May-2012	< 0.0050	< 0.00040	0.00088	0.120	< 0.00050	---	< 0.050	< 0.00010	93.0	< 0.0050	0.00068	< 0.0010	1.57 <sup>#1</sup>	< 0.00010	23.7	0.694 <sup>#1</sup>	< 0.000020	0.000423	< 0.0020	2.70	< 0.00040	< 0.00010	35.0	---	< 0.000050	---	< 0.00030	0.00194	< 0.00010	0.0034	
	10-Jul-2013	< 0.0050	< 0.00040	0.00098	0.147	< 0.00050	---	< 0.050	< 0.00010	96.5	< 0.0050	0.00075	< 0.0010	1.82 <sup>#1</sup>	< 0.00010	26.2	0.729 <sup>#1</sup>	< 0.000020	0.000360	< 0.0020	2.71	< 0.00040	< 0.00010	36.0	---	< 0.000050	---	< 0.00030	0.00223	< 0.00010	< 0.0030	
16-Jun-2014	< 0.0050	< 0.00040	0.00092	0.144	< 0.00050	---	< 0.050	< 0.00010	87.2	< 0.0050	0.00072	< 0.0010	1.92 <sup>#1</sup>	< 0.00010	26.4	0.737 <sup>#1</sup>	< 0.0000050	0.000281	< 0.0020	2.80	< 0.00040	< 0.00010	32.7	---	< 0.000050	---	< 0.00030	0.00212	< 0.00010	< 0.0030		
MW-02	07-Mar-2005	0.02	0.001	0.0025	0.204	< 0.0005	< 0.00005	0.12	< 0.0001	113	0.0013	0.0008	0.0015	0.275	0.0004	34.5	0.236 <sup>#1</sup>	0.0001	0.0046	< 0.0001	6.8	0.0008	< 0.0002	111	1.03	< 0.0005	< 0.0002	0.0012	0.0032	0.0017	0.004	
	17-Nov-2005	0.03	0.0006	0.0014	0.152	< 0.0005	< 0.0001	0.189	< 0.0001	125	< 0.0004	0.0031	0.0021	0.085	< 0.0001	51.3	0.671 <sup>#1</sup>	< 0.0001	0.0148	0.0644	7.2	0.0006	< 0.0002	120	1.54	0.00006	< 0.0002	0.0015	0.0053	0.0005	< 0.002	
	15-Jun-2006	< 0.01	0.0007	0.0024	0.107	< 0.0005	0.00005	0.152	< 0.0001	162	0.004	0.0031	0.0011	3.19 <sup>#1</sup>	< 0.0001	55.4	1.09 <sup>#1</sup>	< 0.0001	0.0009	0.0012	5.5	0.0005	< 0.0002	95	1.46	< 0.00005	< 0.0002	0.0012	0.0023	< 0.0001	0.1012	
	13-Jul-2007	< 0.01	0.0005	0.0036	0.0749	< 0.0005	< 0.00005	0.136	< 0.0001	154	< 0.0004	0.0032	0.0007	8.72 <sup>#1</sup>	< 0.0001	54.4	0.841 <sup>#1</sup>	< 0.0001	0.0008	0.0055	4.3	< 0.0004	< 0.0002	83	1.46	< 0.00005	< 0.0002	0.0011	0.0019	< 0.0001	< 0.002	
	19-Dec-2007	< 0.001	< 0.0002	0.003	0.04	< 0.001	---	0.13	< 0.0002	140	0.004	0.0026	0.0005	< 0.06	0.0003	46	0.7 <sup>#1</sup>	< 0.00005	0.0006	0.0046	4.5	< 0.001	< 0.0001	83	1.3	< 0.0002	< 0.001	0.002	0.0014	0.002	< 0.003	
	21-Apr-2009	< 0.001	< 0.0002	0.0038	---	< 0.001	---	---	< 0.000005	130	< 0.001	0.0017	0.0002	1.5 <sup>#1</sup>	< 0.0002	44	0.53 <sup>#1</sup>	0.000001	0.0005	0.0019	4.4	< 0.0002	< 0.0001	81	---	< 0.0002	< 0.001	< 0.001	0.0014	< 0.001	< 0.003	
	05-May-2010	< 0.0050	< 0.00040	0.00369	0.0544	< 0.00050	---	0.144	< 0.00010	147	< 0.0050	0.00157	< 0.0010	9.35 <sup>#1</sup>	< 0.00010	54.0	0.505 <sup>#1</sup>	< 0.00010	0.00041	0.0043	---	< 0.00040	< 0.00010	87.2	---	< 0.000050	---	0.00104	0.00139	< 0.00010	0.0044	
	25-May-2011	< 0.0050	< 0.00040	0.00327	0.0420	< 0.00050	---	0.135	< 0.00010	141	< 0.0050	0.00100	< 0.0010	9.25 <sup>#1</sup>	< 0.00010	51.3	0.434 <sup>#1</sup>	< 0.000020	0.00040	< 0.0020	4.25	< 0.00040	< 0.00010	97.9	---	< 0.000050	---	< 0.00030	0.00114	< 0.00010	0.0025	
	30-May-2012	0.0106	< 0.00040	0.00312	0.0586	< 0.00050	---	0.133	< 0.00010	135	< 0.0050	0.00103	< 0.0010	8.07 <sup>#1</sup>	< 0.00010	44.8	0.431 <sup>#1</sup>	< 0.000020	0.000615	0.0027	5.18	< 0.00040	< 0.00010	82.9	---	< 0.000050	---	< 0.00030	0.00123	< 0.00010	0.0031	
	10-Jul-2013	< 0.0050	< 0.00040	0.00340	0.0850	< 0.00050	---	0.200	< 0.00010	172	< 0.0050	0.00072	< 0.0010	12.3 <sup>#1</sup>	< 0.00010	56.4	0.554 <sup>#1</sup>	< 0.000020	0.000324	< 0.0020	5.25	< 0.00040	< 0.00010	161	---	< 0.000050	---	< 0.00030	0.00102	< 0.00010	< 0.0030	
16-Jun-2014	< 0.0050	< 0.00040	0.00319	0.0659	< 0.00050	---	0.163	< 0.00010	144	< 0.0050	0.00059	< 0.0010	10.8 <sup>#1</sup>	< 0.00010	52.0	0.446 <sup>#1</sup>	< 0.0000050	0.00037	< 0.0020	4.75	< 0.00040	< 0.00010	122	---	< 0.000050	---	< 0.00060	0.00097	< 0.00020	< 0.0030		
28-Aug-2014	< 0.0050	< 0.00040	0.00302	0.0686	---	---	0.144	< 0.00010	139	< 0.0050	---	< 0.0010	8.49 <sup>#1</sup>	< 0.00010	48.5	0.488 <sup>#1</sup>	0.0000059	---	< 0.0020	4.66	< 0.00040	< 0.00010	90.8	---	---	---	---	0.00132	---	< 0.0030		
MW-03	07-Mar-2005	< 0.01	0.0007	0.0012	0.0744	< 0.0005	< 0.00005	0.128	< 0.0001	106	0.0009	0.0012	< 0.0006	3.19 <sup>#1</sup>	< 0.0001	36.1	0.264 <sup>#1</sup>	< 0.0001	0.0008	< 0.0001	3.5	< 0.0004	< 0.0002	56	0.811	< 0.0005	< 0.0002	0.001	0.0007	< 0.0001	0.003	
	17-Nov-2005	0.01	0.0006	0.0014	0.0418	< 0.0005	0.00009	0.119	< 0.0001	104	< 0.0004	0.0008	0.0008	4.47 <sup>#1</sup>	< 0.0001	36.4	0.239 <sup>#1</sup>	< 0.0001	0.0015	0.0003	3	0.0005	< 0.0002	54	0.828	< 0.0001	< 0.0002	0.0019	0.0007	< 0.0001	< 0.002	
	15-Jun-2006	< 0.01	0.0006	0.0013	0.0411	< 0.0005	< 0.00005	0.109	< 0.0001	109	0.0029	0.0008	0.0007	4.85 <sup>#1</sup>	< 0.0001	36.6	0.258 <sup>#1</sup>	< 0.0001	0.0007	< 0.0001	3	0.0005	< 0.0002	52	0.845	< 0.00005	< 0.0002	0.001	0.0007	< 0.0001	0.01	
	12-Jul-2007	< 0.01	0.0004	0.0014	0.0379	< 0.0005	< 0.00005	0.115	< 0.0001	108	0.0012	0.0008	< 0.0006	4.89 <sup>#1</sup>	0.0005	37.7	0.249 <sup>#1</sup>	0.00009	0.0029	< 0.00001	3	< 0.0002	< 0.0002	55	0.001	0.0007	0.882	< 0.00005	0.0002	< 0.001	< 0.002	
	19-Dec-2007	< 0.001	< 0.0002	< 0.001	0.03	< 0.001	---	0.11	< 0.0002	98	0.002	0.0008	0.0002	< 0.06	0.0002	32	0.25 <sup>#1</sup>	< 0.00005	0													



## Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	
Canadian Drinking Water AO Guidelines 2012 #1		0.1	---	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.05	---	---	---	---	---	---	200	---	---	---	---	---	---	---	5
Canadian Drinking Water MAC Guidelines 2012 #2		---	0.006	0.01	1	---	---	5	0.005	---	0.05	---	---	---	0.01	---	0.001	---	---	---	0.01	---	---	---	---	---	---	---	0.02	---	---	
MW-05	08-Mar-2005	< 0.01	0.0008	0.0035	0.0618	< 0.0005	< 0.00005	0.14	< 0.0001	96.2	0.0009	0.0008	< 0.0006	1.14 #1	0.0002	27.5	0.402 #1	< 0.0001	0.0022	< 0.0001	6.1	0.0004	< 0.0002	51	0.71	< 0.0005	< 0.0002	0.0008	0.0014	0.0002	0.003	
	17-Nov-2005	< 0.01	0.0005	0.0081	0.0564	< 0.0005	0.00006	0.116	< 0.0001	98.6	< 0.0004	0.001	0.0007	3.31 #1	< 0.0001	30.1	0.531 #1	< 0.0001	0.0029	0.0022	6.9	0.0004	< 0.0002	43	0.667	< 0.0001	< 0.0002	0.0009	0.0008	0.0001	< 0.002	
	14-Jun-2006	< 0.01	0.0007	0.0051	0.454	< 0.0005	< 0.00005	0.081	< 0.0001	107	0.0016	0.0007	0.0006	3.48 #1	< 0.0001	33.5	0.583 #1	< 0.0001	0.0013	0.0002	7.6	< 0.0004	< 0.0002	44	0.659	< 0.0005	< 0.0002	0.0005	0.0007	0.0008	0.004	
	13-Jul-2007	< 0.01	0.0005	0.0018	0.0455	< 0.0005	< 0.00005	0.052	< 0.0001	110	0.0005	0.0008	0.0009	4 #1	< 0.0001	34.3	0.682 #1	< 0.0001	0.0006	0.0034	7.3	0.0005	< 0.0002	42	0.684	< 0.0005	< 0.0002	0.0006	0.0007	< 0.0001	0.005	
	19-Dec-2007	< 0.001	< 0.0002	0.001	0.04	< 0.001	---	0.06	< 0.0002	100	0.003	0.0007	< 0.0002	< 0.06	0.0002	30	0.66 #1	< 0.00005	0.0005	0.0029	7.4	< 0.001	< 0.0001	41	0.63	< 0.0002	< 0.001	0.002	0.0007	0.001	< 0.003	
	21-Apr-2009	< 0.001	< 0.0002	0.0014	---	< 0.001	---	---	< 0.000005	120	< 0.001	0.0007	0.0008	< 0.06	< 0.0002	34	0.72 #1	0.000001	0.0006	0.0014	7.6	< 0.0002	< 0.0001	43	---	< 0.0002	< 0.001	< 0.001	0.0007	< 0.001	< 0.003	
	29-Apr-2010	< 0.0050	0.00052	0.00170	0.0478	< 0.00050	---	0.064	< 0.00010	120	< 0.0050	0.00082	< 0.0010	3.39 #1	< 0.00010	36.7	0.758 #1	< 0.00010	0.00063	0.0039	---	0.00086	< 0.00010	46.1	---	< 0.000050	---	0.00088	0.00070	0.00017	0.0025	
	25-May-2011	< 0.0050	< 0.00040	0.00159	0.0552	< 0.00050	---	0.052	< 0.00010	105	< 0.0050	0.00075	< 0.0010	3.82 #1	< 0.00010	32.7	0.657 #1	< 0.000020	0.00042	< 0.0020	7.29	< 0.00040	< 0.00010	41.7	---	< 0.000050	---	< 0.00030	0.00066	< 0.00010	< 0.0020	
	29-May-2012	< 0.0050	< 0.00040	0.00107	0.0455	< 0.00050	---	< 0.050	< 0.00010	112	< 0.0050	0.00067	< 0.0010	3.83 #1	< 0.00010	31.3	0.707 #1	< 0.000020	0.000321	< 0.0020	8.00	< 0.00040	< 0.00010	42.6	---	< 0.000050	---	< 0.00030	0.00063	< 0.00010	< 0.0030	
	08-Jul-2013	< 0.0050	< 0.00040	0.00136	0.0547	< 0.00050	---	0.050	< 0.00010	118	< 0.0050	0.00082	< 0.0010	3.17 #1	< 0.00010	33.5	0.754 #1	< 0.000020	0.000414	< 0.0020	8.61	< 0.00040	< 0.00010	42.9	---	< 0.000050	---	< 0.00030	0.00060	< 0.00010	0.0049	
	13-Jun-2014	< 0.0050	< 0.00040	0.00173	0.0486	< 0.00050	---	< 0.050	< 0.00010	117	< 0.0050	0.00081	< 0.0010	4.37 #1	< 0.00010	34.8	0.758 #1	< 0.0000050	0.000415	< 0.0020	8.31	< 0.00040	< 0.00010	42.0	---	< 0.000050	---	< 0.00030	0.00071	< 0.00010	< 0.0030	
	MW-06	08-Mar-2005	< 0.01	0.0009	0.0042	0.071	< 0.0005	< 0.00005	0.148	< 0.0001	171	0.0035	0.0012	0.0011	2.92 #1	0.0004	58.9	1.32 #1	< 0.0001	0.0014	< 0.0001	6.1	0.0005	< 0.0002	138	1.2	< 0.0005	< 0.0002	0.0008	0.0023	0.0002	0.004
		17-Nov-2005	0.01	0.0005	0.0038	0.0557	< 0.0005	0.00006	0.16	< 0.0001	148	< 0.0004	0.0012	0.0012	2.96 #1	< 0.0001	52	0.943 #1	< 0.0001	0.0015	0.0004	5	0.0005	< 0.0002	211 #1	1.26	< 0.0001	< 0.0002	0.0015	0.0015	0.0001	< 0.002
16-Jun-2006		< 0.01	0.0009	0.0034	0.0666	< 0.0005	< 0.00005	0.149	< 0.0001	168	0.0015	0.0007	0.0014	3.58 #1	< 0.0001	57.7	1.01 #1	< 0.0001	0.0014	< 0.0001	5.5	0.0007	< 0.0002	190	1.28	< 0.0005	< 0.0002	0.001	0.0016	< 0.001	0.008	
12-Jul-2007		< 0.01	0.0005	0.0042	0.043	< 0.0005	< 0.00005	0.159	< 0.0001	157	0.0014	0.0009	0.0014	4.5 #1	< 0.0001	55.3	1.28 #1	< 0.0001	0.0016	0.006	4.8	< 0.0004	< 0.00021	182	1.42	< 0.0005	< 0.0002	0.0014	0.0016	< 0.0001	0.003	
19-Dec-2007		< 0.001	< 0.0002	0.003	0.03	< 0.001	---	0.13	< 0.0002	160	0.002	0.0008	0.0011	< 0.06	0.0002	54	1.5 #1	< 0.00005	0.0012	0.0052	5	< 0.001	< 0.0001	140	1.4	< 0.0002	< 0.001	0.002	0.0018	0.001	< 0.003	
22-Apr-2009		< 0.001	< 0.0002	0.005	---	< 0.001	---	---	0.000009	180	< 0.001	0.0004	< 0.0002	5.7 #1	< 0.0002	62	1.7 #1	< 0.000001	0.001	0.0015	5.5	< 0.0002	< 0.0001	150	---	< 0.0002	< 0.001	< 0.001	0.0017	< 0.001	< 0.003	
06-May-2010		< 0.0050	< 0.00040	0.00507	0.0353	< 0.00050	---	0.150	< 0.00010	156	< 0.0050	0.00052	0.0012	5.38 #1	< 0.00010	57.1	1.39 #1	< 0.00010	0.00094	0.0039	---	0.00041	< 0.00010	194	---	< 0.000050	---	0.00125	0.00146	0.00016	0.0063	
07-Jun-2011		0.0288	< 0.00040	0.00570	0.0309	< 0.00050	---	0.138	< 0.00010	164	< 0.0050	0.00036	< 0.0010	5.55 #1	< 0.00010	60.4	1.64 #1	< 0.000020	0.00080	< 0.0020	5.02	< 0.00040	< 0.00010	123	---	< 0.000050	---	0.00063	0.00180	0.00016	< 0.0020	
29-May-2012		0.0104	< 0.00040	0.00525	0.0265	< 0.00050	---	0.122	< 0.00010	167	< 0.0050	0.00030	< 0.0010	6.02 #1	< 0.00010	56.5	1.70 #1	< 0.000020	0.000878	< 0.0020	5.80	< 0.00040	< 0.00010	139	---	< 0.000050	---	< 0.00030	0.00173	< 0.00010	0.0036	
08-Jul-2013		< 0.0050	< 0.00040	0.00544	0.0315	< 0.0010	---	0.123	< 0.00010	168	< 0.0050	0.00036	< 0.0010	5.84 #1	< 0.00010	55.2	1.72 #1	< 0.000020	0.00097	< 0.0020	5.17	< 0.00040	< 0.00010	135	---	< 0.00010	---	< 0.00060	0.00158	< 0.00020	< 0.0030	
12-Jun-2014		< 0.0050	< 0.00040	0.00505	0.0315	< 0.00050	---	0.112	< 0.00010	163	< 0.0050	0.00030	< 0.0010	5.93 #1	< 0.00010	57.6	1.62 #1	< 0.0000050	0.00084	< 0.0020	5.56	< 0.00040	< 0.00010	152	---	< 0.000050	---	< 0.00060	0.00169	< 0.00020	< 0.0030	
MW-07		09-Mar-2005	< 0.01	0.0008	0.0017	0.0733	< 0.0005	< 0.00005	0.366	< 0.0001	287	0.0017	0.0026	0.0024	10.4 #1	0.0004	100	1.88 #1	< 0.0001	0.001	< 0.0001	6.6	0.0008	< 0.0002	287 #1	2.49	< 0.0005	< 0.0002	0.0012	0.0018	< 0.0001	0.006
		17-Nov-2005	< 0.01	0.0007	0.0019	0.053	< 0.0005	0.00005	0.311	< 0.0001	270	< 0.0004	0.002	0.0018	10.9 #1	< 0.0001	94.8	1.83 #1	< 0.0001	0.001	< 0.0001	5.5	< 0.0004	< 0.0002	268 #1	2.45	< 0.0001	< 0.0002	0.0009	0.0017	< 0.0001	< 0.002
	16-Jun-2006	< 0.01	0.0007	0.0022	0.0543	< 0.0005	< 0.00005	0.312	< 0.0001	284	0.0018	0.0012	0.0023	< 0.005	< 0.0001	96.4	1.86 #1	< 0.0001	0.0008	< 0.0001	6.2	0.0007	< 0.0002	269 #1	2.58	< 0.0005	< 0.0002	0.001	0.0017	< 0.0001	0.006	
	12-Jul-2007	< 0.01	0.0005	0.0027	0.0596	< 0.0005	< 0.00005	0.289	< 0.0001	257	0.0011	0.0014	0.0015	10.9 #1	< 0.0001	89.8	1.78 #1	< 0.0001	0.0012	0.0056	4.6	0.0008	< 0.0002	248 #1	2.49	< 0.0005	< 0.0002	0.0011	0.0016	< 0.0001	0.002	
	19-Dec-2007	< 0.001	< 0.0002	0.001	0.04	< 0.001	---	0.26	< 0.0002	220	0.004	0.0013	0.0016	< 0.06	0.0003	72	1.6 #1	< 0.00005	0.0011	0.0059	5.1	< 0.001	< 0.0001	230 #1	2.2	< 0.0002	< 0.001	0.002	0.0014	0.002	0.003	
	22-Apr-2009	< 0.001	< 0.0002	0.0021	---	< 0.001	---	---	0.000016	330	< 0.001	0.0013	0.0007	14 #1	< 0.0002	110	2.3 #1	< 0.000001	0.0004	0.0024	6.6	< 0.0002	< 0.0001	320 #1	---	< 0.0002	< 0.001	< 0.001	0.0016	< 0.001	< 0.003	
	05-May-2010	< 0.0050	< 0.00040	0.00361	0.0490	< 0.00050	---																									

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	
Canadian Drinking Water AO Guidelines 2012 #1		0.1	---	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.05	---	---	---	---	---	---	200	---	---	---	---	---	---	---	5
Canadian Drinking Water MAC Guidelines 2012 #2		---	0.006	0.01	1	---	---	5	0.005	---	0.05	---	---	---	0.01	---	---	0.001	---	---	---	0.01	---	---	---	---	---	---	---	0.02	---	---
MW-09 (Duplicate)	09-Mar-2005	0.14 #1	0.0007	0.0019	0.0608	< 0.0005	< 0.00005	0.339	< 0.0001	71.6	0.0016	0.0011	0.001	1.11 #1	0.0001	26	0.714 #1	< 0.0001	0.0019	0.0002	4.2	< 0.0004	< 0.0002	226 #1	0.843	< 0.0005	< 0.0002	0.0058	0.0019	0.0005	0.003	
	09-Mar-2005	0.12 #1	0.0007	0.0019	0.0616	< 0.0005	< 0.00005	0.332	< 0.0001	79.1	0.0012	0.0012	0.001	1.07 #1	0.0003	27.9	0.705 #1	< 0.0001	0.0019	0.0002	4.7	< 0.0004	< 0.0002	243 #1	0.841	< 0.0005	< 0.0002	0.0059	0.0018	0.0004	0.004	
	17-Nov-2005	0.02	0.0006	0.0018	0.052	< 0.0005	< 0.0001	0.294	< 0.0001	92.6	0.0006	0.0023	0.0011	1.4 #1	< 0.0001	27.3	0.752 #1	< 0.0001	0.0038	0.0087	3.9	0.0005	< 0.0002	227 #1	0.869	< 0.0001	< 0.0002	0.0038	0.0015	0.0002	< 0.002	
	16-Jun-2006	< 0.01	0.0006	0.0018	0.0389	< 0.0005	< 0.00005	0.289	< 0.0001	98.1	0.0013	0.0011	0.0012	1.44 #1	< 0.0001	27.7	0.797 #1	< 0.0001	0.0015	< 0.0001	3.9	< 0.0004	< 0.0002	231 #1	0.861	< 0.00005	< 0.0002	0.0008	0.0014	< 0.0001	0.005	
	11-Jul-2007	< 0.01	0.0004	0.002	0.0302	< 0.0005	< 0.00005	0.26	< 0.0001	94.9	0.0016	0.0009	0.0008	1.74 #1	< 0.0001	27.6	0.785 #1	< 0.0001	0.0017	0.003	3.3	< 0.0004	< 0.0002	231 #1	0.961	< 0.00005	< 0.0002	0.0009	0.0014	0.0005	< 0.002	
	18-Dec-2007	< 0.001	< 0.0002	0.002	0.02	< 0.001	---	0.26	< 0.0002	83	< 0.001	0.0009	0.0008	< 0.06	< 0.0002	22	0.77 #1	< 0.00005	0.0018	0.0023	3.5	< 0.001	< 0.0001	230 #1	0.81	< 0.0002	< 0.001	0.002	0.0014	< 0.001	0.003	
	22-Apr-2009	0.1	< 0.0002	0.0023	---	< 0.001	---	---	0.000008	97	< 0.001	0.0008	0.0003	1.9 #1	< 0.0002	27	0.86 #1	< 0.000001	0.0016	0.0017	4.1	< 0.0002	< 0.0001	240 #1	---	< 0.0002	< 0.001	0.005	0.0012	< 0.001	< 0.003	
	06-May-2010	< 0.0050	< 0.00040	0.00255	0.0250	< 0.00050	---	0.267	< 0.00010	93.1	< 0.0050	0.00085	< 0.0010	2.04 #1	< 0.00010	27.8	0.828 #1	< 0.00010	0.00158	0.0027	---	< 0.00040	< 0.00010	246 #1	---	< 0.000050	---	0.00078	0.00121	< 0.00010	< 0.0020	
	06-May-2010	< 0.0050	< 0.00040	0.00257	0.0247	< 0.00050	---	0.261	< 0.00010	93.1	< 0.0050	0.00086	< 0.0010	2.03 #1	< 0.00010	27.6	0.832 #1	< 0.00010	0.00154	0.0027	---	< 0.00040	< 0.00010	246 #1	---	< 0.000050	---	0.00077	0.00120	< 0.00010	0.0020	
	02-Jun-2011	< 0.0050	< 0.00040	0.00272	0.0296	< 0.00050	---	0.237	< 0.00010	89.5	< 0.0050	0.00126	< 0.0010	1.29 #1	< 0.00010	26.0	0.773 #1	< 0.000020	0.00152	< 0.0020	4.16	< 0.00040	< 0.00010	220 #1	---	< 0.000050	---	< 0.00030	0.00128	0.00015	< 0.0020	
	02-Jun-2011	< 0.0050	< 0.00040	0.00280	0.0294	< 0.00050	---	0.255	< 0.00010	87.4	< 0.0050	0.00128	< 0.0010	1.46 #1	< 0.00010	25.2	0.754 #1	< 0.000020	0.00156	< 0.0020	4.09	< 0.00040	0.00013	212 #1	---	< 0.000050	---	< 0.00030	0.00132	0.00012	0.0020	
	29-May-2012	0.0112	< 0.00040	0.00234	0.0209	< 0.00050	---	0.226	< 0.00010	88.3	< 0.0050	0.00080	< 0.0010	1.89 #1	< 0.00010	23.7	0.784 #1	< 0.000020	0.00143	< 0.0020	4.22	< 0.00040	< 0.00010	226 #1	---	< 0.000050	---	< 0.00030	0.00121	< 0.00010	0.0030	
	10-Jul-2013	< 0.0050	< 0.00040	0.00237	0.0243	< 0.0010	---	0.249	< 0.00010	96.2	< 0.0050	0.00138	< 0.0010	1.94 #1	< 0.00010	26.8	0.842 #1	< 0.000020	0.00154	< 0.0020	4.06	< 0.00040	< 0.00010	251 #1	---	< 0.00010	---	< 0.00060	0.00138	< 0.00020	< 0.0030	
	13-Jun-2014	< 0.0050	< 0.00040	0.00232	0.0224	< 0.00050	---	0.196	< 0.00010	87.8	< 0.0050	0.00120	< 0.0010	1.85 #1	< 0.00010	25.6	0.868 #1	< 0.0000050	0.00131	< 0.0020	4.23	< 0.00040	< 0.00010	222 #1	---	< 0.000050	---	< 0.00030	0.00132	< 0.00010	< 0.0030	
MW-10	09-Mar-2005	< 0.01	0.0007	0.003	0.0296	< 0.0005	< 0.00005	0.209	< 0.0001	131	0.0012	0.0003	0.0007	5.29 #1	0.0004	36.1	0.639 #1	< 0.0001	0.0009	< 0.0001	5.3	< 0.0004	< 0.0002	117	1.29	< 0.0005	< 0.0002	0.0008	0.0019	< 0.0001	0.003	
	16-Nov-2005	< 0.01	0.0006	0.0037	0.0331	< 0.0005	< 0.0001	0.202	< 0.0001	129	< 0.0004	0.0005	0.0009	5.49 #1	< 0.0001	35.2	0.642 #1	< 0.0001	0.001	< 0.0001	5	0.0006	< 0.0002	108	1.43	< 0.0001	< 0.0002	0.0008	0.0015	< 0.0001	< 0.002	
	16-Jun-2006	< 0.01	0.0006	0.0036	0.0319	< 0.0005	< 0.00005	0.187	< 0.0001	139	0.0011	0.0003	0.0009	5.89 #1	< 0.0001	37.8	0.67 #1	< 0.0001	0.0009	< 0.0001	5.6	< 0.0004	< 0.0002	119	1.41	< 0.00005	< 0.0002	0.0007	0.0014	< 0.0001	0.009	
	11-Jul-2007	< 0.01	0.0005	0.0039	0.0291	< 0.0005	< 0.00005	0.168	< 0.0001	132	0.0015	0.0004	0.0008	5.93 #1	< 0.0001	36.9	0.656 #1	< 0.0001	0.0009	0.003	4.7	< 0.0004	< 0.0002	110	1.55	< 0.00005	< 0.0002	0.0007	0.0013	0.0004	0.015	
	18-Dec-2007	< 0.001	< 0.0002	0.002	0.02	< 0.001	---	0.16	< 0.0002	120	< 0.001	0.0005	0.0006	< 0.06	< 0.0002	29	0.64 #1	< 0.00005	0.0011	0.0029	4.8	< 0.001	< 0.0001	110	1.3	< 0.0002	< 0.001	0.002	0.0014	< 0.001	< 0.003	
	22-Apr-2009	< 0.001	< 0.0002	0.0044	---	< 0.001	---	---	0.000007	140	< 0.001	< 0.0003	0.0006	5.9 #1	< 0.0002	36	0.71 #1	< 0.000001	0.0009	0.001	5.6	< 0.0002	< 0.0001	120	---	< 0.0002	< 0.001	< 0.001	0.0011	< 0.001	< 0.003	
	05-May-2010	< 0.0050	< 0.00040	0.00459	0.0290	< 0.00050	---	0.177	< 0.00010	139	< 0.0050	0.00044	0.0015	6.80 #1	< 0.00010	39.1	0.735 #1	< 0.00010	0.00097	0.0029	---	< 0.00040	< 0.00010	124	---	< 0.000050	---	0.00083	0.00115	< 0.00010	0.0023	
	02-Jun-2011	< 0.0050	< 0.00040	0.00287	0.0321	< 0.00050	---	0.170	< 0.00010	113	< 0.0050	0.00031	< 0.0010	3.89 #1	< 0.00010	30.2	0.566 #1	< 0.000020	0.00481	< 0.0020	5.58	< 0.00040	< 0.00010	105	---	< 0.000050	---	< 0.00030	0.00133	0.00021	0.0030	
	30-May-2012	0.0139	< 0.00040	0.00420	0.0273	< 0.00050	---	0.150	< 0.00010	127	< 0.0050	0.00032	< 0.0010	5.98 #1	< 0.00010	31.6	0.655 #1	< 0.000020	0.000884	< 0.0020	5.79	< 0.00040	< 0.00010	111	---	< 0.000050	---	< 0.00030	0.00113	< 0.00010	< 0.0030	
	09-Jul-2013	< 0.0050	< 0.00040	0.00485	0.0295	< 0.00050	---	0.162	< 0.00010	141	< 0.0050	0.00032	< 0.0010	6.11 #1	< 0.00010	37.3	0.729 #1	< 0.000020	0.000870	< 0.0020	6.22	< 0.00040	< 0.00010	118	---	< 0.000050	---	< 0.00030	0.00116	< 0.00010	< 0.0030	
	09-Jul-2013	< 0.0050	< 0.00040	0.00479	0.0293	< 0.00050	---	0.159	< 0.00010	142	< 0.0050	0.00031	< 0.0010	6.03 #1	< 0.00010	36.7	0.710 #1	< 0.000020	0.000863	< 0.0020	5.96	< 0.00040	< 0.00010	115	---	< 0.000050	---	< 0.00030	0.00115	< 0.00010	< 0.0030	
	12-Jun-2014	< 0.0050	< 0.00040	0.00463	0.0282	< 0.00050	---	0.127	< 0.00010	125	< 0.0050	0.00031	< 0.0010	6.10 #1	< 0.00010	34.2	0.689 #1	< 0.0000050	0.000770	< 0.0020	5.79	< 0.00040	< 0.00010	108	---	< 0.000050	---	< 0.00030	0.00117	< 0.00010	< 0.0030	
	(Duplicate)	12-Jun-2014	< 0.0050	< 0.00040	0.00450	0.0293	< 0.00050	---	0.129	< 0.00010	124	< 0.0050	0.00032	< 0.0010	6.08 #1	< 0.00010	34.5	0.740 #1	< 0.0000050	0.000782	< 0.0020	5.84	< 0.00040	< 0.00010	110	---	< 0.000050	---	< 0.00030	0.00112	< 0.00010	< 0.0030
	MW-11	10-Mar-2005	< 0.01	0.0008	0.0022	0.0494	< 0.0005	< 0.00005	0.189	< 0.0001	150	0.0011	0.0006	< 0.0006	6.89 #1	< 0.0001	45.8	0.668 #1	< 0.0001	0.001	< 0.0001	4.9	< 0.0004	< 0.0002	92	1.27	< 0.0005	< 0.0002	0.0008	0.0012	0.0001	0.004
16-Nov-2005		0.02	0.0006	0.0025	0.0466	< 0.0005	0.00008	0.227	< 0.0001	140	0.0006	0.0007	0.0009	6.95 #1	< 0.0001	42.5	0.628 #1	< 0.0001	0.0009	< 0.0001	4.5	< 0.0004	< 0.0002	85	1.24	< 0.0001	< 0.0002	0.001	0.0012	< 0.0001	< 0.002	
16-Jun-2006		< 0.01	0.0006	0.0022	0.044	< 0.0005	< 0.00005	0.205	< 0.0001	153	0.0013	0.0003	0.0009	7.23 #1	< 0.0001	45.7	0.659 #1	< 0.0001	0.0006	< 0.0001	4.8	0.0004	< 0.0002	92	1.22	< 0.00005	< 0.0002	0.001	0.0011	< 0.0001	0.009	
11-Jul-2007		< 0.01	0.0004	0.0023	0.0377	<																										

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup>		0.1	---	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.05	---	---	---	---	---	---	200	---	---	---	---	---	---	5
Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup>		---	0.006	0.01	1	---	---	5	0.005	---	0.05	---	---	---	0.01	---	---	0.001	---	---	---	0.01	---	---	---	---	---	---	0.02	---	
MW-13	10-Mar-2005	< 0.01	0.0008	0.0012	0.389	< 0.0005	< 0.00005	0.258	< 0.0001	53.7	0.0048	0.0008	< 0.0006	0.818 <sup>#1</sup>	0.0002	16.5	0.263 <sup>#1</sup>	< 0.0001	0.0023	0.0009	4.2	< 0.0004	< 0.0002	112	0.57	< 0.0005	< 0.0002	0.0006	0.0008	< 0.0001	0.005
	16-Nov-2005	0.07	0.0006	0.0016	0.413	< 0.0005	< 0.0001	0.301	< 0.0001	51.2	0.0007	0.0033	0.0007	1.08 <sup>#1</sup>	0.0002	16.2	0.243 <sup>#1</sup>	0.0001	0.0027	0.0015	3.4	0.0005	< 0.0002	103	0.542	< 0.0001	< 0.0002	0.0006	0.0009	< 0.0001	< 0.002
	16-Jun-2006	< 0.01	0.0006	0.0014	0.424	< 0.0005	< 0.00005	0.273	< 0.0001	55.6	0.0011	0.0007	< 0.0006	1.19 <sup>#1</sup>	< 0.0001	17.1	0.256 <sup>#1</sup>	< 0.0001	0.0021	< 0.0001	3.9	< 0.0004	< 0.0002	112	0.553	< 0.00005	< 0.0002	0.0006	0.0008	< 0.0001	0.009
	11-Jul-2007	< 0.01	0.0004	0.0014	0.428	< 0.0005	< 0.00005	0.246	< 0.0001	53	0.0016	0.0009	< 0.0006	1.26 <sup>#1</sup>	< 0.0001	16.9	0.252 <sup>#1</sup>	< 0.0001	0.0023	0.0022	3.5	< 0.0004	< 0.0002	105	0.58	< 0.00005	< 0.0002	0.0006	0.0008	0.0004	< 0.002
	18-Dec-2007	< 0.001	< 0.0002	0.001	0.29	< 0.001	---	0.25	< 0.0002	45	< 0.001	0.0009	< 0.0002	< 0.06	< 0.0002	14	0.25 <sup>#1</sup>	0.00007	0.0028	0.0016	3.5	< 0.001	< 0.0001	110	0.5	< 0.0002	< 0.001	0.002	0.0009	< 0.001	< 0.003
	22-Apr-2009	< 0.001	< 0.0002	0.0015	---	< 0.001	---	---	0.000005	54	< 0.001	0.0007	0.0003	1.3 <sup>#1</sup>	< 0.0002	17	0.26 <sup>#1</sup>	< 0.000001	0.0022	0.0012	3.9	< 0.0002	< 0.0001	110	---	< 0.0002	< 0.001	< 0.001	0.0007	< 0.001	< 0.003
	06-May-2010	< 0.0050	< 0.00040	0.00162	0.407	< 0.00050	---	0.254	< 0.00010	50.0	< 0.0050	0.00092	< 0.0010	1.45 <sup>#1</sup>	< 0.00010	16.4	0.249 <sup>#1</sup>	< 0.00010	0.00219	0.0021	---	< 0.00040	< 0.00010	110	---	< 0.000050	---	0.00070	0.00069	< 0.00010	< 0.0020
	02-Jun-2011	< 0.0050	< 0.00040	0.00157	0.411	< 0.00050	---	0.265	< 0.00010	48.1	< 0.0050	0.00062	< 0.0010	1.25 <sup>#1</sup>	< 0.00010	15.3	0.231 <sup>#1</sup>	< 0.000020	0.00194	< 0.0020	3.74	< 0.00040	< 0.00010	103	---	< 0.000050	---	< 0.00030	0.00073	< 0.00010	< 0.0020
	30-May-2012	< 0.0050	< 0.00040	0.00140	0.354	< 0.00050	---	0.197	< 0.00010	48.0	< 0.0050	0.00065	< 0.0010	1.33 <sup>#1</sup>	< 0.00010	14.4	0.238 <sup>#1</sup>	< 0.000020	0.00180	< 0.0020	4.00	< 0.00040	< 0.00010	101	---	< 0.000050	---	< 0.00030	0.00063	< 0.00010	< 0.0030
	10-Jul-2013	< 0.0050	< 0.00040	0.00176	0.462	< 0.00050	---	0.221	< 0.00010	49.7	< 0.0050	0.00128	< 0.0010	1.17 <sup>#1</sup>	< 0.00010	16.2	0.252 <sup>#1</sup>	< 0.000020	0.00484	0.0112	3.98	< 0.00040	< 0.00010	118	---	< 0.000050	---	< 0.00030	0.00075	< 0.00010	< 0.0030
	12-Jun-2014	0.0371	< 0.00040	0.00179	0.420	< 0.00050	---	0.196	< 0.00010	48.8	< 0.0050	0.00074	< 0.0010	1.30 <sup>#1</sup>	< 0.00010	15.4	0.245 <sup>#1</sup>	< 0.0000050	0.00183	< 0.0020	4.07	< 0.00040	< 0.00010	104	---	< 0.000050	---	0.00148	0.00069	0.00013	< 0.0030
QA/QC																															
FIELD BLANK	05-May-2010	< 0.0050	< 0.00040	< 0.00040	< 0.0050	< 0.00050	---	< 0.050	< 0.00010	< 0.50	< 0.0050	< 0.00010	< 0.0010	< 0.020	< 0.00010	< 0.10	< 0.0050	< 0.00010	< 0.00010	< 0.0020	---	< 0.00040	< 0.00010	< 0.50	---	< 0.000050	---	< 0.00030	< 0.00010	< 0.00010	< 0.0020
	25-May-2011	< 0.0050	< 0.00040	< 0.00040	< 0.0050	< 0.00050	---	< 0.050	< 0.00010	< 0.50	< 0.0050	< 0.00010	< 0.0010	< 0.020	< 0.00010	< 0.10	< 0.0050	< 0.000020	< 0.00010	< 0.0020	< 0.10	< 0.00040	< 0.00010	< 0.50	---	< 0.000050	---	< 0.00030	< 0.00010	< 0.00010	< 0.0020
	09-Jul-2013	< 0.0050	< 0.00040	< 0.00040	< 0.0050	< 0.00050	---	< 0.050	< 0.00010	< 0.50	< 0.0050	< 0.00010	< 0.0010	< 0.010	< 0.00010	< 0.10	< 0.0020	< 0.000020	< 0.000050	< 0.0020	< 0.10	< 0.00040	< 0.00010	< 1.0	---	< 0.000050	---	< 0.00030	< 0.00010	< 0.00010	< 0.0030
	13-Jun-2014	< 0.0050	< 0.00040	< 0.00040	< 0.0050	< 0.00050	---	< 0.050	< 0.00010	< 0.50	< 0.0050	< 0.00010	< 0.0010	< 0.010	< 0.00010	< 0.10	< 0.0020	< 0.0000050	< 0.000050	< 0.0020	< 0.10	< 0.00040	< 0.00010	< 1.0	---	< 0.000050	---	< 0.00030	< 0.00010	< 0.00010	< 0.0030

NOTES:

1. --- in guideline row(s) denotes no criteria for that parameter.
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates parameters above applied guideline/criteria.
4. Highlighting indicates non-detect parameters above applied guideline/criteria.
5. Superscript <sup>#1</sup> denotes values exceeding  
(Health Canada, August 2012. Guidelines for Canadian Drinking Water Quality. Aesthetic Objective. Summary Table. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment)
6. Superscript <sup>#2</sup> denotes values exceeding  
(Health Canada, August 2012. Guidelines for Canadian Drinking Water Quality. Maximum Acceptable Concentration. Summary Table. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment)



Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)

PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Styrene	m&p-Xylene (mg/L)	o-Xylene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) (mg/L)	PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX (mg/L)	PHC F2 (C <sub>10</sub> -C <sub>16</sub> ) (mg/L)	
<b>Canadian Drinking Water AO Guidelines 2012 #1</b>		---	0.024	0.0024	---	---	---	0.3	---	---	---	
<b>Canadian Drinking Water MAC Guidelines 2012 #2</b>		0.005	---	---	---	---	---	---	---	---	---	
<b>Groundwater Monitoring</b>												
MW-01	07-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	17-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	15-Jun-2006	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	12-Jul-2007	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	19-Dec-2007	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	21-Apr-2009	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	05-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	29-May-2012	---	---	---	---	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25	
16-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25		
MW-02	07-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	17-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	15-Jun-2006	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	13-Jul-2007	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	19-Dec-2007	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	21-Apr-2009	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	05-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	30-May-2012	---	---	---	---	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	0.31	
16-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25		
28-Aug-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25		
MW-03	07-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	17-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	15-Jun-2006	< 0.0005	0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	12-Jul-2007	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	19-Dec-2007	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	21-Apr-2009	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	29-May-2012	---	---	---	---	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25	
16-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25		
MW-04	08-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	17-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	(Duplicate) 17-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	14-Jun-2006	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	13-Jul-2007	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	19-Dec-2007	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	21-Apr-2009	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	07-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	30-May-2012	---	---	---	---	---	---	---	---	---	---	< 0.25
(Duplicate) 30-May-2012	---	---	---	---	---	---	---	---	---	---	< 0.25	
09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25		
13-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25		
MW-05	08-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	17-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	14-Jun-2006	< 0.0005	0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	13-Jul-2007	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05	
	19-Dec-2007	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	21-Apr-2009	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1	
	29-Apr-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25	
	29-May-2012	---	---	---	---	---	---	---	---	---	---	< 0.25
	08-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25	
13-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25		







Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)

PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Styrene	m&p-Xylene (mg/L)	o-Xylene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) (mg/L)	PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX (mg/L)	PHC F2 (C <sub>10</sub> -C <sub>16</sub> ) (mg/L)
<b>Canadian Drinking Water AO Guidelines 2012 <sup>#1</sup></b>		---	0.024	0.0024	---	---	---	0.3	---	---	---
<b>Canadian Drinking Water MAC Guidelines 2012 <sup>#2</sup></b>		0.005	---	---	---	---	---	---	---	---	---
<b>MW-11</b>	10-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	16-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	16-Jun-2006	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	11-Jul-2007	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	18-Dec-2007	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1
	22-Apr-2009	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1
	05-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	<b>MW-12</b>	10-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1
16-Nov-2005		< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
16-Jun-2006		< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
11-Jul-2007		< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
18-Dec-2007		< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1
22-Apr-2009		< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1
06-May-2010		< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
02-Jun-2011		< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
30-May-2012		---	---	---	---	---	---	---	---	---	< 0.25
10-Jul-2013		< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
12-Jun-2014		< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
<b>MW-13</b>		10-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1
	16-Nov-2005	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	16-Jun-2006	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	11-Jul-2007	< 0.0005	< 0.0005	< 0.0005	---	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	18-Dec-2007	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1
	22-Apr-2009	< 0.0004	< 0.0004	< 0.0004	---	---	---	< 0.0008	< 0.1	< 0.1	< 0.1
	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	<b>QA/QC</b>										
<b>FIELD BLANK</b>	05-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	---	---	---	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	13-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25

**NOTES:**

1. --- in guideline row(s) denotes no criteria for that parameter.
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates parameters above applied guideline/criteria.
4. Highlighting indicates non-detect parameters above applied guideline/criteria.
5. Superscript <sup>#1</sup> denotes values exceeding

(Health Canada, August 2012. Guidelines for Canadian Drinking Water Quality. Aesthetic Objective. Summary Table. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment)

6. Superscript <sup>#2</sup> denotes values exceeding

(Health Canada, August 2012. Guidelines for Canadian Drinking Water Quality. Maximum Acceptable Concentration. Summary Table. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment)



PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Phenols (mg/L)	
<b>Groundwater Monitoring</b>			
MW-01	07-Mar-2005	< 0.001	
	17-Nov-2005	< 0.001	
	15-Jun-2006	< 0.001	
	12-Jul-2007	< 0.001	
	19-Dec-2007	0.002	
	21-Apr-2009	0.003	
	05-May-2010	< 0.0010	
	25-May-2011	< 0.0010	
	29-May-2012	< 0.0010	
	10-Jul-2013	< 0.0010	
	16-Jun-2014	< 0.0010	
	MW-02	07-Mar-2005	< 0.001
		17-Nov-2005	< 0.001
15-Jun-2006		< 0.001	
13-Jul-2007		0.002	
19-Dec-2007		0.002	
21-Apr-2009		0.002	
05-May-2010		< 0.0010	
25-May-2011		< 0.0010	
30-May-2012		< 0.0010	
10-Jul-2013		< 0.0010	
16-Jun-2014		< 0.0010	
28-Aug-2014		< 0.0010	
MW-03		07-Mar-2005	< 0.001
	17-Nov-2005	< 0.001	
	15-Jun-2006	< 0.001	
	12-Jul-2007	< 0.001	
	19-Dec-2007	0.002	
	21-Apr-2009	0.003	
	06-May-2010	< 0.0010	
	02-Jun-2011	< 0.0010	
	29-May-2012	< 0.0010	
	10-Jul-2013	< 0.0010	
	16-Jun-2014	< 0.0010	
	MW-04 (Duplicate)	08-Mar-2005	< 0.001
		17-Nov-2005	< 0.001
17-Nov-2005		< 0.001	
14-Jun-2006		< 0.001	
13-Jul-2007		< 0.001	
19-Dec-2007		0.002	
21-Apr-2009		< 0.002	
06-May-2010		< 0.0010	
07-Jun-2011		< 0.0010	
30-May-2012		< 0.0010	
(Duplicate)		30-May-2012	< 0.0010
		09-Jul-2013	< 0.0010
		13-Jun-2014	< 0.0010



PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Phenols (mg/L)	
MW-05	08-Mar-2005	< 0.001	
	17-Nov-2005	< 0.001	
	14-Jun-2006	< 0.001	
	13-Jul-2007	0.002	
	19-Dec-2007	< 0.001	
	21-Apr-2009	0.003	
	29-Apr-2010	< 0.0010	
	25-May-2011	< 0.0010	
	29-May-2012	< 0.0010	
	08-Jul-2013	< 0.0010	
	13-Jun-2014	< 0.0010	
	MW-06	08-Mar-2005	< 0.001
		17-Nov-2005	< 0.001
16-Jun-2006		< 0.001	
12-Jul-2007		< 0.001	
19-Dec-2007		0.002	
22-Apr-2009		0.003	
06-May-2010		< 0.0010	
07-Jun-2011		< 0.0010	
29-May-2012		< 0.0010	
08-Jul-2013		< 0.0010	
12-Jun-2014		< 0.0010	
MW-07		09-Mar-2005	< 0.001
		17-Nov-2005	< 0.001
	16-Jun-2006	< 0.001	
	12-Jul-2007	< 0.001	
	19-Dec-2007	0.002	
	22-Apr-2009	0.003	
	05-May-2010	< 0.0010	
	08-Jun-2011	0.0020	
	28-Jul-2011	< 0.0010	
	30-May-2012	< 0.0010	
	11-Jul-2013	0.0017	
	13-Jun-2014	< 0.0010	
	MW-08	09-Mar-2005	< 0.001
15-Nov-2005		< 0.001	
16-Jun-2006		< 0.001	
11-Jul-2007		< 0.001	
19-Dec-2007		0.001	
21-Apr-2009		0.002	
05-May-2010		< 0.0010	
07-Jun-2011		0.0016	
30-May-2012		< 0.0010	
09-Jul-2013		< 0.0010	
12-Jun-2014		< 0.0010	
MW-09 (Duplicate)		09-Mar-2005	< 0.001
		09-Mar-2005	< 0.001
	17-Nov-2005	< 0.001	
	16-Jun-2006	< 0.001	
	11-Jul-2007	< 0.001	
	18-Dec-2007	0.002	
	22-Apr-2009	0.003	
	06-May-2010	< 0.0010	
	06-May-2010	< 0.0010	
	02-Jun-2011	< 0.0010	
	02-Jun-2011	< 0.0010	
	29-May-2012	< 0.0010	
	(Duplicate)		
(Duplicate)			





PROJECT No.: 307076-06086-200

Monitoring Station	Date (dd-mmm-yyyy)	Phenols (mg/L)
MW-09 (CONT)	10-Jul-2013	< 0.0010
	13-Jun-2014	< 0.0010
MW-10	09-Mar-2005	< 0.001
	16-Nov-2005	< 0.001
	16-Jun-2006	< 0.001
	11-Jul-2007	< 0.001
	18-Dec-2007	0.002
	22-Apr-2009	0.002
	05-May-2010	< 0.0010
	02-Jun-2011	0.0018
	30-May-2012	< 0.0010
	09-Jul-2013	< 0.0010
(Duplicate)	09-Jul-2013	< 0.0010
(Duplicate)	12-Jun-2014	< 0.0010
(Duplicate)	12-Jun-2014	< 0.0010
MW-11	10-Mar-2005	< 0.001
	16-Nov-2005	< 0.001
	16-Jun-2006	< 0.001
	11-Jul-2007	< 0.001
	18-Dec-2007	0.002
	22-Apr-2009	0.004
	05-May-2010	< 0.0010
	02-Jun-2011	< 0.0010
	30-May-2012	< 0.0010
	10-Jul-2013	< 0.0010
12-Jun-2014	< 0.0010	
MW-12	10-Mar-2005	< 0.001
	16-Nov-2005	< 0.001
	16-Jun-2006	< 0.001
	11-Jul-2007	< 0.001
	18-Dec-2007	0.002
	22-Apr-2009	0.003
	06-May-2010	< 0.0010
	02-Jun-2011	< 0.0010
	30-May-2012	< 0.0010
	10-Jul-2013	< 0.0010
12-Jun-2014	< 0.0010	
MW-13	10-Mar-2005	< 0.001
	16-Nov-2005	< 0.001
	16-Jun-2006	< 0.001
	11-Jul-2007	0.001
	18-Dec-2007	< 0.001
	22-Apr-2009	0.003
	06-May-2010	< 0.0010
	02-Jun-2011	< 0.0010
	30-May-2012	< 0.0010
	10-Jul-2013	< 0.0010
12-Jun-2014	< 0.0010	
<b>QA/QC</b>		
FIELD BLANK	05-May-2010	< 0.0010
	25-May-2011	< 0.0010
	09-Jul-2013	< 0.0010
	13-Jun-2014	< 0.0010

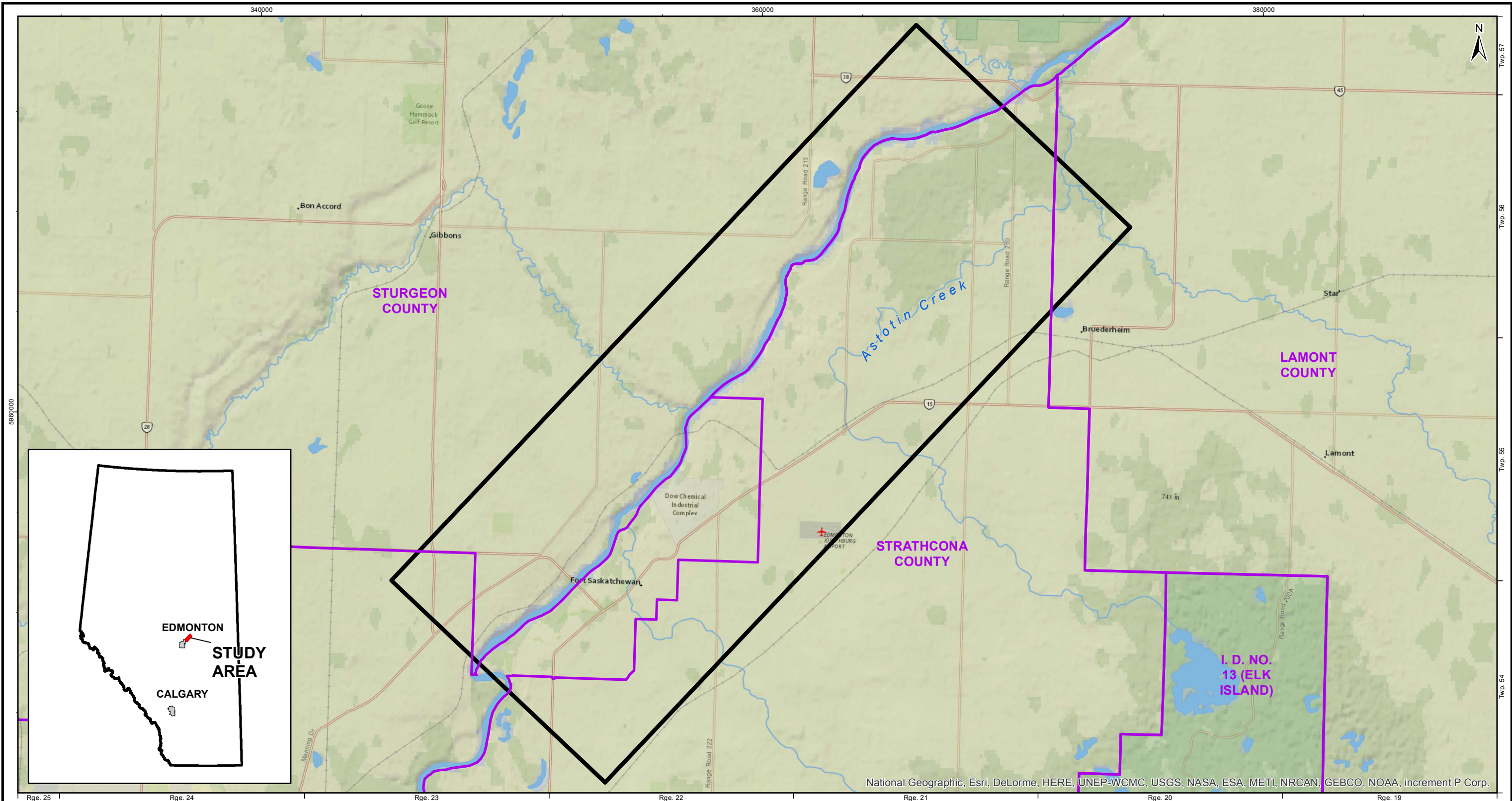
**NOTES:**

1. --- in guideline row(s) denotes no criteria for that parameter.
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates parameters above applied guideline/criteria.
4. Highlighting indicates non-detect parameters above applied guideline/criteria.

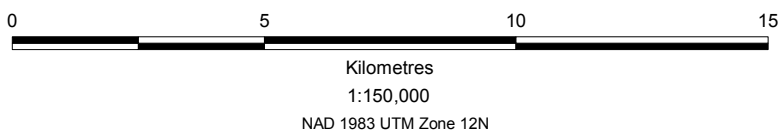


## Figures





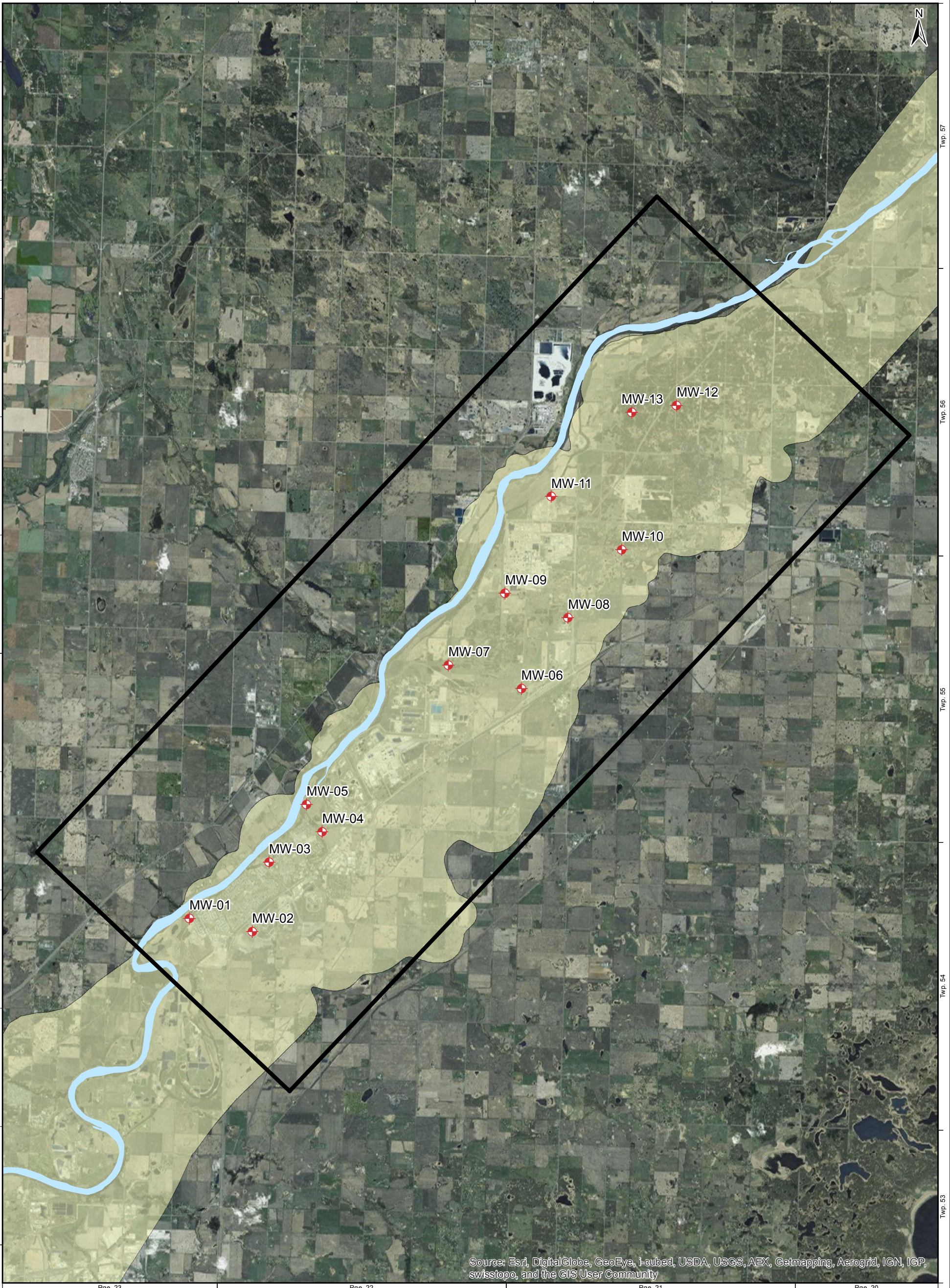
- Study Area
- County Boundaries



**NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
2014 GROUNDWATER QUALITY MONITORING  
BEVERLY CHANNEL MONITORING WELLS**

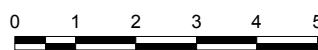
SITE LOCATION			
Date: 06-AUG-14	Drawn by: P.K.	Edited by:	App'd by:
		WorleyParsons Project No. 307076 - 06086 - 200	
FIG No. <b>1</b>		REV <b>A</b>	
*This drawing is prepared solely for the use of our customers as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*			





Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Monitoring Well
- Beverly Channel
- Study Area



Kilometres  
 1:125,000  
 NAD 1983 UTM Zone 12N

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
 2014 GROUNDWATER QUALITY MONITORING  
 BEVERLY CHANNEL MONITORING WELLS

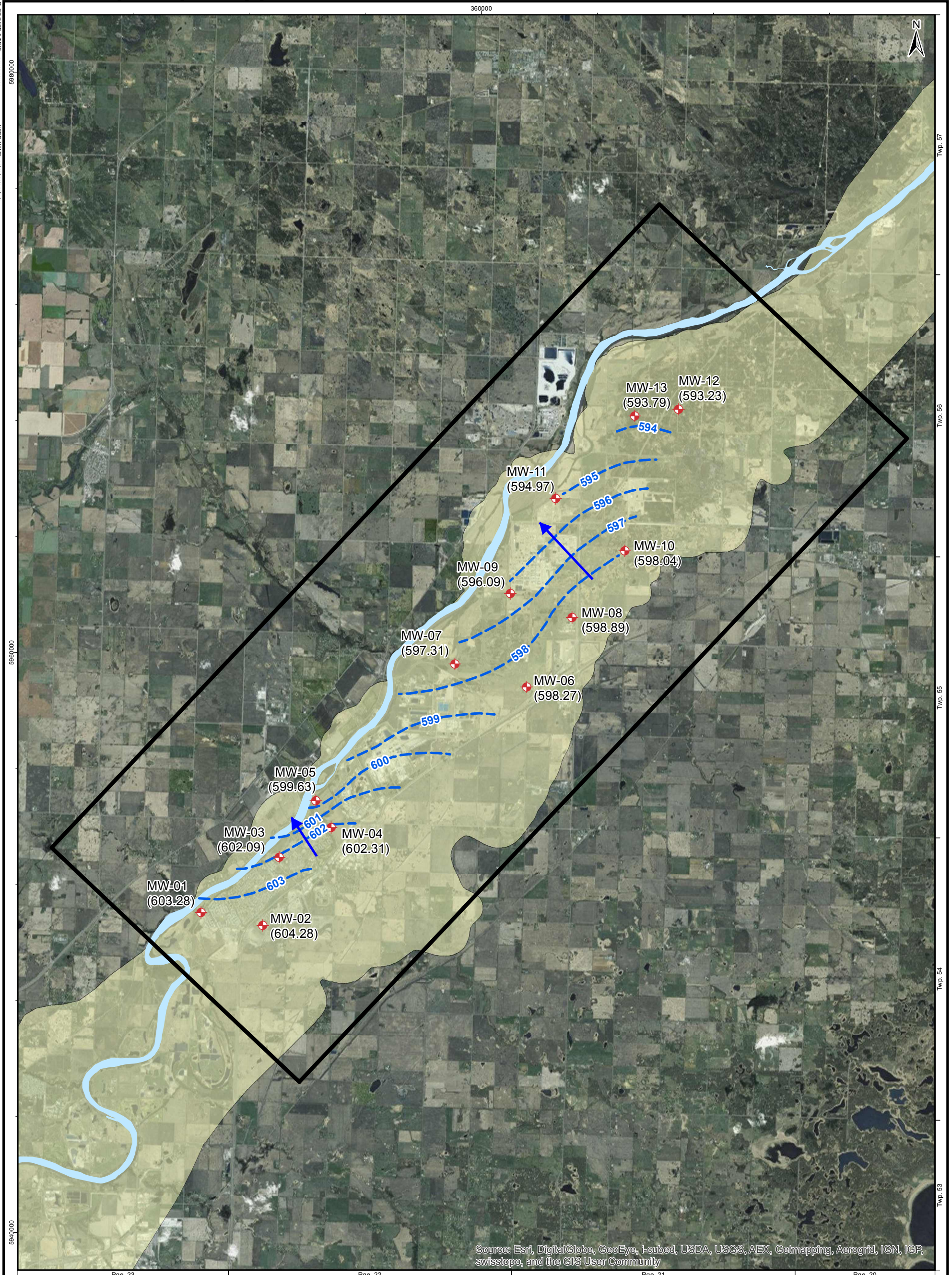
MONITORING WELL LOCATIONS

Date: 06-AUG-14	Drawn by: P.K.	Edited by:	App'd by:
WorleyParsons Project No. 307076 - 06086 - 200			
FIG No. 2			REV A



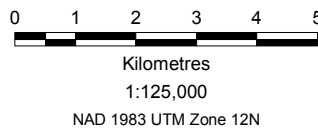
\*This drawing is prepared solely for the use of our customers as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.\*





Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Monitoring Well
- Groundwater Surface Elevation Contour (masl)
- Inferred Groundwater Flow Direction
- Beverly Channel
- Study Area



NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>GROUNDWATER SURFACE ELEVATIONS, JUNE 2014</b>			
Date: 11-AUG-14	Drawn by: P.K.	Edited by:	App'd by:
		WorleyParsons Project No. 307076 - 06086 - 200	
FIG No. <b>3</b>		REV <b>A</b>	
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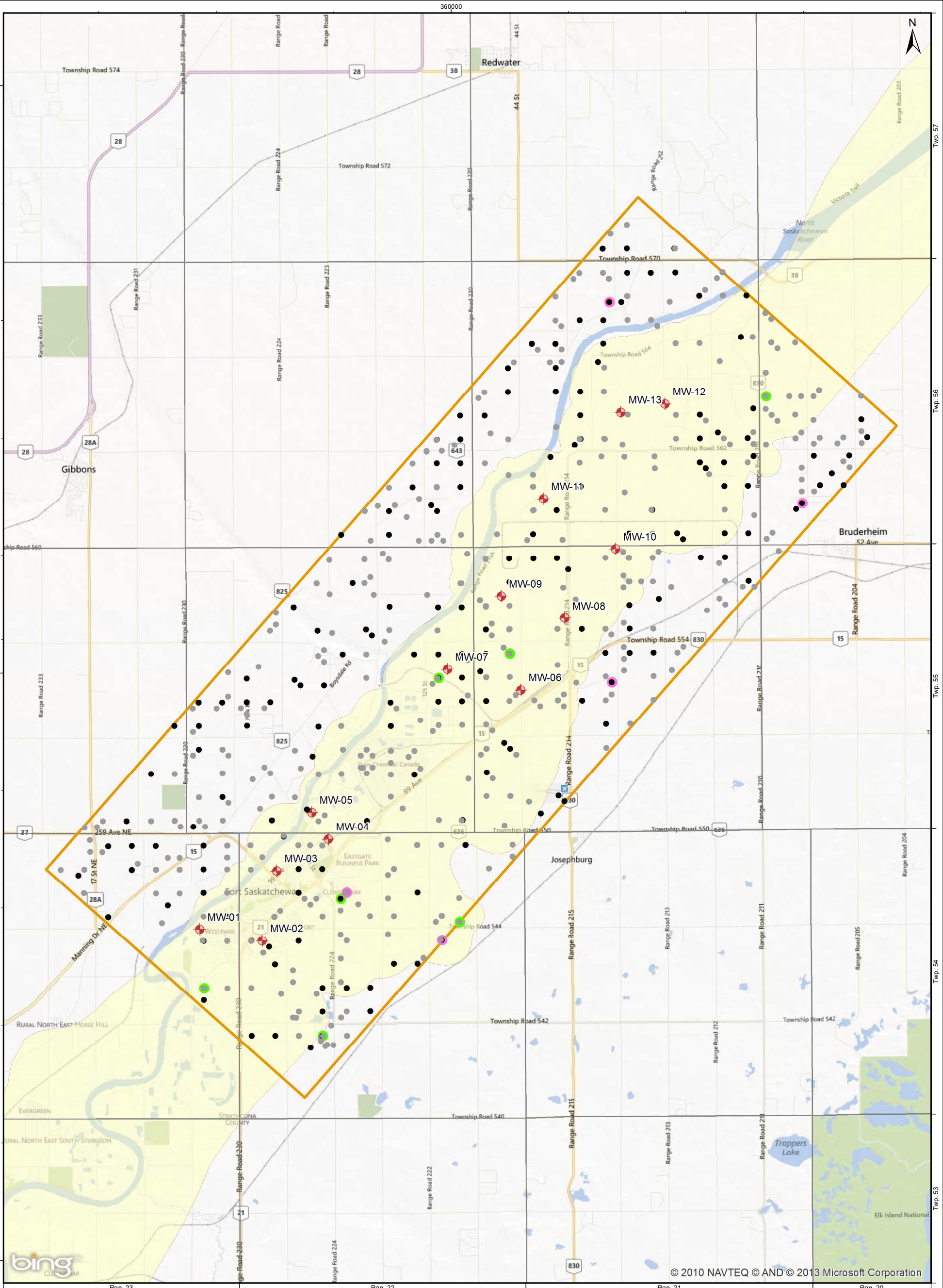


## Appendices



## Appendix 1 Water Well Records





- Chemistry Exists - Bedrock
- Chemistry Exists - Beverly Channel
- Chemistry Exists
- No Chemistry
- ◆ NCIA Monitoring Well

- Study Area
- Townships
- Beverly Channel

0 1 2 3 4 5  
 Kilometres  
 1:125,000  
 NAD 1983 UTM Zone 12N

**NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
 2014 GROUNDWATER QUALITY MONITORING  
 BEVERLY CHANNEL MONITORING WELLS**

**WATER WELL RECORDS WITHIN THE STUDY AREA**

Date: 05-Aug-14	Drawn by: P.K.	Edited by: S.G.	App'd by:
WorleyParsons Project No. 307076-06086-200			
FIG No. <b>A1 - 1</b>		REV A	

**OneWay**  
to zero harm

**WorleyParsons**  
resources & energy

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 WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.\*



Waterwell Records within the Study Area

WELL ID	LOCATION					WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE		WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
	LSID	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
1	0042021	13	24	056	21	4													ALTA ENV		Unknown	Unknown	No Chemistry
2	0042022	SW	14	056	21	4													HERDER, H		Unknown	Unknown	No Chemistry
3	0261198	SE	07	055	22	4													HERDER, H		Chemistry	Hand Dug	Chemistry Exists
4	0261609	10	18	055	22	4													MID-WESTERN #10-18		Oil Exploratory	Unknown	No Chemistry
5	0261734	04	27	055	22	4													IMPERIAL OIL LTD #AO282-6	11/08/1953	Oil Exploratory	Unknown	No Chemistry
6	0261824	04	34	055	22	4													IMPERIAL OIL LTD #AO282 4	22/05/1953	Oil Exploratory	Unknown	No Chemistry
7	0261829	01	03	056	22	4													IMPERIAL OIL LTD #AO190-173	13/05/1953	Oil Exploratory	Unknown	No Chemistry
8	0261847	04	36	055	22	4													IMPERIAL OIL LTD	21/05/1953	Oil Exploratory	Unknown	No Chemistry
9	0263716	16	12	056	21	4													BRUDERHEIM, TOWN OF #15-75	17/11/1975	Unknown	Unknown	No Chemistry
10	0268139	SE	01	055	23	4															Unknown	Unknown	No Chemistry
11	0297564	SE	18	056	20	4																	No Chemistry
12	1370431	1	36	55	22	4																	No Chemistry
13	1690164	SE	1	55	22	4																	No Chemistry
14	1795284	SE	28	56	21	4																	No Chemistry
15	2093231	1	35	56	21	4																	No Chemistry
16	2093237	1	35	56	21	4																	No Chemistry
17	2093238	1	35	56	21	4																	No Chemistry
18	2093239	1	35	56	21	4																	No Chemistry
19	2093240	1	35	56	21	4																	No Chemistry
20	2093242	1	35	56	21	4																	No Chemistry
21	0261191	SE	07	055	22	4																	No Chemistry
22	1270077	07	10	055	22	4																	No Chemistry
23	1270078	07	10	055	22	4																	No Chemistry
24	1270079	07	10	055	22	4																	No Chemistry
25	1270080	07	10	055	22	4																	No Chemistry
26	1270081	07	10	055	22	4																	No Chemistry
27	1270082	07	10	055	22	4																	No Chemistry
28	1270083	07	10	055	22	4																	No Chemistry
29	1270084	07	10	055	22	4																	No Chemistry
30	1270085	07	10	055	22	4																	No Chemistry
31	1270086	07	10	055	22	4																	No Chemistry
32	1320051	1	35	56	21	4																	No Chemistry
33	0040488	SE	19	055	21	4																	No Chemistry
34	0040835	NW	03	057	21	4																	No Chemistry
35	0083363	06	05	055	21	4																	No Chemistry
36	0083364	12	05	055	21	4																	No Chemistry
37	0083365	09	05	055	21	4																	No Chemistry
38	0083367	NW	06	055	21	4																	No Chemistry
39	0083368	NE	06	055	21	4																	No Chemistry
40	0083372	SW	07	055	21	4																	No Chemistry
41	0083373	09	07	055	21	4																	No Chemistry
42	0083374	12	07	055	21	4																	No Chemistry
43	0083375	NW	07	055	21	4																	No Chemistry
44	0083376	NW	07	055	21	4																	No Chemistry
45	0083377	NE	07	055	21	4																	No Chemistry
46	0083379	15	07	055	21	4																	No Chemistry
47	0083383	NE	09	055	21	4																	No Chemistry
48	0083417	SW	15	055	21	4																	No Chemistry
49	0083418	NE	15	055	21	4																	No Chemistry
50	0083419	NW	16	055	21	4																	No Chemistry
51	0083423	11	17	055	21	4																	No Chemistry
52	0083425	NE	17	055	21	4																	No Chemistry
53	0083426	NE	17	055	21	4																	No Chemistry
54	0083428	NE	17	055	21	4																	No Chemistry
55	0083439	SW	18	055	21	4																	No Chemistry
56	0083440	NW	18	055	21	4																	No Chemistry
57	0083447	05	19	055	21	4																	No Chemistry
58	0083448	NW	19	055	21	4																	No Chemistry
59	0083449	NE	19	055	21	4																	No Chemistry
60	0083450	NE	19	055	21	4																	No Chemistry
61	0083451	NE	19	055	21	4																	No Chemistry
62	0083452	NE	19	055	21	4																	No Chemistry
63	0083453	NE	19	055	21	4																	No Chemistry
64	0083455	15	19	055	21	4																	No Chemistry
65	0083458	NE	19	055	21	4																	No Chemistry
66	0083460	NE	19	055	21	4																	No Chemistry
67	0083461	NE	19	055	21	4																	No Chemistry
68	0083462	SE	20	055	21	4																	No Chemistry
69	0083463	SE	20	055	21	4																	No Chemistry
70	0083467	NE	21	055	21	4																	No Chemistry
71	0083470	NW	22	055	21	4																	No Chemistry
72	0083471	NW	22	055	21	4																	No Chemistry
73	0083473	NE	22	055	21	4																	No Chemistry
74	0083500	SW	27	055	21	4																	No Chemistry
75	0083501	SW	27	055	21	4																	No Chemistry
76	0083502	NW	27	055	21	4																	No Chemistry
77	0083503	SE	27	055	21	4																	No Chemistry
78	0083505	SE	28	055	21	4																	No Chemistry
79	0083506	SE	28	055	21	4																	No Chemistry
80	0083510	SE	30	055	21	4																	No Chemistry
81	0083511	SE	30	055	21	4																	No Chemistry







Waterwell Records within the Study Area

WELL ID	LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN	WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE COMPLETED	DATE ABANDONED	WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
							FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO							
163	0157041	NE	27	056	21	4	54.9												EASTWOOD, J.W.	Domestic	Chemistry	Not Applicable	No Chemistry
164	0158532	NE	08	054	22	4	14.0										07/07/1979		MAKUCH, PETER J.	Domestic	New Well	Bored	No Chemistry
165	0158533	NE	08	054	22	4	23.2										01/07/1972		OGDEN, WAYNE	Domestic	New Well	Bored	No Chemistry
166	0158577	NE	03	056	22	4	64.0	30.5	64.0								06/04/1968		KUGLER, ERIKA	Domestic	New Well	Rotary	No Chemistry
167	0159287	SE	05	055	22	4	14.6										10/07/1991		GODBOU, ROMEO	Domestic	New Well	Bored	No Chemistry
168	0160456	NE	34	056	21	4	12.2												GORGICHUK, DIANA	Domestic	Chemistry	Not Applicable	No Chemistry
169	0160666	SE	30	055	21	4	8.5												SCOWDEN, HELEN	Domestic	Chemistry	Not Applicable	No Chemistry
170	0160801	SE	16	054	22	4	8.5												BONOWICZ, KEN	Domestic	Chemistry	Not Applicable	No Chemistry
171	0161740	NE	08	054	22	4	30.5												OSTERLAND, JOYCE	Domestic	Chemistry	Not Applicable	No Chemistry
172	0161789	NE	19	056	21	4	7.6												MELTON, JAMES	Domestic	Chemistry	Not Applicable	No Chemistry
173	0161790	NW	27	056	21	4	3.7												JOHNSTON, DAVID	Domestic	Chemistry	Not Applicable	No Chemistry
174	0162337	09	4	57	21	4	22.9										26/05/2001		LANE, C.	Domestic	Old Well-Test	Not Applicable	No Chemistry
175	0162337	09	4	57	21	4	21.3						17.7	21.3			31/12/1991		LANE, C./EST OF M PICH	Domestic	Reconstructed	Not Applicable	No Chemistry
176	0162337	09	4	57	21	4	22.9						16.2	22.3			16/11/1991		LANE, C./EST OF M PICH	Domestic	New Well	Cable Tool	No Chemistry
177	0165347	SE	34	054	23	4	24.4												MOAK, CARL A.	Domestic	Chemistry	Unknown	No Chemistry
178	0168288	NE	08	054	22	4	73.2	42.7	72.2								01/06/1992		TAPLEY, CAM	Domestic	New Well	Rotary	No Chemistry
179	0167085	NE	08	054	22	4	11.6												AMBLER, TERRY D.	Domestic	Chemistry	Unknown	No Chemistry
180	0167584	NW	25	055	21	4	61.0												PROKOPCZAK, WM	Domestic	Chemistry	Unknown	No Chemistry
181	0168098	16	08	054	22	4	14.6	4.3	9.8								25/06/1992		COOL, NORMAND	Domestic	New Well	Bored	No Chemistry
182	0168181	09	18	054	22	4	9.8	4.9	9.8								21/07/1992		DAKIN, DEXTER	Domestic	New Well	Bored	No Chemistry
183	0168267	NE	08	054	22	4	11.3	6.1	11.3								16/07/1992		DORLICH, HELGA	Domestic	New Well	Bored	No Chemistry
184	0168284	08	14	055	22	4	40.5										37.8	39.3	FEDERATED PIPELINE LTD	Domestic	New Well	Rotary	No Chemistry
185	0169305	NE	08	054	22	4	9.4												DAKIN, DOREEN	Domestic	Chemistry	Unknown	No Chemistry
186	0169519	SW	02	057	21	4	3.0												SUDAYKO, MIKE	Domestic	Chemistry	Unknown	No Chemistry
187	0169601	SW	02	057	21	4	48.8												SUDAYKO, MIKE	Domestic	Chemistry	Unknown	No Chemistry
188	0193975	SW	30	055	21	4	42.7												GBJ TRAILER ENT	Domestic	Chemistry	Unknown	No Chemistry
189	0195146	NW	33	056	21	4	15.2										01/08/1973		PICH, PETER	Domestic	New Well	Bored	No Chemistry
190	0198672	SE	08	056	20	4	8.1												ALEXANDER, BOB	Domestic	Chemistry	Unknown	No Chemistry
191	0208911	SE	16	056	21	4	11.9	4.6	11.3										HENKELMAN, PERCY	Domestic	New Well	Bored	No Chemistry
192	0224564	SE	18	056	20	4	42.7						35.4	41.5					MCELLAN, ART	Domestic	New Well	Rotary	No Chemistry
193	0225468	10	08	054	22	4	14.9	7.3	8.5	10.1	14.6								HESKE, GERRY	Domestic	New Well	Bored	No Chemistry
194	0225474	09	08	054	22	4	14.9	6.1	12.2										CLARK, DARCY	Domestic	New Well	Bored	No Chemistry
195	0231919	NW	13	054	23	4	31.7												ESQUIRE HOMES LTD/FUNG, DR. G	Domestic	New Well	Rotary	No Chemistry
196	0238531	NW	30	055	21	4	42.1	36.0	42.1										LEUENG, DALE	Domestic	New Well	Rotary	No Chemistry
197	0240644	NE	08	054	22	4	64.0	57.9	64.0										GETSON, DON	Domestic	New Well	Cable Tool	No Chemistry
198	0240722	08	08	054	22	4	14.8	4.6	10.7										MIRASEK, DAVID	Domestic	New Well	Bored	No Chemistry
199	0240723	08	08	054	22	4	14.9	5.5	11.6										TALANKO, RON	Domestic	New Well	Bored	No Chemistry
200	0241116	10	08	054	22	4	14.9	4.9	12.2										BOWES, MURRAY	Domestic	New Well	Bored	No Chemistry
201	0260033	NE	07	054	22	4	59.7												GALLOWAY, K	Domestic	New Well	Cable Tool	Chemistry Exists
202	0260035	NW	08	054	22	4	61.0	48.8	57.9										CHIMERA, WALTER	Domestic	New Well	Cable Tool	Chemistry Exists
203	0260037	NE	08	054	22	4	73.5												GYDISH, ROBERT	Domestic	New Well	Cable Tool	Chemistry Exists
204	0260038	NE	08	054	22	4	73.2	47.5	73.2										RAFUSE, A. J.	Domestic	New Well	Cable Tool	No Chemistry
205	0260039	NE	08	054	22	4	8.5												SWANSON, K.	Domestic	New Well	Bored	No Chemistry
206	0260045	NE	08	054	22	4	73.2	45.7	73.2										KALISTA, M.J.	Domestic	New Well	Cable Tool	Chemistry Exists
207	0260046	NE	08	054	22	4	9.1												TOMPLINS, D.	Domestic	New Well	Bored	Chemistry Exists
208	0260048	NE	08	054	22	4	8.8												THOME, MIKE	Domestic	New Well	Bored	No Chemistry
209	0260052	NE	08	054	22	4	9.1												KROENTING, GREG	Domestic	New Well	Bored	Chemistry Exists
210	0260054	NE	08	054	22	4	10.1												KENSON HLDG	Domestic	New Well	Bored	No Chemistry
211	0260058	NE	08	054	22	4	11.9												HESKE, GERRY	Domestic	New Well	Bored	Chemistry Exists
212	0260171	SE	16	054	22	4	61.0	54.9	61.0										BONOWICZ, JOE	Domestic	New Well	Cable Tool	Chemistry Exists
213	0260194	NW	21	054	22	4	70.1	61.0	68.6										GRAYMAN, LYLE	Domestic	New Well	Cable Tool	No Chemistry
214	0260203	NW	23	054	22	4	46.9	22.6	46.0										MCEACHERN, MEL	Domestic	New Well	Rotary	Chemistry Exists
215	0260225	SW	27	054	22	4	50.3	33.5	47.2										SHAREK, TONY	Domestic	New Well	Rotary	No Chemistry
216	0260227	NE	27	054	22	4	61.9	24.4	61.0										SIMMONS, HECTOR	Domestic	New Well	Rotary	Chemistry Exists
217	0260229	NW	28	054	22	4	47.5												DAVIS, DON	Domestic	New Well	Rotary	No Chemistry
218	0260230	NW	28	054	22	4	72.2	67.1	71.9										ROBERT, VICTOR	Domestic	New Well	Rotary	Chemistry Exists
219	0260232	NW	28	054	22	4	27.4												SNEDETT	Domestic	New Well	Drilled	No Chemistry
220	0260233	NW	28	054	22	4	30.5												STARK, R.	Domestic	New Well	Drilled	No Chemistry
221	0260234	NW	28	054	22	4	60.0												PIERCE, E.	Domestic	New Well	Rotary	Chemistry Exists
222	0260235	NW	28	054	22	4	30.5												BOHNET, HANS	Domestic	New Well	Rotary	Chemistry Exists
223	0260236	NW	28	054	22	4	30.5												PETROSKI CONTRACTING	Domestic	New Well	Drilled	No Chemistry
224	0260237	NW	28	054	22	4	30.5												WETZREN, M.	Domestic	New Well	Cable Tool	Chemistry Exists
225	0260366	NW	28	054	22	4	76.8												SHEPPARD, JOHN	Domestic	New Well	Rotary	No Chemistry
226	0260369	12	28	054	22	4	32.3						28.3	29.3					HAMILTON, CALVIN	Domestic	New Well	Rotary	Chemistry Exists
227	0260375	NW	29	054	22	4	13.7												VLA	Domestic	Chemistry	Hand Dug	Chemistry Exists
228	0260383	SE	30	054	22	4	76.2												KREBS, D.	Domestic	Chemistry	Unknown	Chemistry Exists
229	0260386	SE	30	054	22	4	76.2												KREBS, DON	Domestic	Chemistry	Unknown	No Chemistry
230	0260397	SE	32	054	22	4	24.4												CHOLOWSKI, GERALD	Domestic	Chemistry	Unknown	Chemistry Exists
231	0260425	SW	34	054	22	4	45.7												FLEMING, ERNEST	Domestic	Chemistry	Drilled	Chemistry Exists
232	0260441	NE	34	054	22	4	57.9												BARTLETT, RICHARD	Domestic	Chemistry	Unknown	Chemistry Exists
233	0260447	NW	35	054	22	4	48.2												SIMMONS, F.	Domestic	New Well	Drilled	No Chemistry
234	0260903	WH	13	054	23	4	3.7												MITHELL, DOUG	Domestic	Chemistry	Unknown	Chemistry Exists
235	0260906	NW	13	054	23	4	31.7						28.3	31.7					OBRADOVICH, VUKSAN	Domestic	New Well	Rotary	Chemistry Exists
236	0260914	NW	13	054	23	4	82.3												ELLEFSON, NORM	Domestic	Chemistry	Cable Tool	Chemistry Exists
237	0260922	NW	13	054	23	4	82.3												GAVINCHUK, GEORGE	Domestic	Chemistry	Drilled	Chemistry Exists
238	0260948	NW	13	054	23	4	31.7						29.0	31.4					PESKLEVIS, ALBERT	Domestic	New Well	Rotary	Chemistry Exists
239	0260972	NW	13	054	23	4	31.7																





Waterwell Records within the Study Area

WELL ID	NE	LOCATION	WELL DEPTH (m)		PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE	WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
			LSID	SECTION	TOWNSHIP	RANGE	MERIDIAN	FROM	TO	FROM	TO	FROM	TO	FROM						
244	0261009	NE 13 054 23	4	12.2											01/01/1935	DAWSON, MAJ.	Domestic	Federal Well Survey	Hand Dug	No Chemistry
245	0261032	SE 01 055 22	4	45.7												SCHWANDT, E A	Domestic	Chemistry	Unknown	Chemistry Exists
246	0261039	SE 01 055 22	4	54.9												HANSEN, P E	Domestic	New Well	Unknown	No Chemistry
247	0261073	SE 01 055 22	4	0.0												WALLACE, J	Domestic	Chemistry	Unknown	Chemistry Exists
248	0261075	SE 01 055 22	4	0.0												BARR, F	Domestic	Chemistry	Unknown	Chemistry Exists
249	0261078	SE 01 055 22	4	121.9												BEST, S	Domestic	Chemistry	Unknown	Chemistry Exists
250	0261082	SE 01 055 22	4	0.0												SCHLOSSER, D	Domestic	Chemistry	Unknown	Chemistry Exists
251	0261107	16 31 054 22	4	2.7												CAMERON, D	Domestic	Chemistry	Unknown	Chemistry Exists
252	0261129	00 04 055 22	4	0.0												LAMOUREUX CHILDRENS HOME	Domestic	Chemistry	Hand Dug	Chemistry Exists
253	0261133	SE 05 055 22	4	11.3										14/09/1982	LAMOUREUX, J	Domestic	New Well	Bored	Chemistry Exists	
254	0261139	SE 05 055 22	4	11.3										11/05/1959	LAMOUREUX, R	Domestic	New Well	Bored	Chemistry Exists	
255	0261147	SW 06 055 22	4	39.6										01/07/1973	GABERT, B	Domestic	New Well	Cable Tool	No Chemistry	
256	0261149	SE 06 055 22	4	73.2	43.3	49.4								15/07/1980	BOYCHUK, N	Domestic	New Well	Rotary	No Chemistry	
257	0261151	03 06 055 22	4	8.2										01/01/1906	LAMOUREUX, A. L.	Domestic	Federal Well Survey	Hand Dug	No Chemistry	
258	0261154	04 06 055 22	4	51.8											ZIMA, M	Domestic	Chemistry	Unknown	Chemistry Exists	
259	0261182	NE 06 055 22	4	73.2											ELLIOTT, F	Domestic	Chemistry	Unknown	Chemistry Exists	
260	0261187	09 06 055 22	4	18.3										01/01/1927	ADAMS, B. S.	Domestic	Federal Well Survey	Drilled	No Chemistry	
261	0261202	SE 07 055 22	4	9.1											HERDER, H	Domestic	Chemistry	Drilled	Chemistry Exists	
262	0261203	SE 07 055 22	4	82.3										26/08/1974	JUKASZ, A.	Domestic	Dry Hole-Abandoned	Rotary	No Chemistry	
263	0261213	NW 07 055 22	4	18.3										23/05/1969	CHRISTIANSEN, J.M.	Domestic	New Well	Bored	Chemistry Exists	
264	0261220	NE 07 055 22	4	10.7											PRINS, W	Domestic	Chemistry	Unknown	Chemistry Exists	
265	0261225	NE 07 055 22	4	11.6										21/10/1978	PRINS, W	Domestic	New Well	Bored	No Chemistry	
266	0261250	10 09 055 22	4	19.8											KEITH, D	Domestic	Chemistry	Unknown	Chemistry Exists	
267	0261348	SE 11 055 22	4	36.9								34.4	36.9	27/04/1978	WOUDENBERG, M.	Domestic	New Well	Rotary	No Chemistry	
268	0261357	SE 11 055 22	4	79.2										01/08/1965	TIMNALL, C./V.	Domestic	New Well	Rotary	No Chemistry	
269	0261358	SE 11 055 22	4	73.2											SHEWCHUK, S	Domestic	Chemistry	Unknown	Chemistry Exists	
270	0261376	SE 11 055 22	4	61.0											HAREL, C.	Domestic	Chemistry	Unknown	Chemistry Exists	
271	0261383	SE 11 055 22	4	121.9	103.6	121.9								20/10/1977	WOUDENBERG, M.	Domestic	New Well	Rotary	No Chemistry	
272	0261396	SE 11 055 22	4	64.0											TINDALL, V	Domestic	Chemistry	Unknown	Chemistry Exists	
273	0261398	SE 11 055 22	4	27.4											DENNIS, D.	Domestic	Chemistry	Unknown	Chemistry Exists	
274	0261403	SW 11 055 22	4	54.9											SHEWCHUK, T	Domestic	Chemistry	Unknown	Chemistry Exists	
275	0261446	NW 13 055 22	4	24.4											WOUDENBERG, M.	Domestic	Chemistry	Unknown	Chemistry Exists	
276	0261447	NW 13 055 22	4	12.2											WOUDENBERG, M.	Domestic	Chemistry	Drilled	Chemistry Exists	
277	0261449	NE 13 055 22	4	7.3										01/04/1971	BARON, F.	Domestic	New Well	Bored	No Chemistry	
278	0261450	NE 13 055 22	4	7.3											MCARTHUR, DOUGLAS	Domestic	Chemistry	Unknown	Chemistry Exists	
279	0261453	NE 13 055 22	4	7.3											DAWSON, J B	Domestic	Chemistry	Bored	Chemistry Exists	
280	0261468	SW 14 055 22	4	64.0										01/04/1959		Domestic	New Well	Unknown	No Chemistry	
281	0261493	NW 14 055 22	4	18.3											TAILLEFER, G	Domestic	Chemistry	Drilled	Chemistry Exists	
282	0261513	SW 17 055 22	4	0.0											GRANT, G.	Domestic	Chemistry	Unknown	Chemistry Exists	
283	0261521	NW 17 055 22	4	18.3											READNER, H	Domestic	Chemistry	Bored	Chemistry Exists	
284	0261530	NE 17 055 22	4	115.8											RUSSEL, L	Domestic	Chemistry	Unknown	Chemistry Exists	
285	0261542	SW 18 055 22	4	9.1											CURTIS, L	Domestic	Chemistry	Bored	Chemistry Exists	
286	0261556	NW 18 055 22	4	8.2											CURTIS, R.	Domestic	Chemistry	Unknown	Chemistry Exists	
287	0261563	NW 24 054 23	4	9.1												Domestic	Chemistry	Unknown	Chemistry Exists	
288	0261564	NE 24 054 23	4	53.3										16/07/1980	MOLINEUX, RAI PH/TABLER, PAUL	Domestic	New Well	Cable Tool	No Chemistry	
289	0261567	SE 25 054 23	4	6.4											FT SASK LANDFILL JOBS WELL	Domestic	Chemistry	Unknown	Chemistry Exists	
290	0261575	SE 25 054 23	4	36.0											BARRY, M	Domestic	Chemistry	Drilled	Chemistry Exists	
291	0261578	NW 18 055 22	4	9.1											CURTIS, R.	Domestic	Chemistry	Unknown	Chemistry Exists	
292	0261586	NW 18 055 22	4	0.0											CURTIS, R.L.	Domestic	Chemistry	Unknown	Chemistry Exists	
293	0261587	NW 25 054 23	4	28.3											ORAM, JAMES M	Domestic	Chemistry	Unknown	Chemistry Exists	
294	0261588	NW 25 054 23	4	12.8											VILLENEUVE, L	Domestic	Chemistry	Hand Dug	Chemistry Exists	
295	0261589	NW 18 055 22	4	22.9											CURTIS, R.	Domestic	Chemistry	Unknown	Chemistry Exists	
296	0261590	NW 25 054 23	4	0.0											MURPHY, H	Domestic	Chemistry	Drilled	Chemistry Exists	
297	0261591	NW 18 055 22	4	15.2											CURTIS, R.	Domestic	Chemistry	Unknown	Chemistry Exists	
298	0261593	NE 25 054 23	4	10.1											BYERS, D.H.	Domestic	Chemistry	Unknown	No Chemistry	
299	0261598	NW 26 054 23	4	29.0	21.3	27.4								01/06/1969	MCGEACHY, JIM	Domestic	New Well	Rotary	No Chemistry	
300	0261605	NE 26 054 23	4	73.2										07/06/1978	SIMPSON, TOM	Domestic	New Well	Rotary	No Chemistry	
301	0261606	NE 18 055 22	4	0.0											ANWEILER, S	Domestic	Chemistry	Unknown	Chemistry Exists	
302	0261610	00 26 054 23	4	9.8											KIEL, RUDOLF	Domestic	Chemistry	Unknown	Chemistry Exists	
303	0261614	SW 20 055 22	4	30.5										01/01/1960	CRAIG, R.S.	Domestic	Chemistry	Unknown	Chemistry Exists	
304	0261615	SW 27 054 23	4	24.4											PENNY, STEPHEN	Domestic	Chemistry	Unknown	Chemistry Exists	
305	0261618	01 21 055 22	4	10.4											DEMERS,	Domestic	Chemistry	Unknown	Chemistry Exists	
306	0261619	SW 27 054 23	4	61.0	24.4	61.0								31/05/1978	FYTH, JAMES	Domestic	New Well	Rotary	Chemistry Exists	
307	0261629	SW 27 054 23	4	29.9											FEDORAK, NESTOR	Domestic	Chemistry	Unknown	Chemistry Exists	
308	0261635	SW 21 055 22	4	11.6											COURCHESNE, L	Domestic	Chemistry	Bored	Chemistry Exists	
309	0261639	SW 21 055 22	4	7.6											COURCHESNE, L	Domestic	Chemistry	Hand Dug	Chemistry Exists	
310	0261640	02 21 055 22	4	91.4	79.2	91.4								08/04/1986	COURCHESNE, L E	Domestic	New Well	Rotary	Chemistry Exists	
311	0261646	18 21 055 22	4	61.0										18/12/1982	DAMCHUK, J	Domestic	New Well	Rotary	No Chemistry	
312	0261652	NE 21 055 22	4	0.0											GAUMONT, J R	Domestic	Chemistry	Unknown	No Chemistry	
313	0261653	NW 22 055 22	4	0.0											RIVARD, K	Domestic	Chemistry	Unknown	Chemistry Exists	
314	0261654	NE 22 055 22	4	97.5	85.3	97.5									CNR	Domestic	New Well	Rotary	No Chemistry	
315	0261657	NE 23 055 22	4	20.4											JOHNSTON, GARY	Domestic	Chemistry	Drilled	Chemistry Exists	
316	0261660	SE 24 055 22	4	6.1											ESLER, J	Domestic	Chemistry	Hand Dug	Chemistry Exists	
317	0261662	SW 24 055 22	4	12.2								5.8	7.3	23/07/1966	MCGEE, K.	Domestic	New Well	Rotary	Chemistry Exists	
318	0261669	SW 24 055 22	4	4.6											MAGEE, K	Domestic	Chemistry	Bored	Chemistry Exists	
319	0261670	04 24 055 22	4	4.3											SELTHGATE, G A	Domestic	Federal Well Survey	Hand Dug	No Chemistry	
320	0261672	NW 24 055 22	4	30.2											MAGEE, K	Domestic	Chemistry	Drilled	Chemistry Exists	
321	0261675	NE 24 055 22	4	0.0											FISH & GAME ASSOC	Domestic	Chemistry	Unknown	Chemistry Exists	
322	0261678	NE 28 054 23	4	13.1											PARENTEAU, L	Domestic	Chemistry	Bored	Chemistry Exists	
323	0261681	NW 25 055 22	4	7.6											GAUMONT, M	Domestic	Chemistry	Unknown	Chemistry Exists	
324	0261710	NE 25 055 22	4	76.2											GAUMONT, M	Domestic	New Well	Unknown	Chemistry Exists	





Waterwell Records within the Study Area

WELL ID	LOCATION				WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE		WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY			
	LSID	SECTION	TOWNSHIP	RANGE		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO						COMPLETED	ABANDONED	
406	0263714	NW	12	056	21	4	33.5											GABERT, M.	Domestic	Chemistry	Unknown	Chemistry Exists			
407	0263736	SE	13	056	21	4	7.9											YOUNG, C.S.	Domestic	Chemistry	Unknown	Chemistry Exists			
408	0263842	SE	14	056	21	4	3.7											SMART, D	Domestic	Chemistry	Hand Dug	Chemistry Exists			
409	0263852	SW	2	06	22	4	61.0											NOEL, MAURICE	Domestic	Chemistry	Unknown	Chemistry Exists			
410	0263854	NW	02	056	22	4	36.6											SANK, LLOYD	Domestic	Chemistry	Unknown	Chemistry Exists			
411	0263867	SW	3	06	22	4	54.9											MELLENKA, ALEX	Domestic	Chemistry	Unknown	Chemistry Exists			
412	0263870	NE	14	056	21	4	10.7											HODGSON, G.A	Domestic	Chemistry	Unknown	Chemistry Exists			
413	0263877	NE	14	056	21	4	13.4									01/08/1972		HODGSON, G	Domestic	New Well	Bored	No Chemistry			
414	0263883	NE	14	056	21	4	11.3											PERCY, G.	Domestic	Chemistry	Bored	Chemistry Exists			
415	0263887	NE	14	056	21	4	48.8									17/05/1985		PERCY, G.	Domestic	New Well	Rotary	No Chemistry			
416	0263910	NE	14	056	21	4	0.0											SMIBERT, R	Domestic	Chemistry	Unknown	No Chemistry			
417	0263924	SW	16	056	21	4	0.0											KROPP, L	Domestic	Spring	Not Applicable	Chemistry Exists			
418	0263933	SW	16	056	21	4	0.0											BOLTON SCHOOL	Domestic	Chemistry	Unknown	Chemistry Exists			
419	0263959	SW	16	056	21	4	9.1											MARQUARDT, E	Domestic	Chemistry	Drilled	Chemistry Exists			
420	0263963	NW	16	056	21	4	8.7											BLENN	Domestic	Chemistry	Unknown	Chemistry Exists			
421	0263969	NW	18	056	21	4	22.9											VISSCHER, H	Domestic	Chemistry	Unknown	Chemistry Exists			
422	0263970	NW	18	056	21	4	12.2											VISSCHER, H	Domestic	Chemistry	Unknown	Chemistry Exists			
423	0263974	SE	19	056	21	4	9.1											CAMPBELL, R	Domestic	Chemistry	Hand Dug	Chemistry Exists			
424	0263991	SW	19	056	21	4	22.9											SMULSKI, J.	Domestic	Chemistry	Unknown	Chemistry Exists			
425	0263992	SW	19	056	21	4	18.9											S V HALF DIAMOND RANCHES	Domestic	New Well	Bored	No Chemistry			
426	0263993	NE	19	056	21	4	12.2											ROBINSON, J	Domestic	Chemistry	Unknown	Chemistry Exists			
427	0263996	NE	19	056	21	4	8.5											ROBINSON, J	Domestic	Chemistry	Hand Dug	Chemistry Exists			
428	0264112	SW	11	056	22	4	106.7	14.0	64.0							06/03/1980		BRIGGS, EARL	Domestic	Deepened	Cable Tool	No Chemistry			
429	0264146	SW	12	056	22	4	0.0											SERINK, MIKE	Domestic	Chemistry	Unknown	No Chemistry			
430	0264148	SE	20	056	21	4	54.9										01/08/1977		SAWYER, D	Domestic	Chemistry	Drilled	Chemistry Exists		
431	0264150	SW	12	056	22	4	0.0											SERINK, MIKE	Domestic	Chemistry	Unknown	No Chemistry			
432	0264151	NW	12	056	22	4	22.9										01/05/1968		MINCHOU, CLARENCE	Domestic	New Well	Unknown	Chemistry Exists		
433	0264156	15	20	056	21	4	19.8										24/10/1958		FEDORAK, M	Domestic	New Well	Bored	No Chemistry		
434	0264163	NE	12	056	22	4	76.2											PUCHALIK, NICK	Domestic	Chemistry	Drilled	Chemistry Exists			
435	0264167	NE	20	056	21	4	24.4											FEDORAK, M	Domestic	Chemistry	Unknown	Chemistry Exists			
436	0264173	SE	13	056	22	4	35.1					32.0	35.1				03/11/1989		DUPONT CAN	Domestic	New Well	Rotary	No Chemistry		
437	0264176	16	20	056	21	4	0.0										01/01/1921		MYRON, S.	Domestic	Federal Well Survey	Drilled	No Chemistry		
438	0264184	SW	13	056	22	4	76.2											BLOM, BERNARD	Domestic	Chemistry	Drilled	Chemistry Exists			
439	0264187	SW	13	056	22	4	65.5											BLOM, KLAAS	Domestic	Chemistry	Unknown	Chemistry Exists			
440	0264190	SE	21	056	21	4	16.5											DEBAAN, J	Domestic	New Well-Abandoned	Rotary	No Chemistry			
441	0264203	SE	21	056	21	4	57.9					12.8	14.3					DEBAAN, J	Domestic	New Well	Rotary	No Chemistry			
442	0264235	07	25	056	21	4	14.6											ESSO, RES	Domestic	New Well	Bored	Chemistry Exists			
443	0264258	SE	26	056	21	4	39.0											VAN INVEN, F.	Domestic	Unknown	Unknown	No Chemistry			
444	0264263	SW	26	056	21	4	-4.3											SAWATZKY, H	Domestic	Chemistry	Unknown	Chemistry Exists			
445	0264268	SW	26	056	21	4	17.4	4.6										SAWATZKY, W	Domestic	New Well	Bored	No Chemistry			
446	0264277	09	27	056	21	4	61.0	50.3	56.4									RYKMANS, H.	Domestic	New Well	Rotary	No Chemistry			
447	0264286	SE	28	056	21	4	21.3											BELLAND, R.	Domestic	Chemistry	Drilled	Chemistry Exists			
448	0264289	NW	28	056	21	4	4.6											RESEARCH COUNCIL #6-DRINKING	Domestic	Chemistry	Unknown	Chemistry Exists			
449	0264290	SE	05	055	22	4	4.3											GODBOU, VIVIAN	Domestic	Chemistry	Unknown	No Chemistry			
450	0264293	SE	05	055	22	4	0.0											GAUMONT, GILBERTE	Domestic	Chemistry	Unknown	Chemistry Exists			
451	0264287	NE	28	056	21	4	18.3											SHIPLEY, J.	Domestic	Chemistry	Auger	Chemistry Exists			
452	0264288	NW	06	055	22	4	18.3											JESKE, O	Domestic	Chemistry	Unknown	Chemistry Exists			
453	0264304	NE	25	055	22	4	61.0											GAUMONT, MICHAEL #2	Domestic	Chemistry	Unknown	Chemistry Exists			
454	0264305	SE	29	056	21	4	54.9											PACHALUCK, P.	Domestic	Chemistry	Unknown	Chemistry Exists			
455	0264343	SE	29	056	21	4	7.6										15/08/1963		SMULSKI, J.	Domestic	New Well	Backhoe	No Chemistry		
456	0264347	SE	29	056	21	4	76.2											KALISVAART, J/T	Domestic	Chemistry	Drilled	Chemistry Exists			
457	0264357	SE	29	056	21	4	74.7											PUCHALIK, P.	Domestic	Deepened	Drilled	Chemistry Exists			
458	0264368	SE	29	056	21	4	14.0											PUCHALIK, P.	Domestic	Chemistry	Unknown	Chemistry Exists			
459	0264384	SW	29	056	21	4	9.8											PUCHALIK, S.	Domestic	Chemistry	Unknown	Chemistry Exists			
460	0264385	SW	29	056	21	4	0.0											PUCHALIK, S.	Domestic	Chemistry	Unknown	Chemistry Exists			
461	0264386	SW	29	056	21	4	7.3											PUCHALIK, S	Domestic	New Well	Bored	Chemistry Exists			
462	0264392	SW	29	056	21	4	0.0											24/09/1958		PUCHALIK, S #PUMPHOUSE WELL	Domestic	Chemistry	Unknown	Chemistry Exists	
463	0264393	SW	29	056	21	4	13.7												PUCHALIK, S	Domestic	Chemistry	Unknown	Chemistry Exists		
464	0264396	NE	29	056	21	4	0.0												SAUNDERS, P	Domestic	Chemistry	Unknown	No Chemistry		
465	0264424	SE	32	056	21	4	27.4												YAKIMETS, O	Domestic	Chemistry	Unknown	Chemistry Exists		
466	0264437	SE	32	056	21	4	42.7	36.6	39.6									16/04/1980		YAKIMETS, O J	Domestic	New Well	Rotary	No Chemistry	
467	0264466	01	33	056	21	4	19.5											01/05/1977		KUIPER, A/D	Domestic	New Well	Rotary	Chemistry Exists	
468	0264491	NE	33	056	21	4	0.0												LUBEMSKI, K.	Domestic	Chemistry	Unknown	No Chemistry		
469	0264507	04	34	056	21	4	15.2	3.7	4.6										WOLANSKY, W.	Domestic	New Well	Backhoe	Chemistry Exists		
470	0264531	SW	34	056	21	4	61.0	15.2	24.4										30/03/1974		WOLANSKY, W.	Domestic	New Well	Rotary	Chemistry Exists
471	0264620	NW	34	056	21	4	24.4													MAKONEY, R.	Domestic	Chemistry	Unknown	Chemistry Exists	
472	0264637	NE	34	056	21	4	32.0	26.5	32.0										10/03/1974		ANDERSON, K	Domestic	New Well	Rotary	Chemistry Exists
473	0264659	8	35	056	21	4	4.9													SCHILLER, J	Domestic	Chemistry	Auger	Chemistry Exists	
474	0264666	NW	35	056	21	4	4.3													HESS, R	Domestic	Chemistry	Jet	Chemistry Exists	
475	0264680	SE	36	056	21	4	5.2													RUDKO, W.	Domestic	Chemistry	Unknown	Chemistry Exists	
476	0264699	SW	36	056	21	4	7.3													DRABBLE, R.	Domestic	Chemistry	Unknown	Chemistry Exists	
477	0264707	NW	36	056	21	4	9.1													MAKOWECKI, A	Domestic	Chemistry	Drilled	Chemistry Exists	
478	0264712	NW	36	056	21	4	6.4													MAKOWECKI, A	Domestic	Chemistry	Hand Dug	Chemistry Exists	
479	0264902	NE	08	054	22	4	79.9												24/06/1970		KENNEDY, CLIFF	Domestic	New Well	Rotary	Chemistry Exists
480	0264908	NE	08	054	22	4	54.9													KALISTA, JOE	Domestic	Chemistry	Drilled	Chemistry Exists	
481	0264911	NE	08	054	22	4	9.1													ATTEW, JANE	Domestic	Chemistry	Bored	Chemistry Exists	
482	0264913	NE	08	054	22	4	11.0													SPALLIN, C	Domestic	Chemistry	Drilled	Chemistry Exists	
483	0264915	NE	08	054	22	4	13.1													LEVERSEDGE, DAN	Domestic	New Well	Bored		





Waterwell Records within the Study Area

WELL ID	LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN	WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE	WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
							FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO						
568	0083436	NE	17	055	21	4	79.9											SCOTFORD HUTTERITE BRETHREN	Domestic & Stock	Chemistry	Unknown	Chemistry Exists
569	0083437	NE	17	055	21	4	0.0											SCOTFORD COLONY	Domestic & Stock	Chemistry	Unknown	No Chemistry
570	0083438	03	18	055	21	4	12.2									01/01/1938		MOORE, T.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
571	0083459	NE	19	055	21	4	0.0											SPRUCE HILL HOG RANCH	Domestic & Stock	Chemistry	Unknown	No Chemistry
572	0083465	SE	21	055	21	4	64.0									12/09/1982		THOMAS, WARREN	Domestic & Stock	New Well	Rotary	No Chemistry
573	0083468	05	22	055	21	4	39.0									01/01/1915		LANGHAUSEN, J.	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
574	0083469	NW	22	055	21	4	51.8									01/04/1965		LARSEN, S.A.	Domestic & Stock	New Well	Cable Tool	No Chemistry
575	0083477	NW	23	055	21	4	36.6					35.4	36.6			02/07/1988		ARNDT, ERDMAN	Domestic & Stock	New Well	Rotary	No Chemistry
576	0083497	09	26	055	21	4	13.7									01/01/1933		FLUKER, R.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
577	0083499	05	27	055	21	4	30.5									01/01/1924		UNDERSCHULTZ, A.	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
578	0083535	01	32	055	21	4	0.0											MOHR, G.P.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
579	0083555	NW	34	055	21	4	42.7						38.1	39.9		01/09/1970		DAUST, CHARLIE	Domestic & Stock	New Well	Rotary	No Chemistry
580	0083563	04	35	055	21	4	30.5									01/01/1926		BERG, R.	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
581	0091495	04	06	056	20	4	17.1									16/04/1986		YAWORSKI, MIKE	Domestic & Stock	New Well	Bored	No Chemistry
582	0091499	16	06	056	20	4	68.0	48.8	68.0							12/04/1985		SCHRAM, GEORGE	Domestic & Stock	New Well	Rotary	Chemistry Exists
583	0091500	08	07	056	20	4	14.6									24/07/1981		SCHRAM, ELMER	Domestic & Stock	New Well	Bored	No Chemistry
584	0091503	04	08	056	20	4	7.6									01/01/1919		RISKE, E.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
585	0091505	13	08	056	20	4	17.7									18/07/1984		SAMPERT, ROGER	Domestic & Stock	New Well	Bored	Chemistry Exists
586	0091551	05	16	056	20	4	4.9									01/01/1930		KALAS	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
587	0091552	04	16	056	20	4	6.7									01/01/1930		HENKLEMAN	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
588	0091555	SE	17	056	20	4	19.2	4.3	17.4							19/08/1986		SAMPERT, RAY	Domestic & Stock	New Well	Bored	No Chemistry
589	0091560	SE	18	056	20	4	15.8									09/08/1978		MCLELLAN, ARTHUR	Domestic & Stock	New Well	Bored	No Chemistry
590	0091563	08	18	056	20	4	4.6									01/01/1925		KAUS, A.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
591	0091570	02	19	056	20	4	12.8											SCHUMAK, A.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
592	0091574	12	19	056	20	4	14.6									20/09/1985		MATTHEWS, B.	Domestic & Stock	New Well	Bored	No Chemistry
593	0091575	04	20	056	20	4	3.7									01/01/1917		WIKHELM, J.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
594	0153068	NE	08	054	22	4	73.2	61.0	73.2							26/09/1988		BOY'S, BILLIE	Domestic & Stock	New Well	Cable Tool	No Chemistry
595	0153696	13	36	56	21	4	45.7	36.6	45.7							14/04/1989		BOWERIN, CATHERINE	Domestic & Stock	New Well	Cable Tool	No Chemistry
596	0153768	NW	23	055	21	4	42.7						35.4	36.6		31/08/1990		ARNDT, R.E.	Domestic & Stock	New Well	Rotary	No Chemistry
597	0154442	SE	36	055	22	4	30.5						29.3	30.5		21/03/1990		STEFFLER, BENGERALD	Domestic & Stock	New Well	Rotary	No Chemistry
598	0158576	SW	08	056	20	4	21.0									25/09/1979		SCHRAM, EDWARD	Domestic & Stock	New Well	Bored	No Chemistry
599	0160258	SW	16	054	22	4	15.2	7.6	13.7							09/11/1991		BIZUK, MORRIS	Domestic & Stock	New Well	Bored	No Chemistry
600	0164457	NE	11	056	22	4	59.4	30.2	58.5							10/03/1992		BRIGGS, ALAN	Domestic & Stock	New Well	Rotary	No Chemistry
601	0166391	SE	17	054	22	4	12.2	6.1	10.7							28/06/1989		TWIGGE, MRS E.	Domestic & Stock	New Well	Bored	No Chemistry
602	0206702	NE	03	056	21	4	44.2					40.5	42.1			26/03/1993		VELTMAN, HERB	Domestic & Stock	New Well	Rotary	No Chemistry
603	0208967	SW	06	056	20	4	6.5	4.6	13.7							12/03/1993		YAWORSKI, MICHAEL	Domestic & Stock	New Well	Bored	No Chemistry
604	0220716	NE	17	056	21	4	105.2									20/09/1991		SCOTFORD COLONY	Domestic & Stock	Reconstructed	Cable Tool	No Chemistry
605	0231536	SW	02	055	23	4	67.1	57.9	64.0							09/08/1993		ARNDT, PETER	Domestic & Stock	New Well	Rotary	No Chemistry
606	0260034	NW	08	054	22	4	47.2									01/01/1925		ARBS, E.	Domestic & Stock	New Well	Drilled	No Chemistry
607	0260068	NW	09	054	22	4	30.5											MCEACHERN, J.	Domestic & Stock	Chemistry	Drilled	No Chemistry
608	0260172	04	16	054	22	4	6.7											FLEMING, J.	Domestic & Stock	New Well	Hand Dug	No Chemistry
609	0260174	13	16	054	22	4	24.4									01/01/1910		SPALAN, G.	Domestic & Stock	New Well	Drilled	No Chemistry
610	0260179	SW	17	054	22	4	61.0									01/01/1935		GALLOWAY, P.	Domestic & Stock	New Well	Drilled	No Chemistry
611	0260181	13	17	054	22	4	25.9											PETERS, H.B.	Domestic & Stock	New Well	Bored	No Chemistry
612	0260192	NW	20	054	22	4	36.6					27.4	29.0			10/05/1966		STETSON, H.A.	Domestic & Stock	New Well	Rotary	Chemistry Exists
613	0260193	05	21	054	22	4	42.7									01/01/1920		ARMSTRONG, J.	Domestic & Stock	New Well	Drilled	No Chemistry
614	0260195	13	21	054	22	4	61.0									01/01/1928		ARMSTRONG, G.	Domestic & Stock	New Well	Drilled	No Chemistry
615	0260196	SE	22	054	22	4	37.2									29/11/1988		LA TRACE, DARLENE	Domestic & Stock	New Well	Rotary	Chemistry Exists
616	0260198	13	22	054	22	4	61.0									01/01/1916		ROTH, H.G.	Domestic & Stock	New Well	Drilled	No Chemistry
617	0260217	02	26	054	22	4	70.1	50.3	61.3							12/12/1966		SLATER, GRACE	Domestic & Stock	New Well	Rotary	Chemistry Exists
618	0260219	04	26	054	22	4	59.4	49.1	55.2							24/03/1969		KLAUTT, A.R.	Domestic & Stock	New Well	Drilled	No Chemistry
619	0260223	SW	26	054	22	4	61.0	47.9	61.0							04/10/1984		GALLOWAY, ED	Domestic & Stock	New Well	Cable Tool	No Chemistry
620	0260224	10	26	054	22	4	30.2									01/01/1930		BETHIEL, A.	Domestic & Stock	New Well	Drilled	No Chemistry
621	0260226	12	27	054	22	4	21.3											ROBERTSON, F.A.	Domestic & Stock	New Well	Bored	No Chemistry
622	0260228	05	28	054	22	4	30.5									01/01/1928		CRANSON, G.A.	Domestic & Stock	New Well	Drilled	No Chemistry
623	0260378	11	29	054	22	4	61.0									01/01/1911		ADAMSON, R.F.	Domestic & Stock	New Well	Drilled	No Chemistry
624	0260424	SE	32	054	22	4	6.1											ADAMSON, R.F.	Domestic & Stock	New Well	Hand Dug	No Chemistry
625	0260427	04	34	054	22	4	48.8									01/01/1930		LAWRENCE, F.B.	Domestic & Stock	New Well	Drilled	No Chemistry
626	0260438	13	34	054	22	4	54.9									01/01/1926		WALL, T.	Domestic & Stock	New Well	Drilled	No Chemistry
627	0260442	NE	34	054	22	4	42.7									21/11/1988		BARTEL, RICHARD	Domestic & Stock	New Well	Rotary	Chemistry Exists
628	0260928	NW	13	054	23	4	4.9											TURNBULL, R.J.	Domestic & Stock	Chemistry	Hand Dug	Chemistry Exists
629	0261215	12	07	055	22	4	5.5									01/01/1908		LAMOUREUX, A.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
630	0261229	07	08	055	22	4	9.1											ADDERHORD, A.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
631	0261231	SE	08	055	22	4	14.9	7.0	9.1	12.2	14.9					28/07/1988		COURCHESNE, R	Domestic & Stock	New Well	Bored	No Chemistry
632	0261392	08	11	055	22	4	61.0									01/01/1921		MAGEE, K	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
633	0261429	01	12	055	22	4	32.3									01/01/1922		BRICKRIDGE, A	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
634	0261433	04	13	055	22	4	111.3									01/01/1922		KELLY, G	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
635	0261595	03	26	054	23	4	4.9											PODHANIUK, W.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
636	0261602	12	18	055	22	4	6.4									01/01/1930		MCJASSIC, S.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
637	0261651	09	21	055	22	4	11.0									01/01/1922		GAUMONT, A.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
638	0261679	09	24	055	22	4	4.9									01/01/1932		THORNE, R E	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
639	0261728	01	27	055	22	4	4.6											BELAIR, E C	Domestic & Stock	Chemistry	Hand Dug	Chemistry Exists
640	0261778	09	29	055	22	4	22.9									01/01/1931		LANGLOIS, G R	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
641	0261821	08	34																			













Waterwell Records within the Study Area

Table with columns: WELL ID, LOCATION (LSD, SECTION, TOWNSHIP, RANGE, MERIDIAN), WELL DEPTH (m), PERFORATIONS 1-3 (m), SCREENINGS 1-2 (m), DATE (COMPLETED, ABANDONED), WELL OWNER, PROPOSED USE, TYPE OF WORK, DRILL METHOD, CHEMISTRY. Rows 892-972.



Waterwell Records within the Study Area

WELL ID	LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN	WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE	WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY	
							FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO							FROM
973	0091556	04	17	056	20	4	42.7	27.4	42.7								16/08/1982	SCHRAM, BARRY	Stock	New Well	Cable Tool	No Chemistry	
974	0091557	12	17	056	20	4	48.8						39.6	41.5			04/06/1984	HODGSON, L.	Stock	New Well	Rotary	No Chemistry	
975	0091567	13	18	056	20	4	6.7										01/01/1918	SERANT, M.	Stock	Federal Well Survey	Unknown	No Chemistry	
976	0091568	NW	18	056	20	4	47.2										24/08/1987	SERINK, WILLIAM	Stock	New Well	Rotary	No Chemistry	
977	0091569	01	19	056	20	4	50.3										31/07/1975	RADKE, SIEGFRIED	Stock	New Well	Cable Tool	No Chemistry	
978	0091571	04	19	056	20	4	45.7										08/07/1977	SERINK, WILLIAM	Stock	New Well	Rotary	No Chemistry	
979	0154375	NE	03	056	22	4	54.9	45.7	57.9								17/04/1985	KUGLER, IRWIN	Stock	New Well	Rotary	Chemistry Exists	
980	0159190	NE	17	055	21	4	82.3										28/05/1976	SCOTFORD COLONY PUMP HOUSE	Stock	New Well	Rotary	Chemistry Exists	
981	0159197	NE	34	055	21	4	54.9	46.6	52.7								29/09/1991	BERG, RON	Stock	New Well	Rotary	No Chemistry	
982	0159288	SE	05	055	22	4	13.4	8.2	12.2								10/07/1991	GODBOUT, ROMEO	Stock	Reconstructed	Bored	No Chemistry	
983	0167849	NE	17	055	21	4	14.9										10/07/1992	SCOTFORD COLONY	Stock	New Well-Abandoned	Bored	No Chemistry	
984	0167850	NE	17	055	21	4	20.4	12.2	13.1	19.5	20.4						12/07/1992	SCOTFORD COLONY	Stock	New Well	Bored	No Chemistry	
985	0185985	SW	17	056	20	4	67.1	48.8	61.0								28/10/1992	SCHRAM, BARRY	Stock	New Well	Rotary	No Chemistry	
986	0260183	NW	18	054	22	4	36.6										01/02/1974	SMITH, HARRY	Stock	New Well	Cable Tool	No Chemistry	
987	0260184	SE	19	054	22	4	28.3						26.5	28.0			27/04/1968	GALLOWAY, R.	Stock	New Well	Drilled	No Chemistry	
988	0260190	SE	19	054	22	4	28.7										01/01/1925	LOREN, J.	Stock	New Well	Combination	No Chemistry	
989	0260222	SW	26	054	22	4	54.9										08/06/1978	GALLOWAY, ED	Stock	New Well	Rotary	No Chemistry	
990	0261227	09	07	055	22	4	7.9										01/01/1930	VILLENEUVE, E.	Stock	Federal Well Survey	Hand Dug	No Chemistry	
991	0261236	03	08	055	22	4	105.5										01/01/1924	HOULE, O.	Stock	Federal Well Survey	Drilled	No Chemistry	
992	0261456	16	13	55	22	4	103.6										01/01/1924	KREPS, J.	Stock	Federal Well Survey	Drilled	No Chemistry	
993	0261550	04	18	055	22	4	118.9										01/01/1930	VILLENEUVE, M	Stock	Federal Well Survey	Drilled	No Chemistry	
994	0261611	08	19	055	22	4	5.5										01/01/1931	ROCK, L.C.	Stock	Federal Well Survey	Hand Dug	No Chemistry	
995	0261753	08	29	055	22	4	22.9										01/01/1933	LANGLOIS, L.	Stock	Federal Well Survey	Bored	No Chemistry	
996	0261833	NE	14	056	21	4	11.3										19/04/1989	HODGSON, GEORGE	Stock	Deepened	Bored	No Chemistry	
997	0262001	02	33	054	23	4	152.4										01/01/1931	DORLAND	Stock	Federal Well Survey	Drilled	No Chemistry	
998	0262022	16	33	054	23	4	35.2										01/01/1916	WILSON	Stock	Federal Well Survey	Bored	No Chemistry	
999	0262123	SE	35	054	23	4	36.6	24.4	25.0	27.4	30.5	32.0	32.6				01/06/1975	DEVEREUX, JOHN	Stock	New Well	Drilled	No Chemistry	
1000	0262361	EH	35	054	23	4	35.1	26.5	31.1								01/09/1973	DEVEREUX, J.	Stock	New Well	Rotary	No Chemistry	
1001	0262430	SE	01	055	23	4	12.2										14/07/1922	VAN ACKER, L.	Stock	Federal Well Survey	Hand Dug	No Chemistry	
1002	0262520	SE	13	055	23	4	120.1										13/07/1925	VILLENEUVE, O.	Stock	Federal Well Survey	Drilled	No Chemistry	
1003	0263351	SE	03	056	21	4	10.7	6.1	10.7								17/09/1974	PROKOPCZAK, J.	Stock	New Well	Backhoe	No Chemistry	
1004	0263599	NE	11	056	21	4	36.6											TAYLOR, G.J	Stock	New Well	Cable Tool	Chemistry Exists	
1005	0263607	NE	11	056	21	4	37.2										01/08/1973	FAIRWEATHER, B.	Stock	New Well	Cable Tool	Chemistry Exists	
1006	0263699	SW	12	056	21	4	31.1											OLSON, R	Stock	New Well	Cable Tool	No Chemistry	
1007	0263703	SW	12	056	21	4	13.7											03/09/1977	OLSEN, R	Stock	New Well	Rotary	No Chemistry
1008	0263710	NW	12	056	21	4	44.2										12/08/1983	GILBERT, M.	Stock	New Well	Rotary	No Chemistry	
1009	0263818	02	13	056	21	4	4.9											PROCNAIM, R.	Stock	Federal Well Survey	Hand Dug	No Chemistry	
1010	0263941	04	16	056	21	4	42.7											KROPP, L.	Stock	New Well	Cable Tool	Chemistry Exists	
1011	0264180	SE	21	056	21	4	54.9						47.5	48.2			03/07/1978	DEBAAN, J	Stock	New Well	Rotary	No Chemistry	
1012	0264218	SW	21	056	21	4	53.6										01/03/1974	SMITH, E.	Stock	New Well	Cable Tool	Chemistry Exists	
1013	0264254	08	25	056	21	4	14.9										17/06/1978	SERINK, W	Stock	New Well	Bored	No Chemistry	
1014	0264272	SW	26	056	21	4	39.6	31.7	37.8								12/04/1988	SAWATZKI, W	Stock	New Well	Rotary	No Chemistry	
1015	0264282	09	27	056	21	4	67.1						30.5	36.6	42.7	48.8	20/05/1986	MEDA, W	Stock	New Well	Rotary	No Chemistry	
1016	0264315	SE	29	056	21	4	7.3											PUCHALUK, P.	Stock	Chemistry	Unknown	Chemistry Exists	
1017	0264931	NE	17	054	22	4	67.1										18/04/1955	ARMSTRONG	Stock	New Well	Drilled	Chemistry Exists	
1018	0264947	NE	35	054	22	4	51.8										01/09/1973	SIMMONS, HECTOR	Stock	New Well	Cable Tool	Chemistry Exists	
1019	0267241	SE	03	056	21	4	10.7	4.6	10.7								10/10/1974	PROKOPCZAK, L.J.	Stock	New Well	Bored	No Chemistry	
1020	0270766	04	21	056	20	4	68.6											GRONER, LARRY	Stock	New Well	Cable Tool	No Chemistry	
1021	0290971	SW	34	056	21	4	16.8	12.8	15.8								18/10/1998	WOHNSKY, WALT	Stock	New Well	Bored	No Chemistry	
1022	0297412	5	36	56	21	4	48.8	36.6	48.8								23/05/2000	DRABBLE, R.	Stock	New Well	Rotary	No Chemistry	
1023	1325000	NE	35	054	22	4	51.8										01/09/1973	SIMMONS, HECTOR	Stock	New Well	Cable Tool	No Chemistry	
1024	1690056	NW	09	056	21	4	11.6	3.0	9.1								09/07/2002	GAUMONT, CONARD	Stock	New Well	Bored	No Chemistry	
1025	0083442	SW	19	055	21	4	5.2										03/11/2008	WING, H.S.	Unknown	Old Well-Abandoned	Unknown	Chemistry Exists	
1026	0083445	SW	19	055	21	4	0.0											BLACKLOCK, OLGA	Unknown	Chemistry	Unknown	No Chemistry	
1027	0083446	SW	19	055	21	4	3.7										20/12/2002	DZURNY, E.	Unknown	Chemistry	Unknown	No Chemistry	
1028	0083504	16	27	55	21	4	27.4										02/07/2009	HEINRICH, E & D	Unknown	Old Well-Abandoned	Unknown	Chemistry Exists	
1029	0083507	01	28	055	21	4	21.3										24/06/1969	ALTA AGRICULTURE #670H	Unknown	Test Hole	Rotary	No Chemistry	
1030	0083508	13	28	055	21	4	29.3										25/06/1969	ALTA AGRICULTURE #669H	Unknown	Test Hole	Rotary	No Chemistry	
1031	0083529	NW	30	055	21	4											02/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry	
1032	0083564	NE	35	55	21	4	11.0										10/07/2009	CHICHAK, L.	Unknown	Old Well-Abandoned	Unknown	Chemistry Exists	
1033	0083574	12	36	55	21	4	12.2										01/07/2009	PROKOPCZAK, B.	Unknown	Old Well-Abandoned	Unknown	No Chemistry	
1034	0091497	04	06	056	20	4	7.0										17/07/1975	HYDROGEOLOGICAL CONSULT LTD	Unknown	Test Hole	Auger	No Chemistry	
1035	0091501	01	07	056	20	4	27.4										17/07/1975	HYDROGEOLOGICAL CONSULT LTD	Unknown	Test Hole	Auger	No Chemistry	
1036	0152372	WH	08	056	21	4	30.5										26/06/1990	MASCHMEYER, RAY	Unknown	Dry Hole	Rotary	No Chemistry	
1037	0160230	NE	08	054	22	4	17.7	6.1	13.7								24/10/1991	KROENING, GREG	Unknown	New Well	Bored	No Chemistry	
1038	0164457	NE	11	056	22	4											08/12/2008	PETRO CANADA	Unknown	Old Well-Abandoned	Unknown	No Chemistry	
1039	0169121	SE	16	056	21	4	34.7										23/09/1992	HEIKELMAN, P.R.	Unknown	New Well-Abandoned	Unknown	No Chemistry	
1040	0208911	SE	16	056	21	4											01/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry	
1041	0240750	NE	30	055	21	4	42.7										11/05/1969	ALTA ENV/WATER RES #0295E	Unknown	Test Hole	Rotary	No Chemistry	
1042	0240751	EH	20	055	21	4	45.1										12/05/1969	ALTA ENV/WATER RES #0296E	Unknown	Test Hole	Rotary	No Chemistry	
1043	0240752	NE	15	055	21	4	24.4										12/05/1969	ALTA ENV #0297E	Unknown	Test Hole	Rotary	No Chemistry	
1044	0240761	02	33	054	23	4	42.7										20/09/1973	ALTA ENV #1072E	Unknown	Test Hole	Rotary	Chemistry Exists	
1045	0240767	NE	36	054	22	4	12.2										08/08/1976	ALTA ENV #1621E	Unknown	Test Hole	Rotary	No Chemistry	
1046	0240768	NE	35	054	22	4	30.5										05/08/1976	ALTA ENV #1618E	Unknown	Test Hole	Auger	No Chemistry	
1047	0240769	NE	34	054	22	4	3																





Waterwell Records within the Study Area

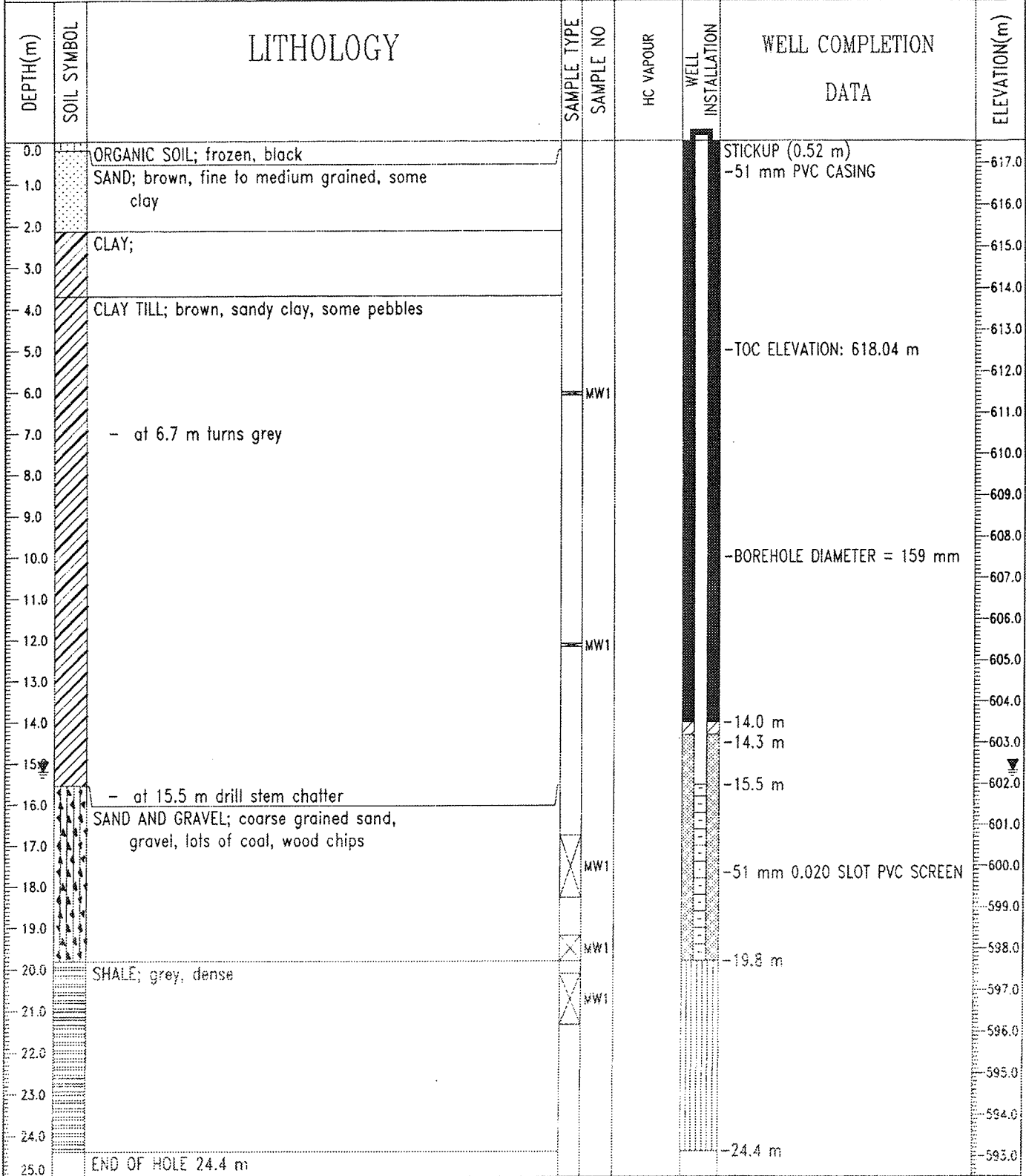
WELL ID	LOCATION					WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE		WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
	LSID	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
1135	0298285	NE	19	055	21	4	0.0													Unknown	Old Well-Abandoned	Not Applicable	No Chemistry
1136	1125042	9	1	56	22	4	15.2													Unknown	Old Well - Abandoned	Unknown	No Chemistry
1137	1420003	NW	05	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1138	1420578	SE	16	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1139	1575400	SE	18	56	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1140	1575427	SW	09	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1141	1575428	SW	09	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1142	1575581	NW	09	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1143	1575582	SW	16	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1144	1575583	SW	16	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1145	1575584	SE	16	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1146	1575585	SE	30	055	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1147	1575586	SE	30	055	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1148	1575587	SE	30	055	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1149	1575588	SE	30	055	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1150	1575589	NW	30	055	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1151	1575666	SW	12	056	22	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1152	1575667	SW	13	056	22	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1153	1575668	SW	13	056	22	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1154	1575669	SW	16	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1155	1575670	SW	16	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1156	1575671	SE	16	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1157	1575697	NE	35	55	21	4	18.3													Unknown	Old Well-Abandoned	Unknown	No Chemistry
1158	1575698	NE	35	55	21	4	4.9													Unknown	Old Well-Abandoned	Unknown	No Chemistry
1159	1575699	NW	26	55	21	4	30.5													Unknown	Old Well-Abandoned	Unknown	No Chemistry
1160	1575700	NW	26	55	21	4	18.3													Unknown	Old Well-Abandoned	Unknown	No Chemistry
1161	1575701	NW	26	55	21	4	27.4													Unknown	Old Well-Abandoned	Unknown	No Chemistry
1162	1575702	SW	35	55	21	4	42.7													Unknown	Old Well-Abandoned	Unknown	No Chemistry
1163	1575703	NW	30	55	21	4	5.5													Unknown	Old Well-Abandoned	Unknown	No Chemistry
1164	1575880	SE	11	56	22	4														Unknown	Old Well - Abandoned	Unknown	No Chemistry
1165	1575882	NW	12	56	22	4														Unknown	Old Well - Abandoned	Unknown	No Chemistry
1166	1575883	SW	12	56	22	4														Unknown	Old Well - Abandoned	Unknown	No Chemistry
1167	1690056	NW	09	056	21	4														Unknown	Old Well-Abandoned	Unknown	No Chemistry
1168	1795275	15	34	56	21	4	3.7													Unknown	Old Well - Abandoned	Unknown	No Chemistry

\* Data Source: Alberta Environment and Water, Alberta Water Well Information Database. Retrieved April 3, 2012, via Alberta Environment and Water FTP site.
\* Date of Search: April 11, 2012

## Appendix 2 Borehole Logs



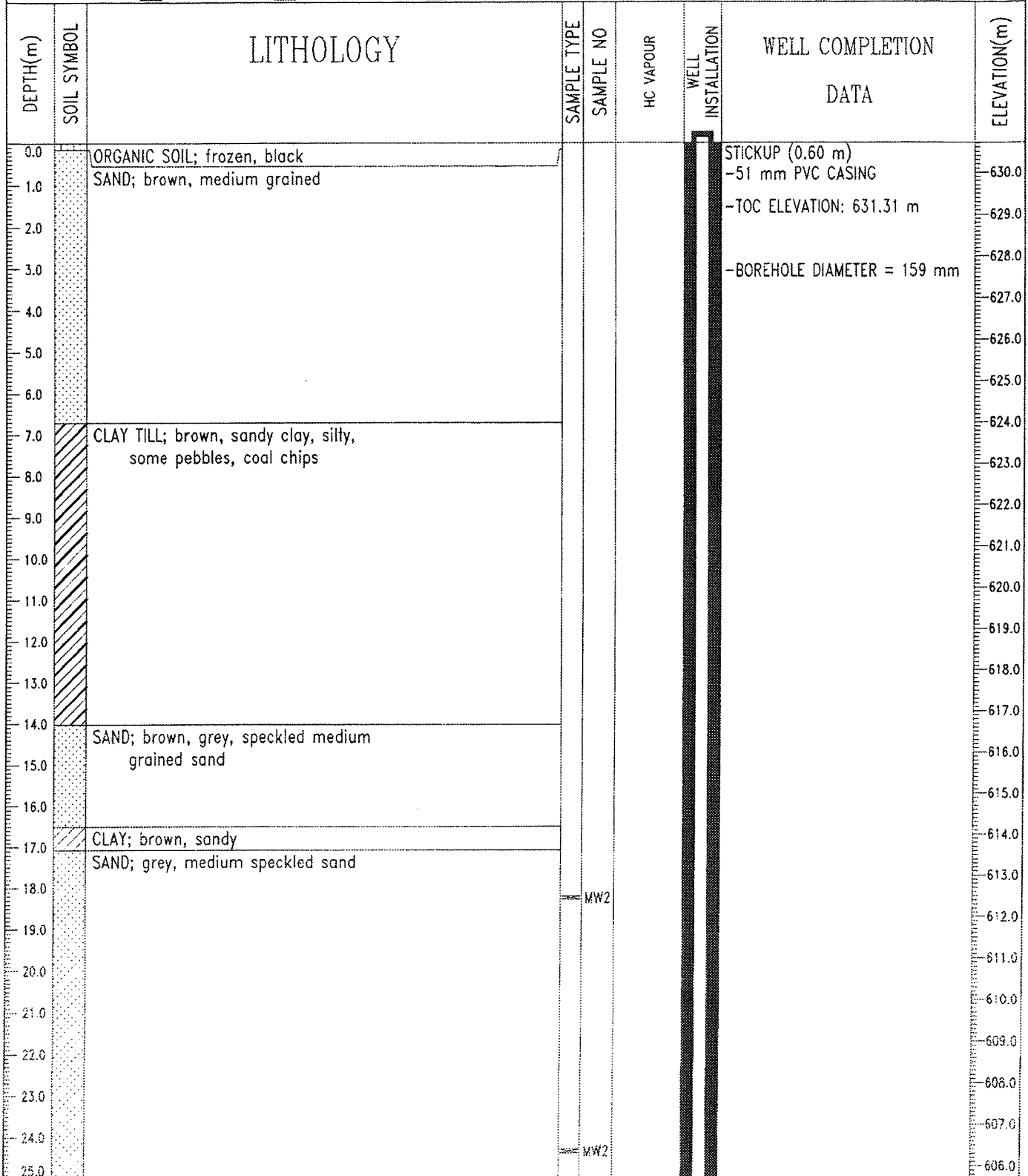
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PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:350335.04 N:5951040.45	ELEVATION: 617.52 (m)
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLCUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	



Stanlec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 24.4 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/24/05
	Fig. No: 17094	Page 1 of 1



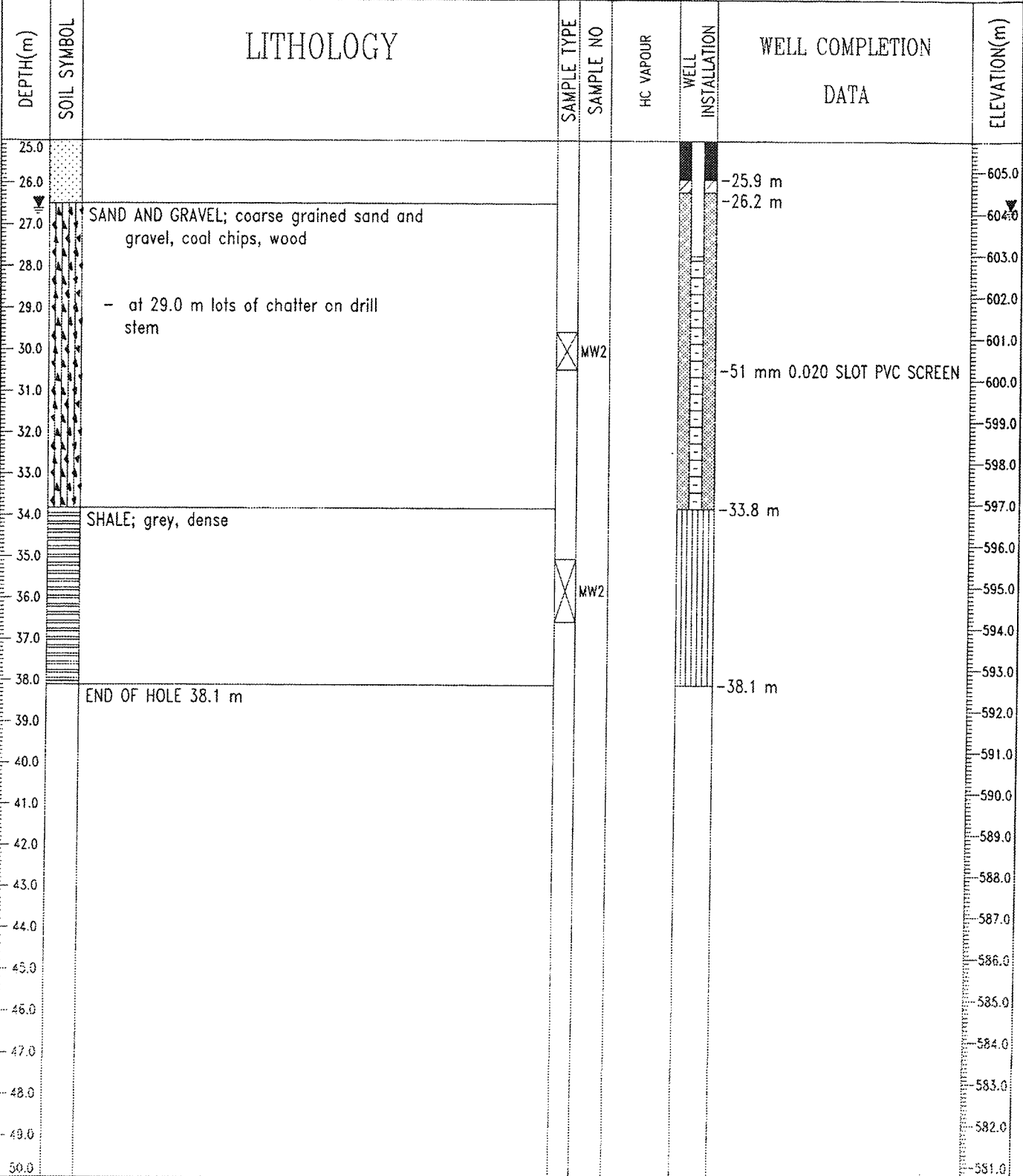
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LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:352457.80 N:5950583.37	ELEVATION: 630.71 (m)
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT	<input checked="" type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



Stantec Consulting Ltd.  
Edmonton, Alberta

LOGGED BY: H. LOVETT	COMPLETION DEPTH: 38.1 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/24/05
Fig. No: 17094	Page 1 of 2

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-02
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:352457.80 N:5950583.37	ELEVATION: 630.71 (m)
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT	<input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND

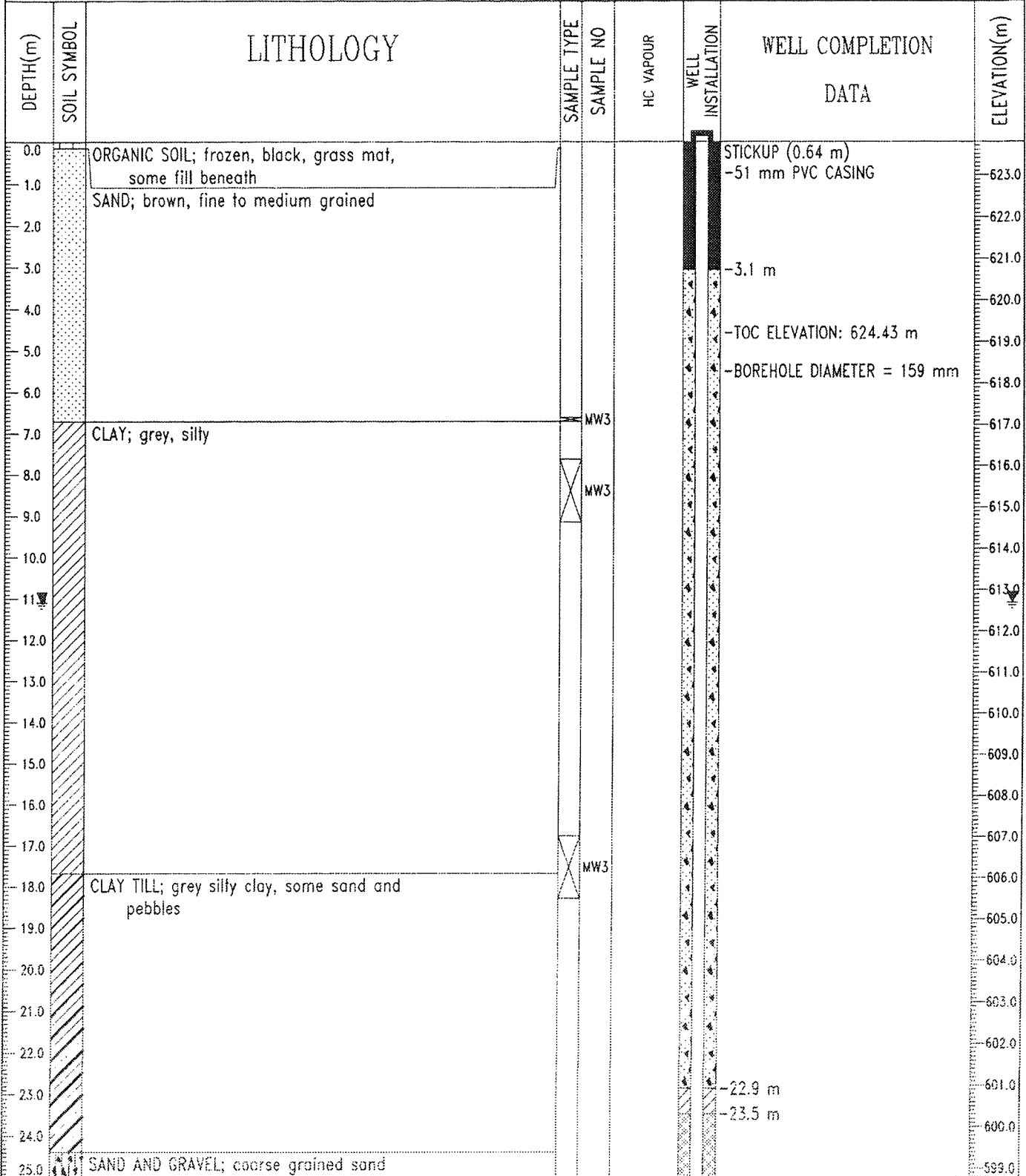


Stantec Consulting Ltd.  
Edmonton, Alberta

LOGGED BY: H. LOVETT  
REVIEWED BY: O. YOSHISAKA  
Fig. No: 17094

COMPLETION DEPTH: 38.1 m  
COMPLETE: 01/24/05

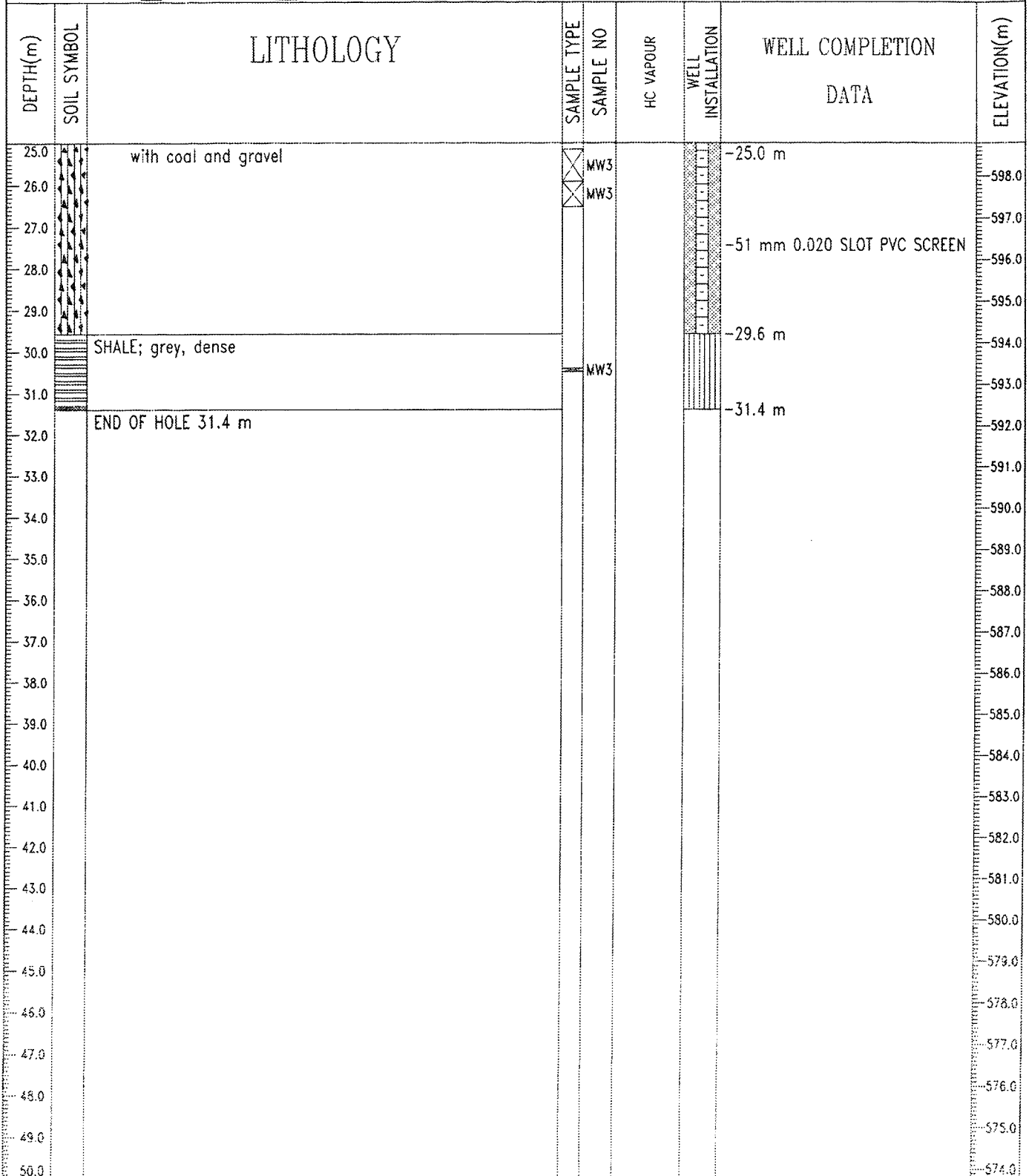
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LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:353030.21 N:5952940.90	ELEVATION: 623.79 (m)
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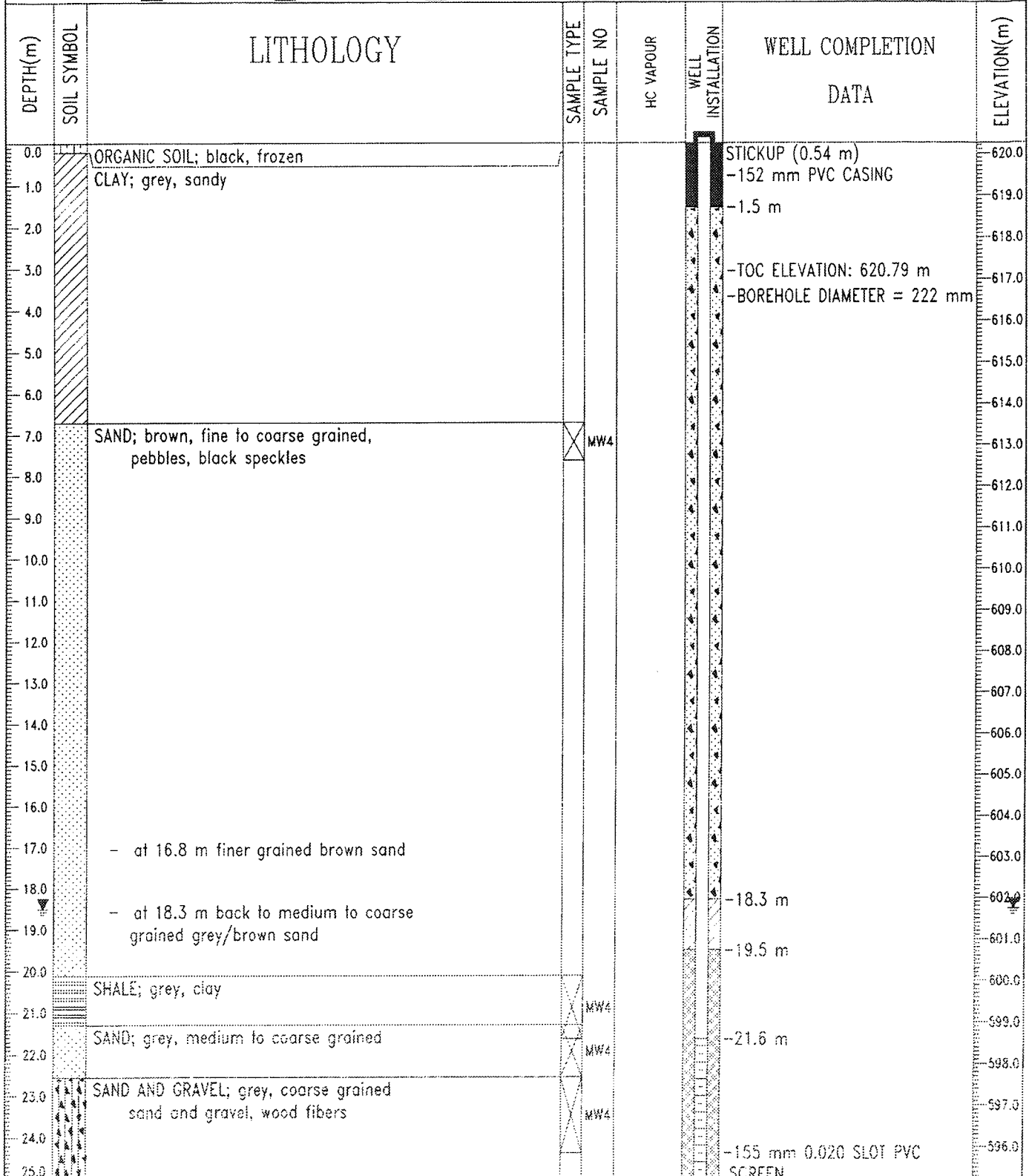
LOGGED BY: H. LOVETT    COMPLETION DEPTH: 31.4 m  
REVIEWED BY: D. YOSHISAKA    COMPLETE: 01/25/05  
Fig. No: 17094    Page 1 of 2

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-03
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:353030.21 N:5952940.90	ELEVATION: 623.79 (m)
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input checked="" type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 31.4 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/25/05
	Fig. No: 17094	Page 2 of 2

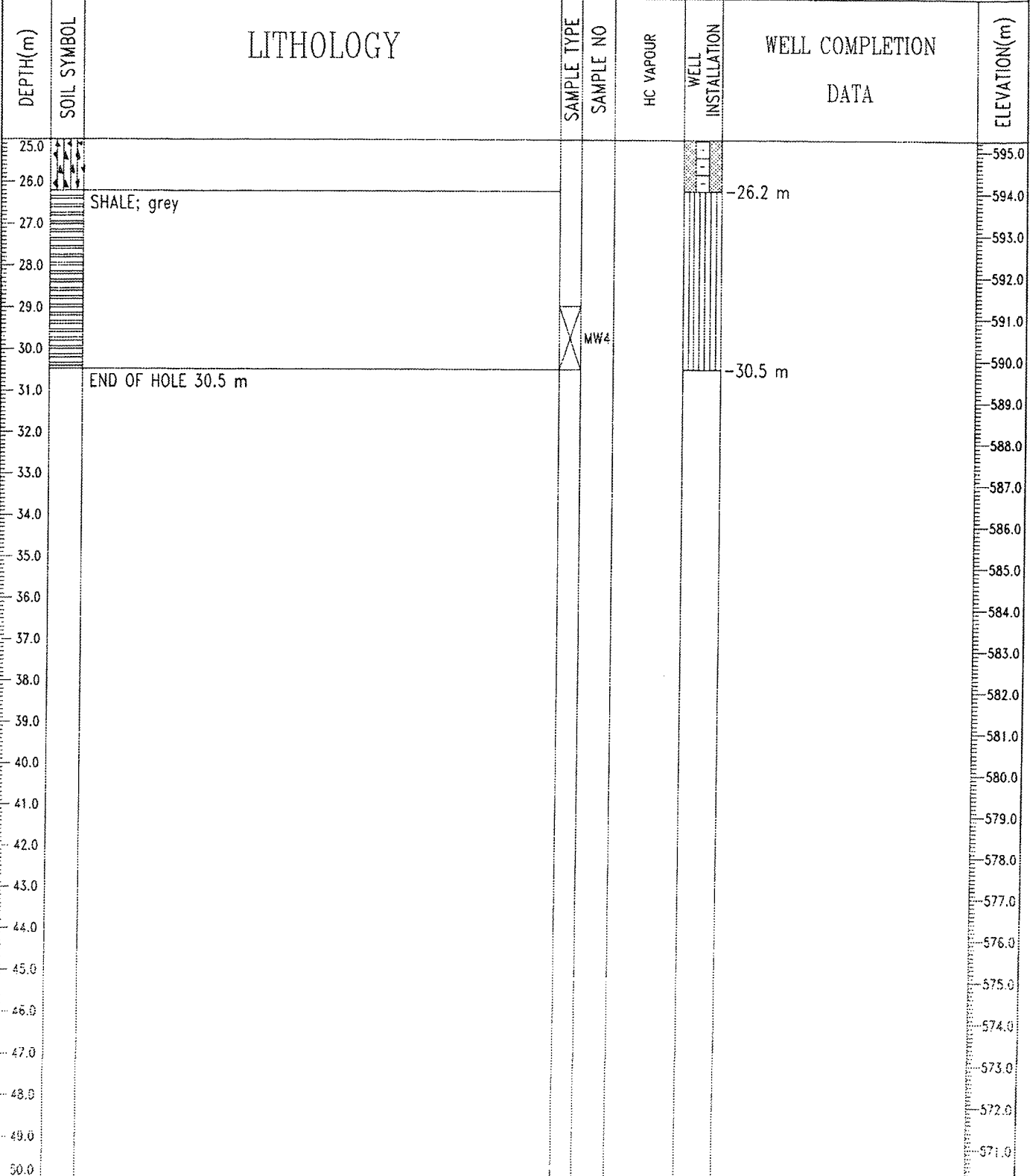
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PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:354823.41 N:5953959.76	ELEVATION: 620.25 (m)
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	



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Edmonton, Alberta

LOGGED BY: H. LOVETT    COMPLETION DEPTH: 30.5 m  
REVIEWED BY: D. YOSHISAKA    COMPLETE: 01/25/05  
Fig. No: 17094    Page 1 of 2

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-04
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:354823.41 N:5953959.76	ELEVATION: 620.25 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



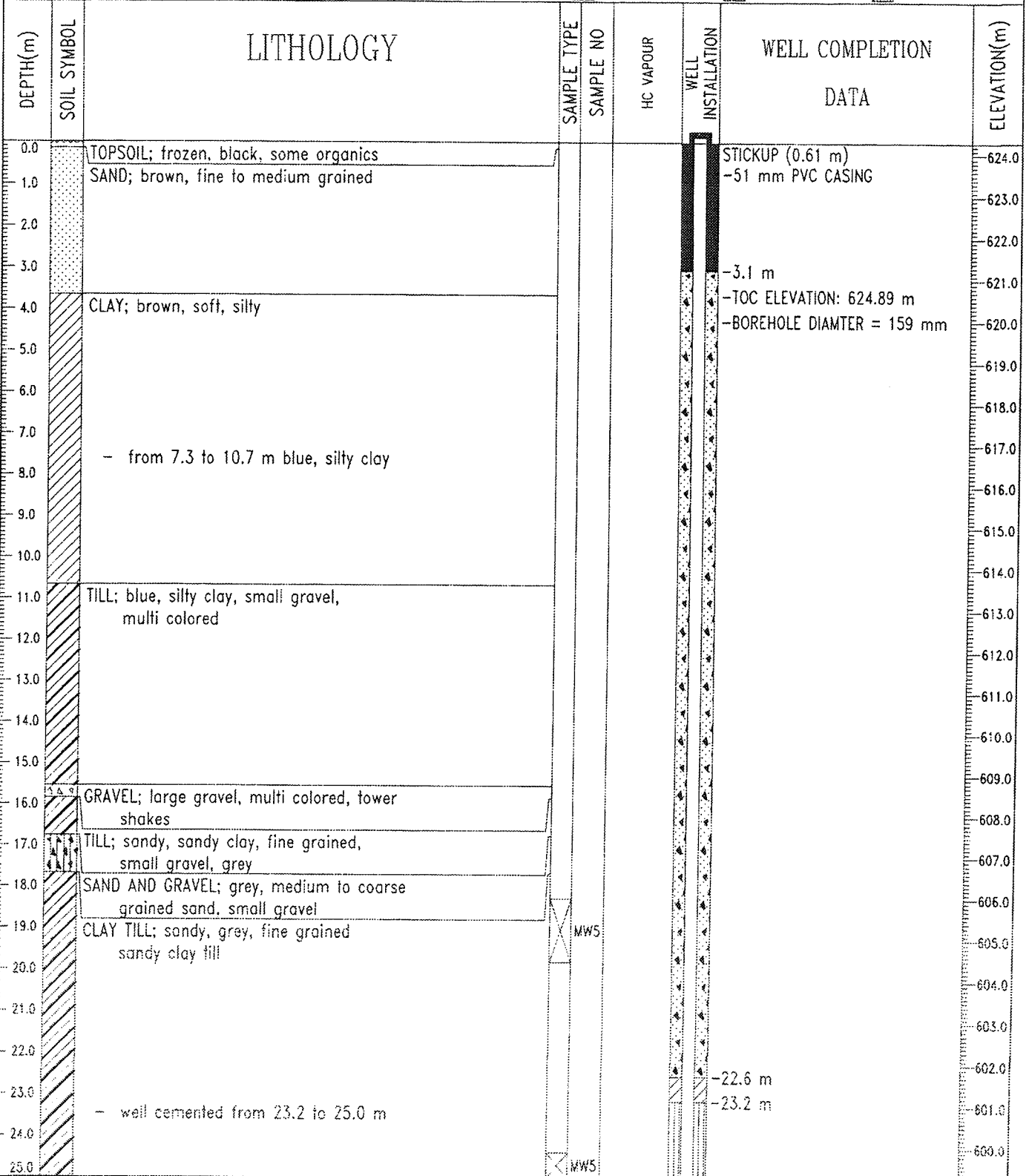
Stantec Consulting Ltd.  
Edmonton, Alberta

LOGGED BY: H. LOVETT  
REVIEWED BY: D. YOSHISAKA  
Fig. No: 17094

COMPLETION DEPTH: 30.5 m  
COMPLETE: 01/25/05

15/11/04 07:52PM (PCL10H-1)

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-05
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:354293.74 N:5954889.46	ELEVATION: 624.28 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT	<input checked="" type="checkbox"/> PELTONITE <input type="checkbox"/> SAND

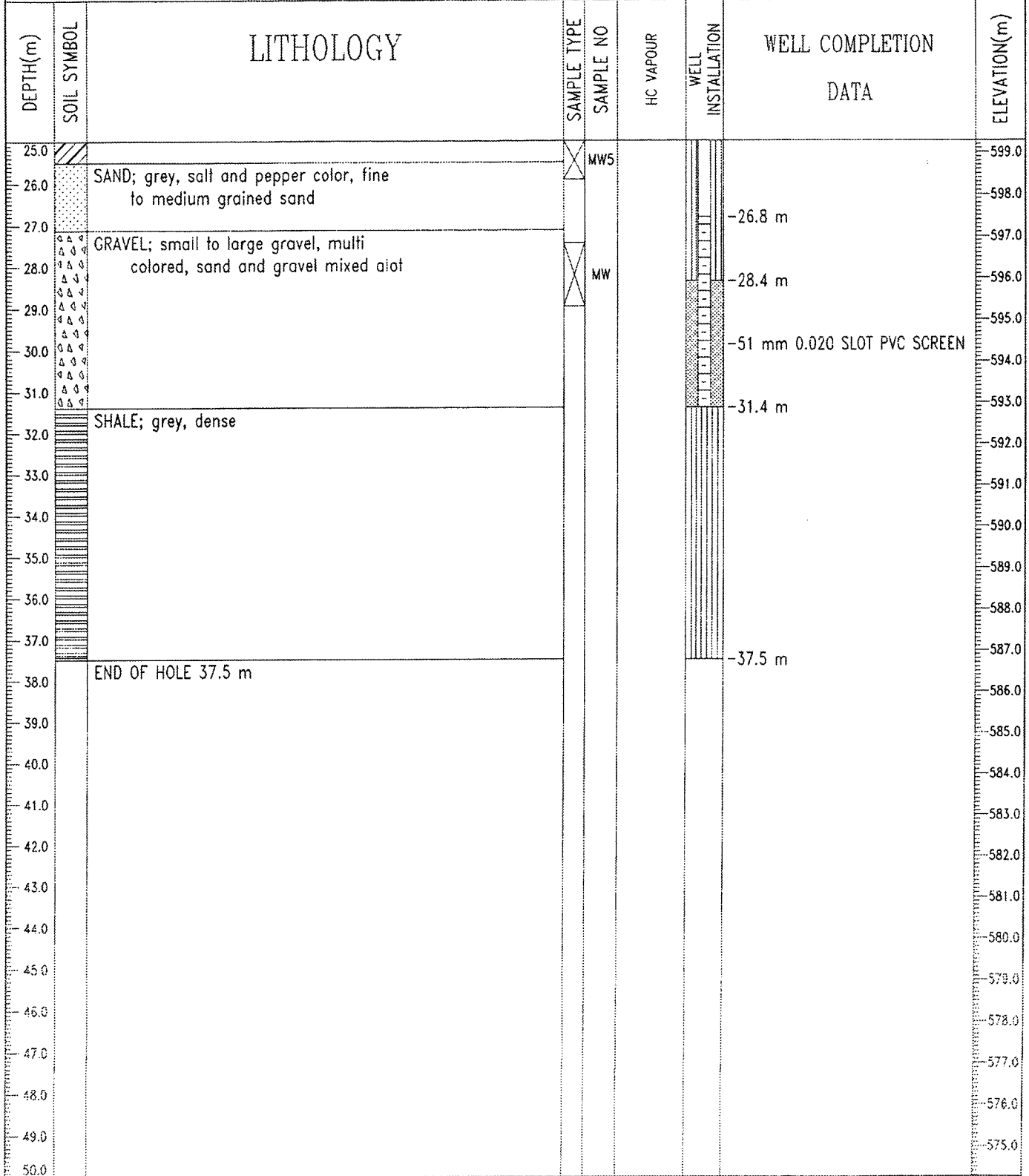


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Edmonton, Alberta

LOGGED BY: H. LOVETT	COMPLETION DEPTH: 37.5 m
REVIEWED BY: D. YGSHISAKA	COMPLETE: 02/03/05
Fig. No: 17094	Page 1 of 2

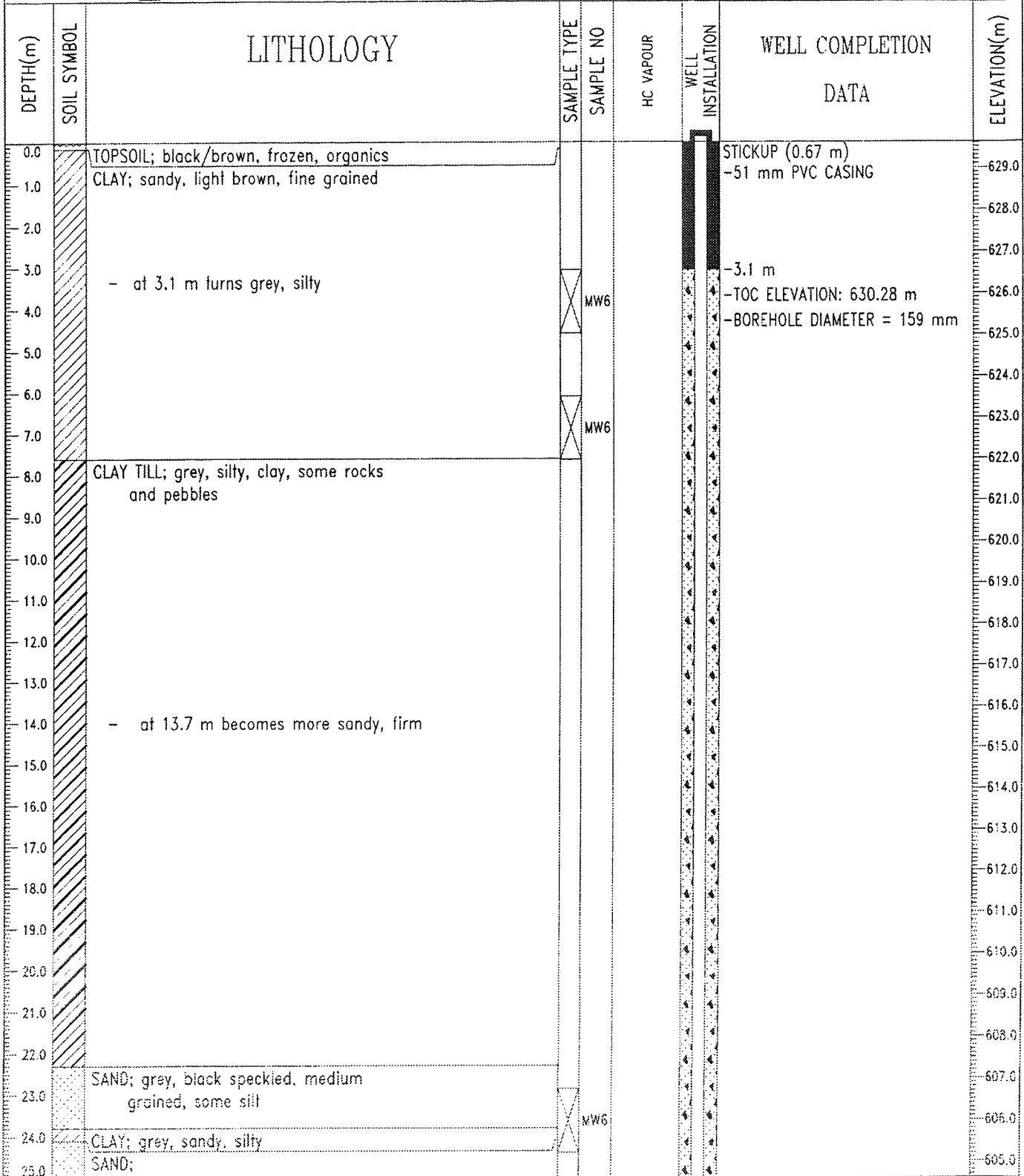


CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-05
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:354293.74 N:5954889.46	ELEVATION: 624.28 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 37.5 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 02/03/05
	Fig. No: 17094	Page 2 of 2

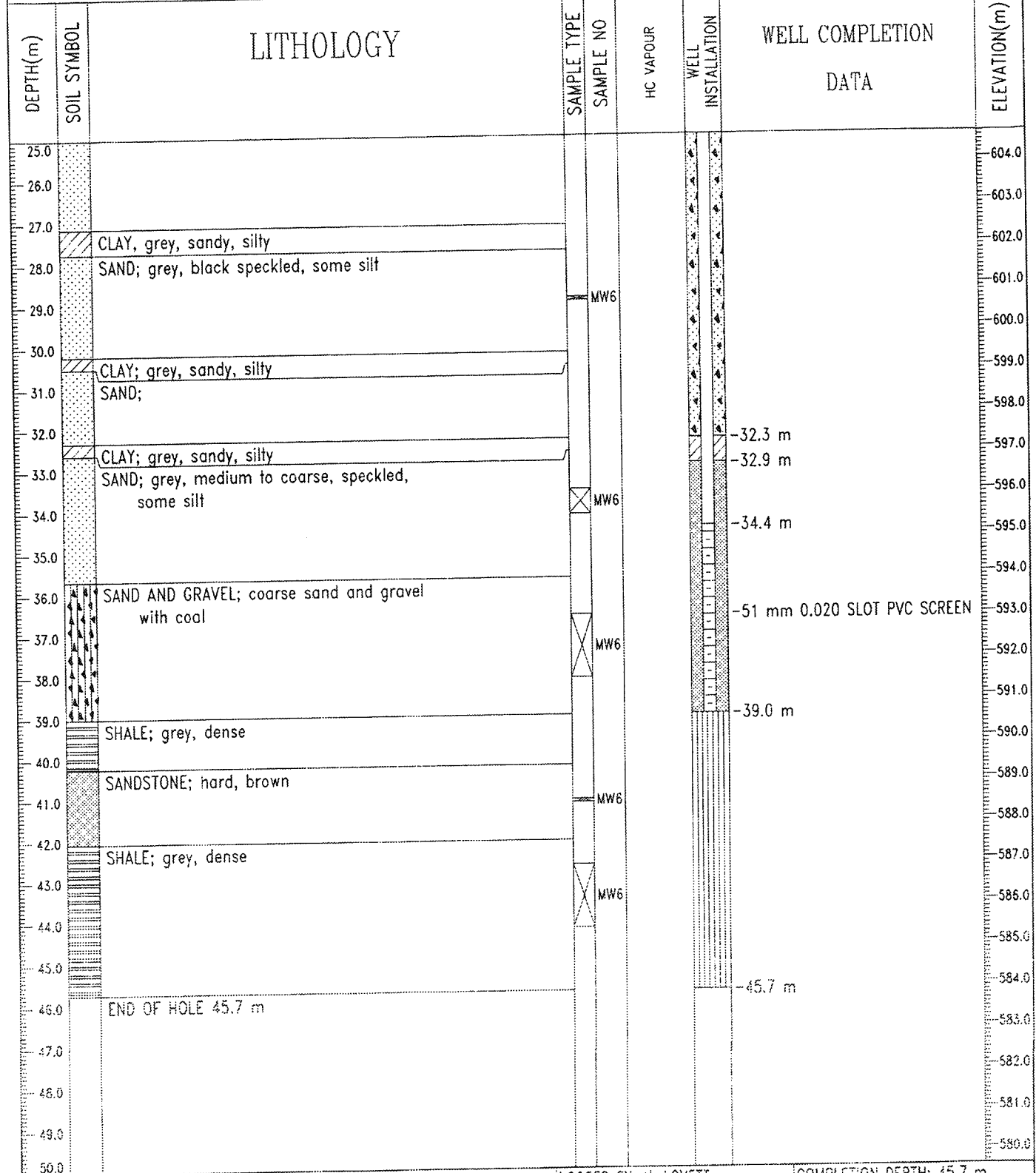
CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-06
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:361559.34 N:5958812.22	ELEVATION: 629.61 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT <input type="checkbox"/> A-CASING <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	



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LOGGED BY: H. LOVETT	COMPLETION DEPTH: 45.7 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/31/05
Fig. No: 17094	Page 1 of 2

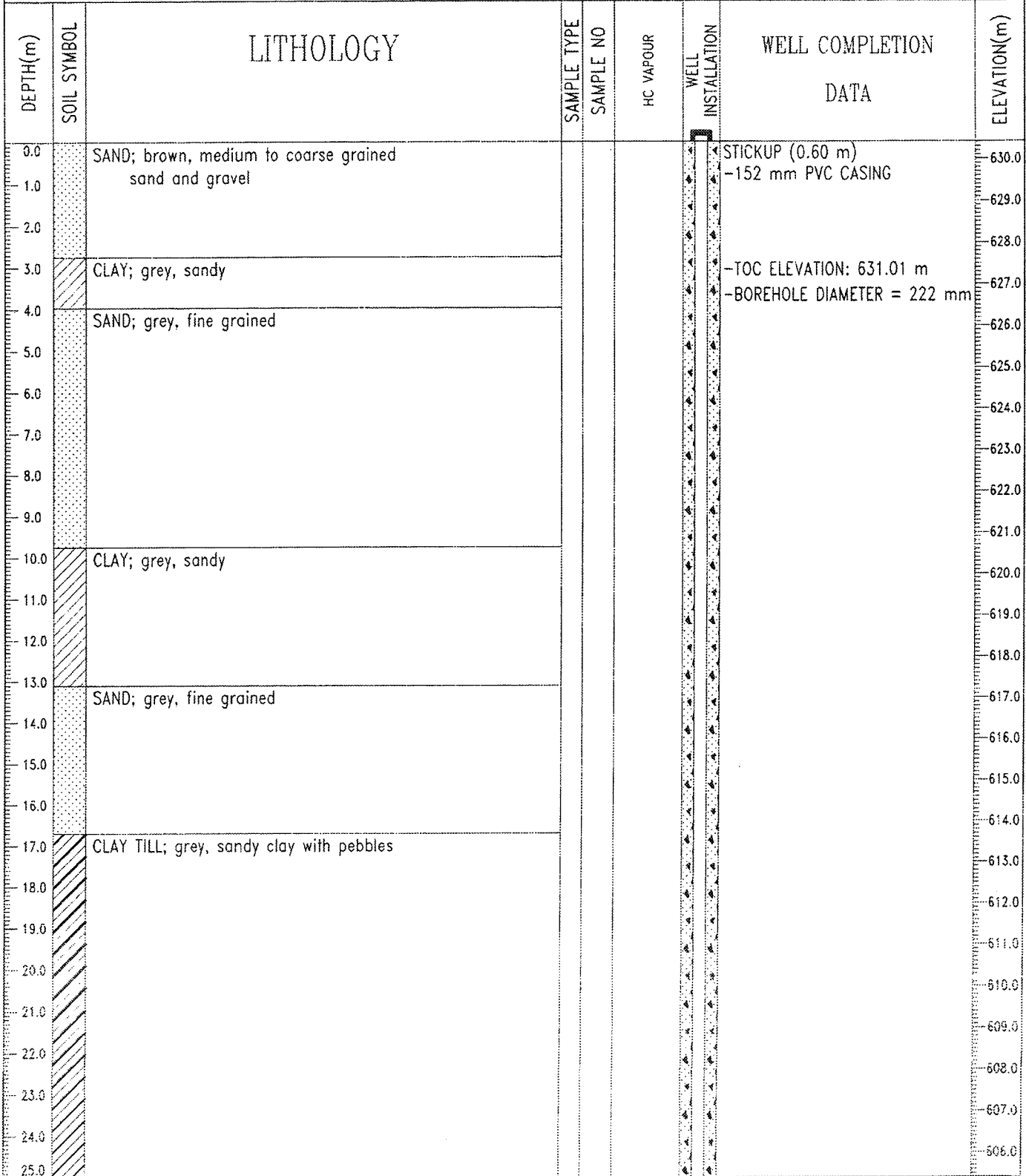
CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-06
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:361559.34 N:5958812.22	ELEVATION: 629.61 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> GRAB <input type="checkbox"/> SPT <input type="checkbox"/> A-CASING <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	



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LOGGED BY: H. LOVETT	COMPLETION DEPTH: 45.7 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/31/05
Fig. No: 17094	Page 2 of 2

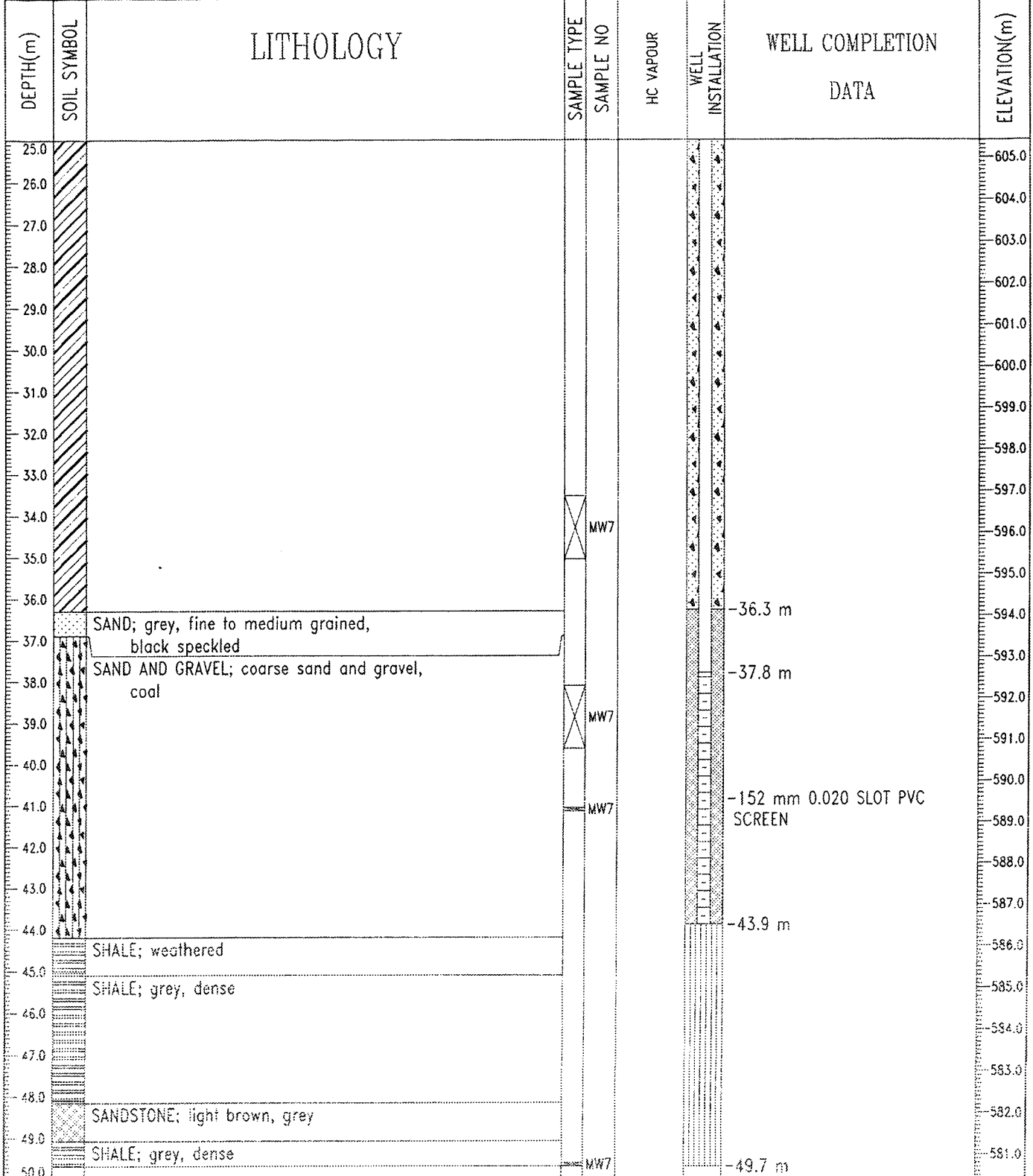
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PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:359089.70 N:5959604.24	ELEVATION: 630.41 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> GRAB <input type="checkbox"/> SPT <input type="checkbox"/> A-CASING <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	



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LOGGED BY: H. LOVETT	COMPLETION DEPTH: 49.7 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 02/14/05
Fig. No: 17094	Page 1 of 2

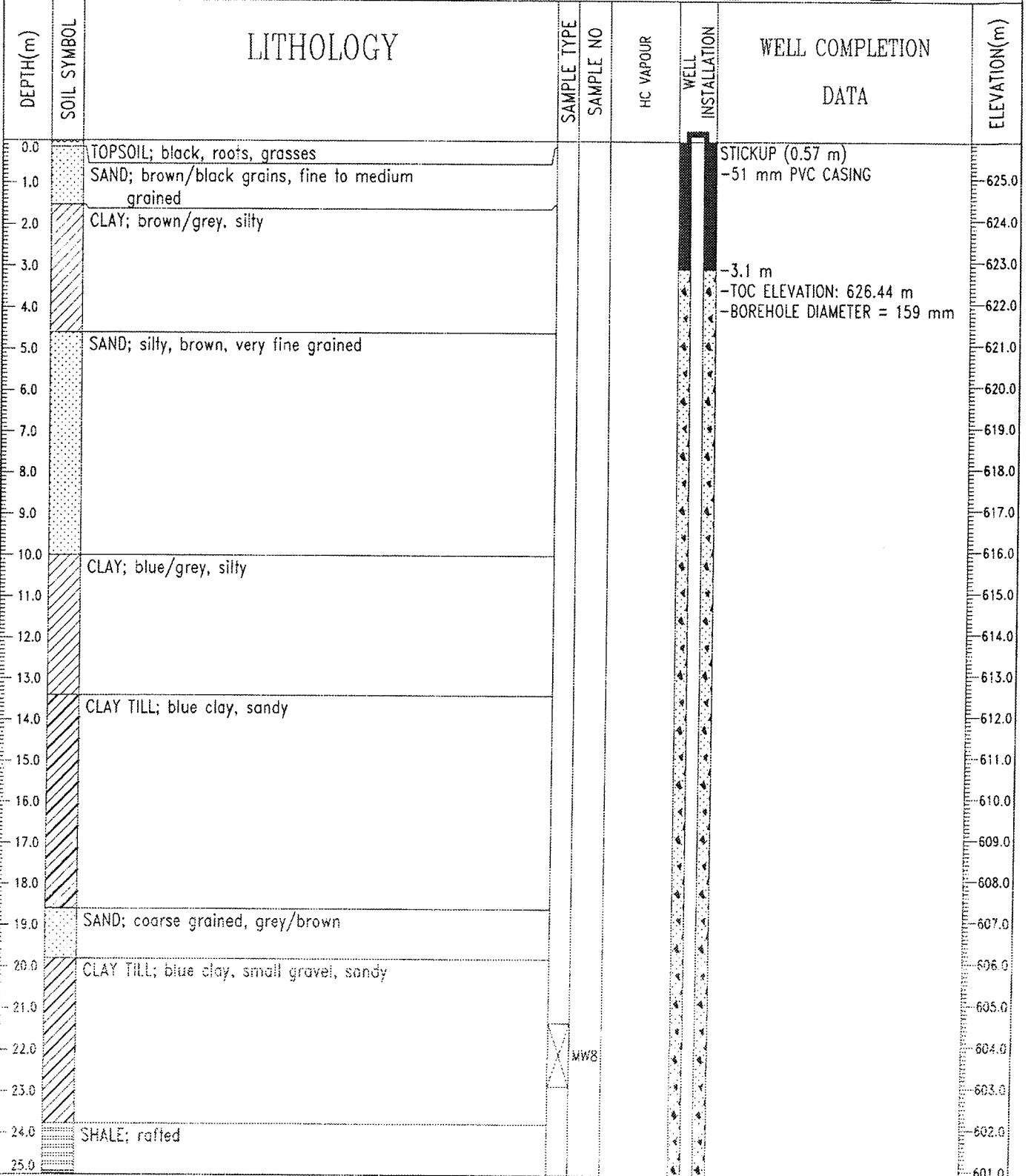
CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-07
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:359089.70 N:5959604.24	ELEVATION: 630.41 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT <input type="checkbox"/> A-CASING <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	



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LOGGED BY: H. LOVETT  
REVIEWED BY: D. YOSHISAKA  
Fig. No: 17094  
COMPLETION DEPTH: 49.7 m  
COMPLETE: 02/14/05

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-08				
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400				
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:363133.77 N:5961204.95	ELEVATION: 625.87 (m)				
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE	<input type="checkbox"/> NO RECOVERY	<input type="checkbox"/> GRAB	<input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING	<input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> PELTONITE	<input type="checkbox"/> SAND



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LOGGED BY: H. LOVETT

REVIEWED BY: D. YOSHISAKA

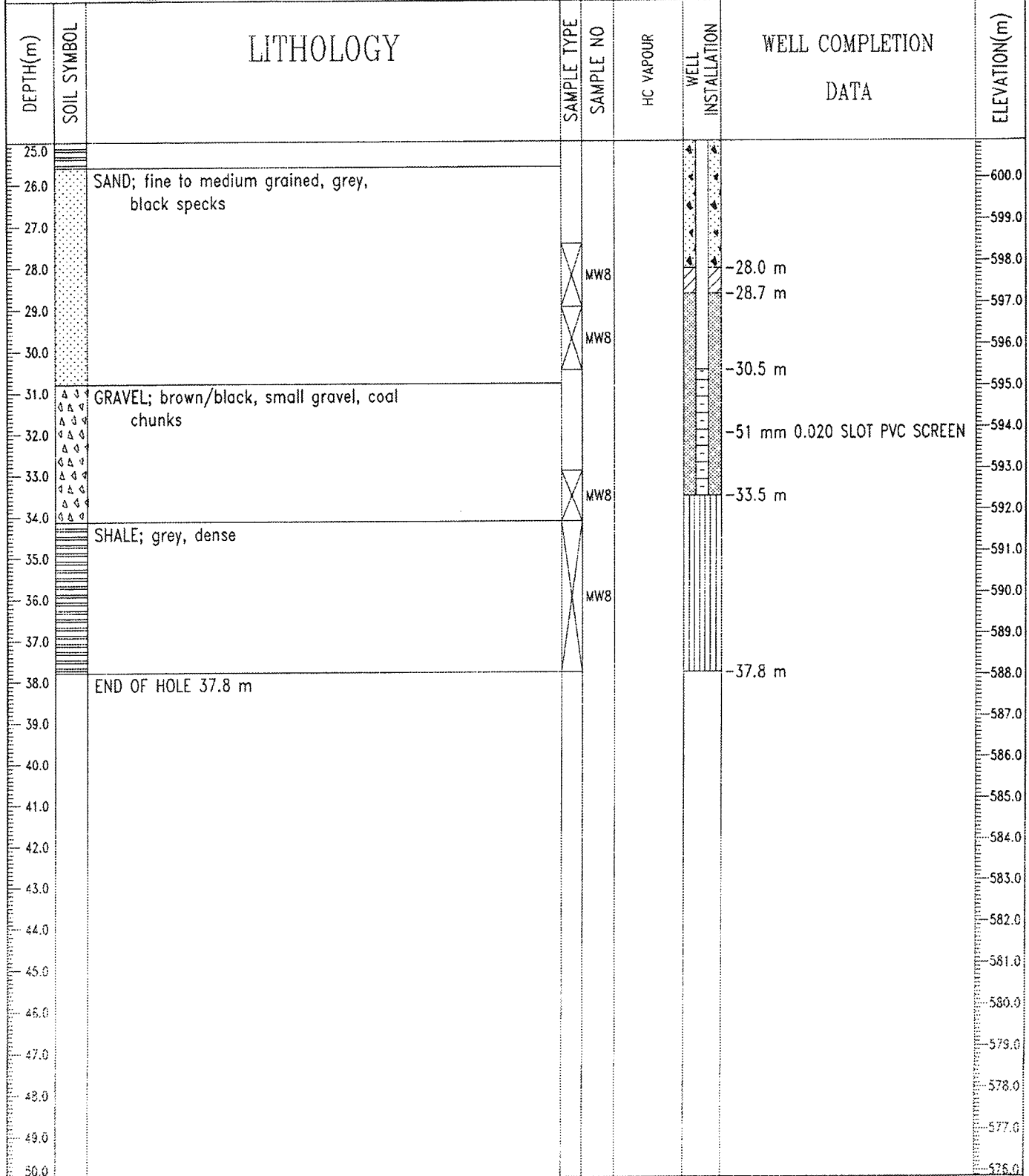
Fig. No: 17094

COMPLETION DEPTH: 37.8 m

COMPLETE: 02/03/05

Page 1 of 2

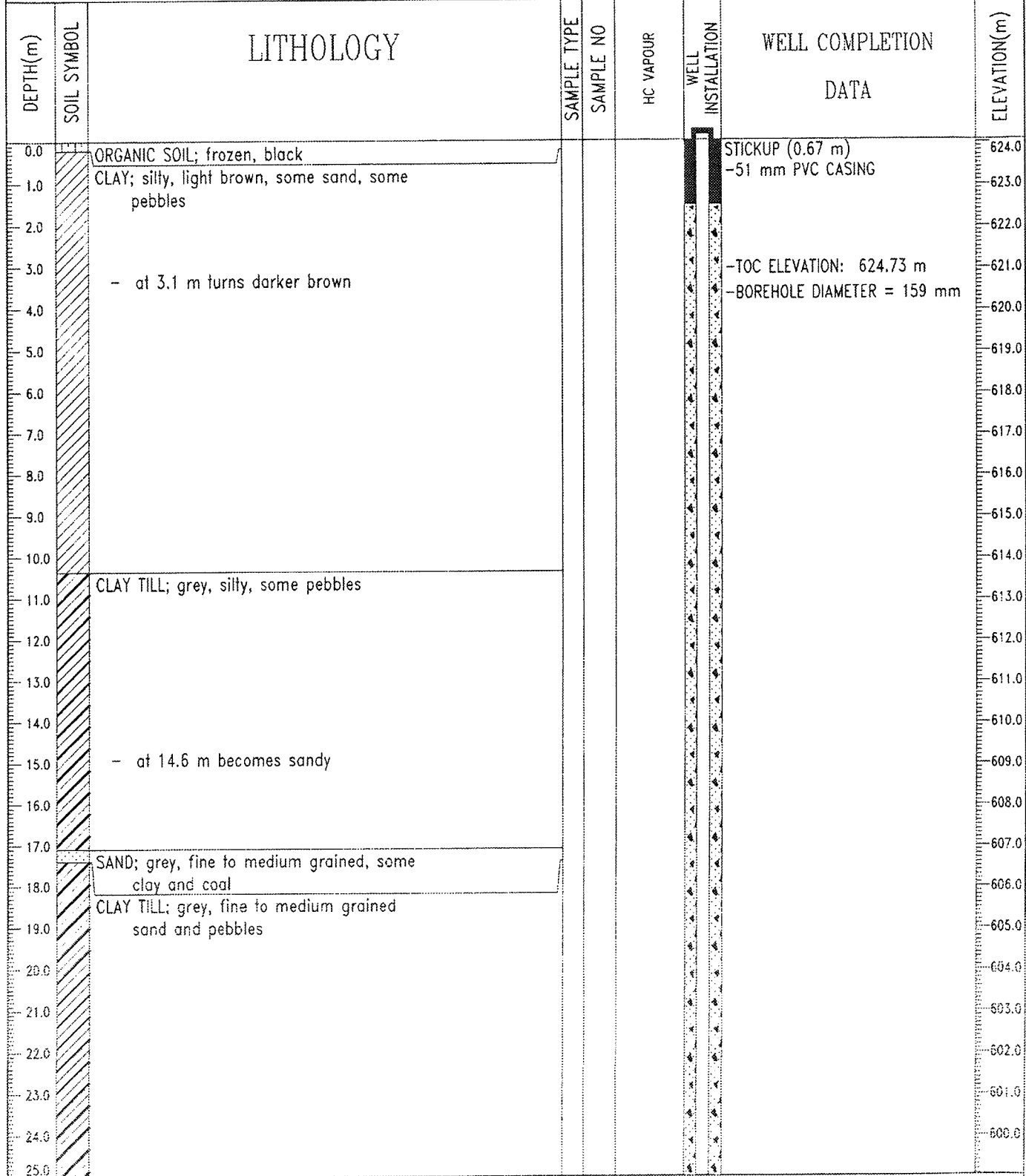
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PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:363133.77 N:5961204.95	ELEVATION: 625.87 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT	<input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 37.8 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 02/03/05
	Fig. No: 17094	Page 2 of 2



CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-09				
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400				
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:361003.46 N:5962032.28	ELEVATION: 624.06 (m)				
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE	<input type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> GRAB	<input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING	<input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input checked="" type="checkbox"/> PELTONITE	<input type="checkbox"/> SAND



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LOGGED BY: H. LOVETT

REVIEWED BY: O. YOSHISAKA

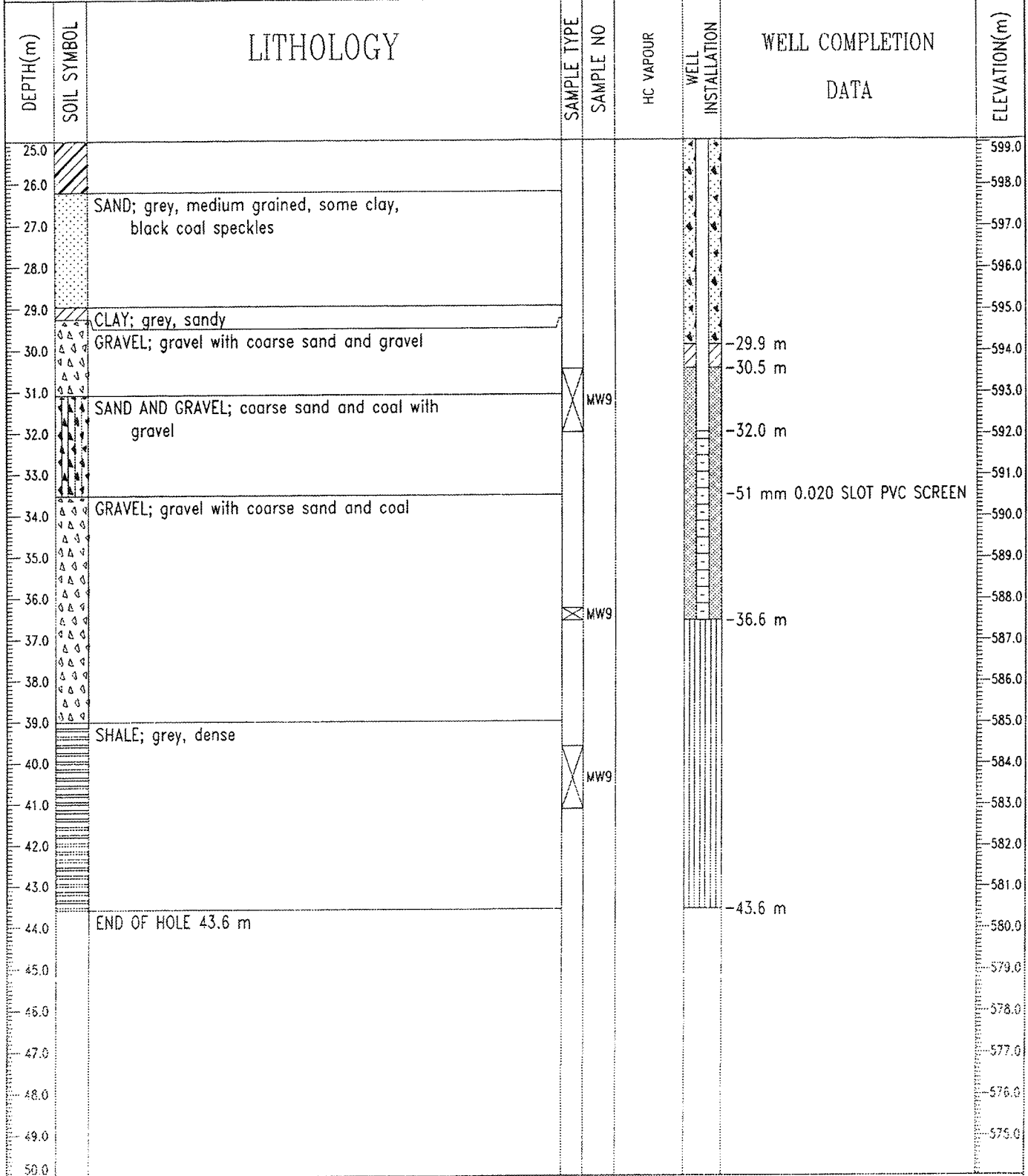
Fig. No: 17094

COMPLETION DEPTH: 43.6 m

COMPLETE: 01/28/05

Page 1 of 2

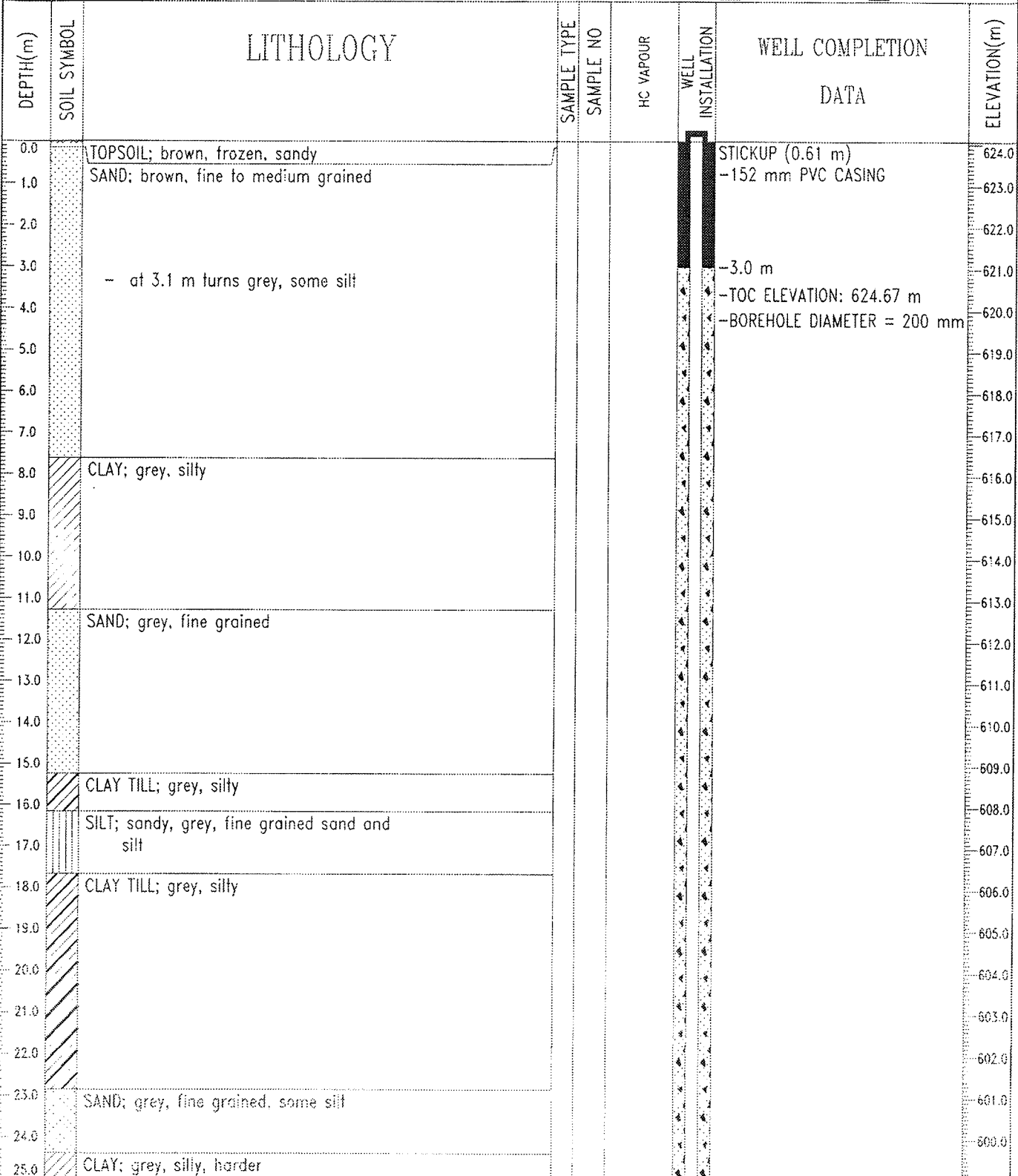
CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-09
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:361003.46 N:5962032.28	ELEVATION: 624.06 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



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LOGGED BY: H. LOVETT    COMPLETION DEPTH: 43.6 m  
REVIEWED BY: D. YOSHISAKA    COMPLETE: 01/28/05  
Fig. No: 17094

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-10
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:364,954.62 N:5,963,505.11	ELEVATION: 624.06 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND

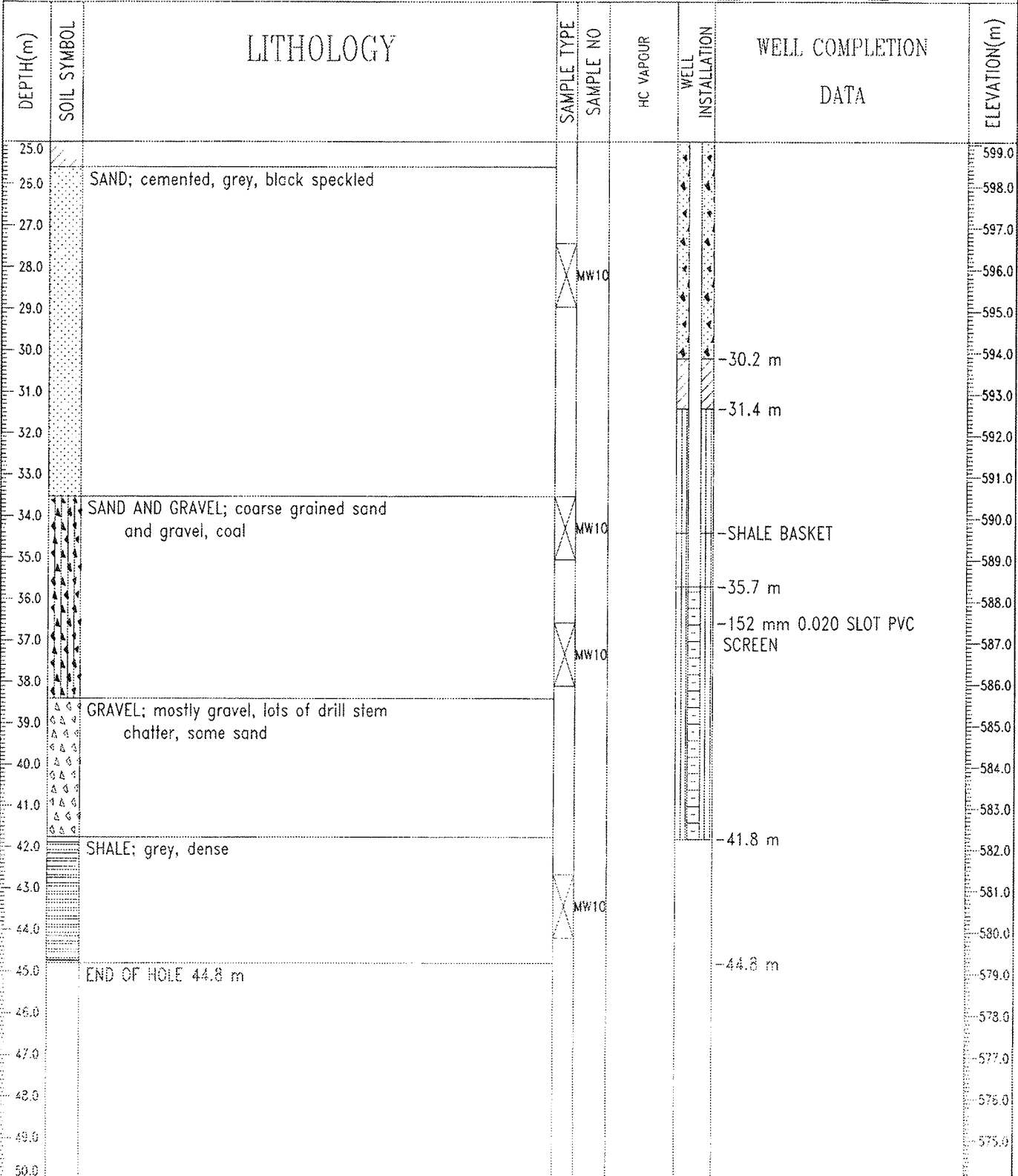


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LOGGED BY: H. LOVETT	COMPLETION DEPTH: 44.8 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/26/05
Fig. No: 17094	Page 1 of 2

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-10
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:364,954.62 N:5,963,505.11	ELEVATION: 624.06 (m)

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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> PELTONITE	<input type="checkbox"/> SAND



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LOGGED BY: H. LOVETT

REVIEWED BY: D. YOSHISAKA

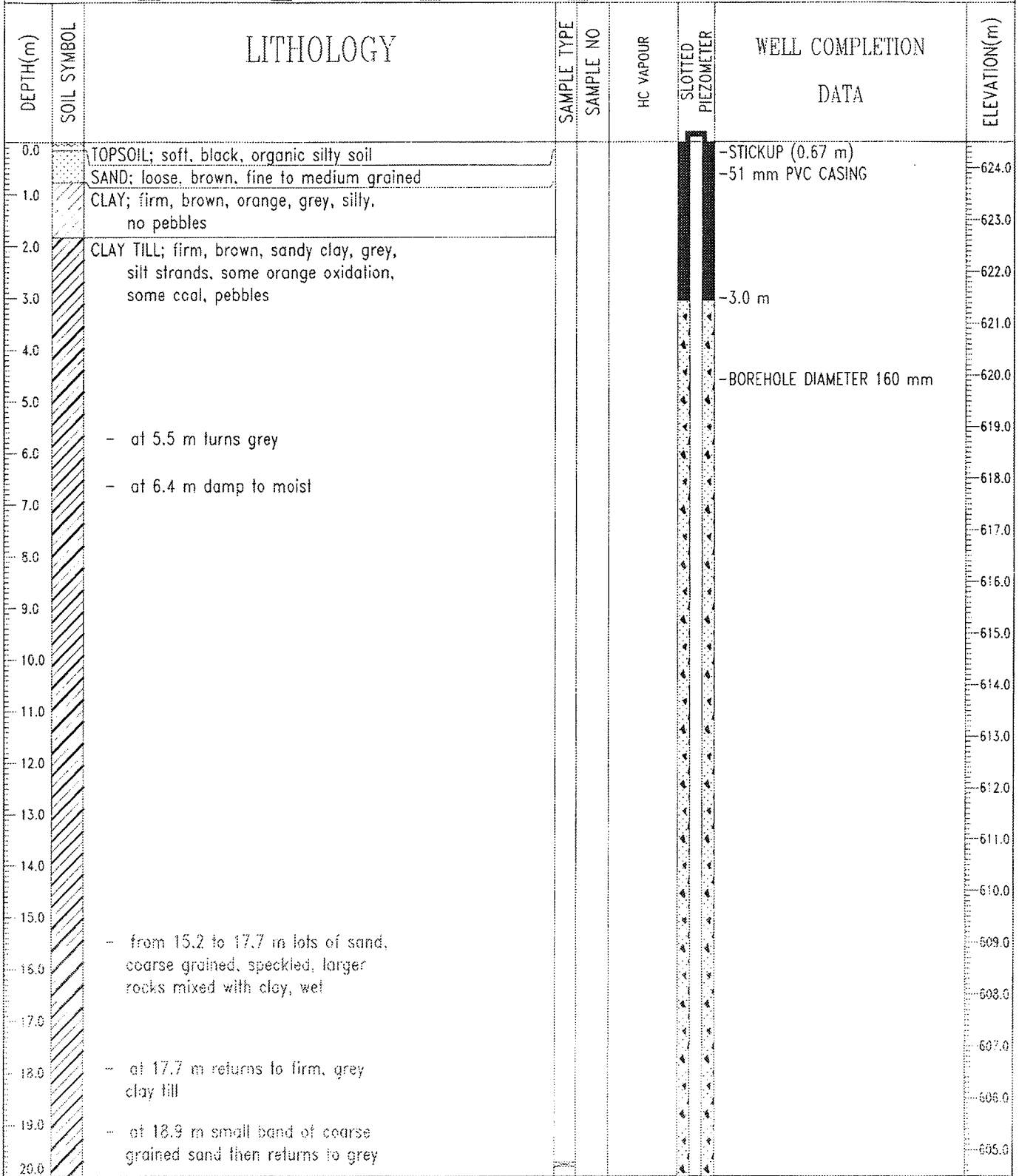
Fig. No: 17094

COMPLETION DEPTH: 44.8 m

COMPLETE: 01/26/05

Page 2 of 2

CLIENT: NCIA	DRILLING COMPANY: SPT DRILLING LTD.	BOREHOLE NO: MW-11
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: N:5,965,300.71 E:362,564.36	ELEVATION: 624.491 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



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LOGGED BY: H. LOVETT

COMPLETION DEPTH: 44.2 m

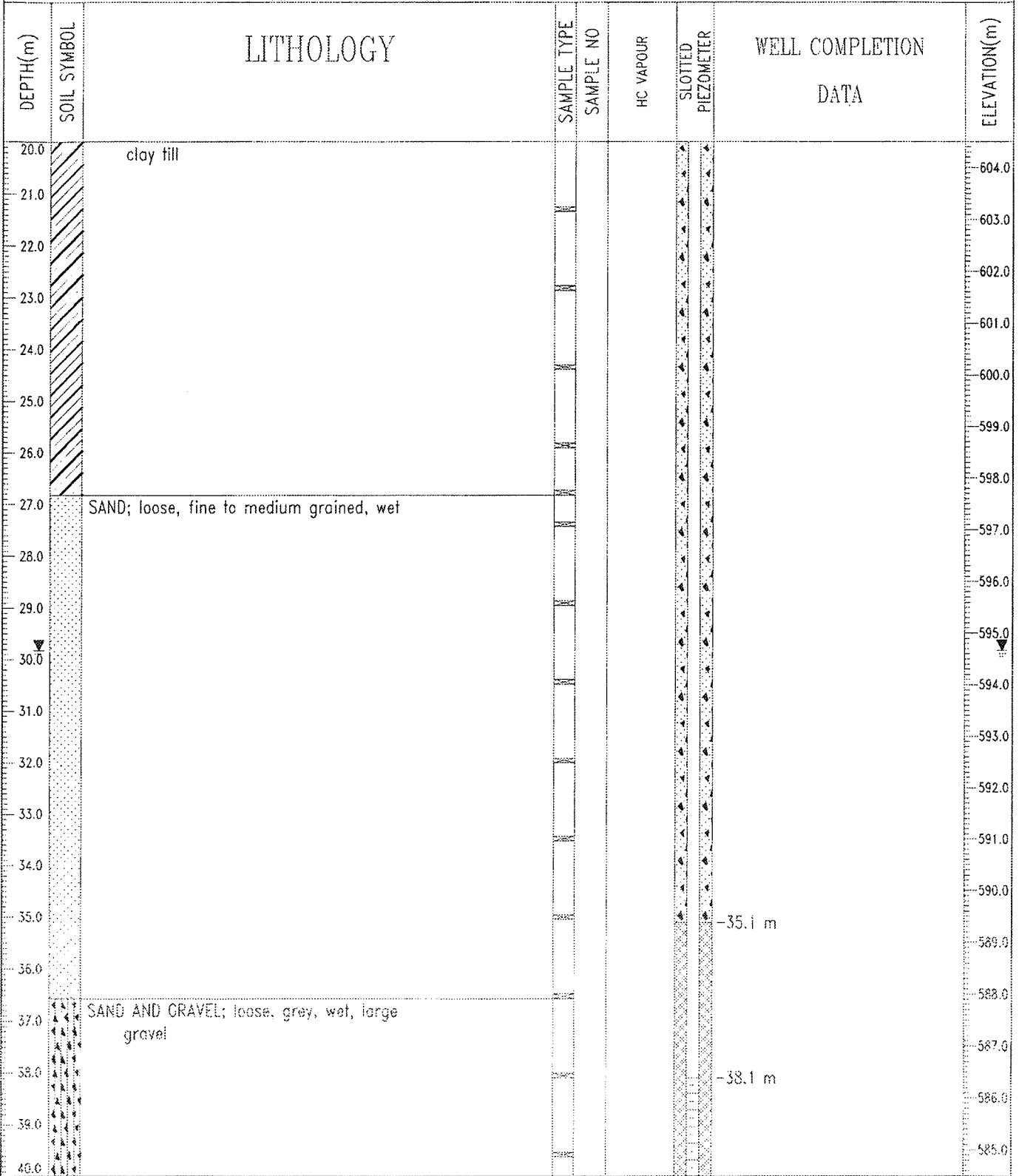
REVIEWED BY: H. LOVETT

COMPLETE: 09/24/04

Fig. No: 17094

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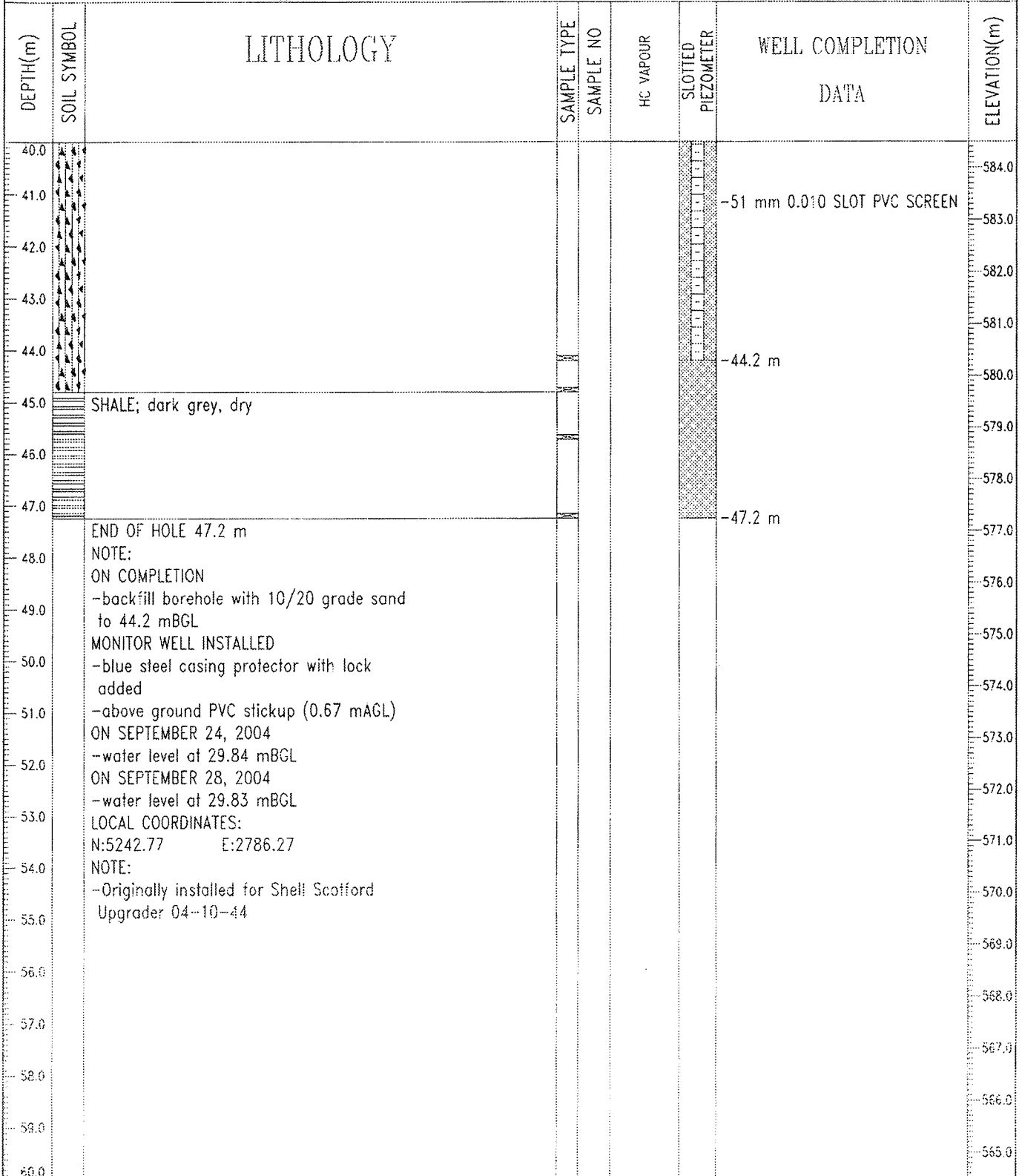
CLIENT: NCIA	DRILLING COMPANY: SPT DRILLING LTD.	BOREHOLE NO: MW-11				
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094				
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: N:5,965,300.71 E:362,564.36	ELEVATION: 624.491 (m)				
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE	<input type="checkbox"/> NO RECOVERY	<input type="checkbox"/> GRAB	<input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING	<input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> PELTONITE	<input type="checkbox"/> SAND



Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 44.2 m
	REVIEWED BY: H. LOVETT	COMPLETE: 09/24/04
	Fig. No: 17094	Page 2 of 3

CLIENT: NCIA	DRILLING COMPANY: SPT DRILLING LTD.	BOREHOLE NO: MW-11
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: N:5,965,300.71 E:362,564.36	ELEVATION: 624.491 (m)

SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE	<input type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> GRAB	<input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING	<input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLCUGH	<input type="checkbox"/> GROUT	<input type="checkbox"/> PELTONITE	<input type="checkbox"/> SAND



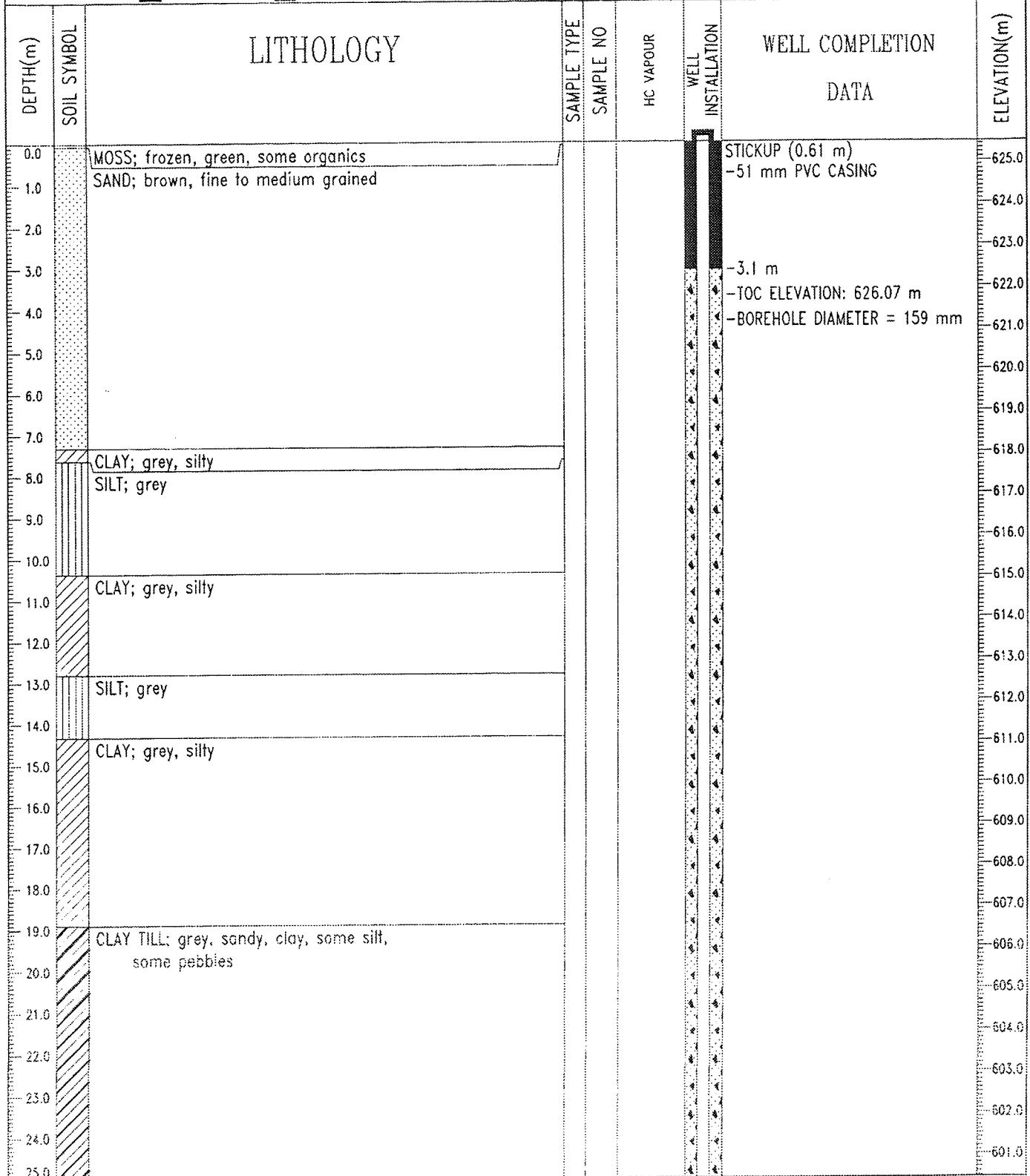
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Edmonton, Alberta

LOGGED BY: H. LOVETT  
REVIEWED BY: H. LOVETT  
Fig. No: 17094

COMPLETION DEPTH: 44.2 m  
COMPLETE: 09/24/04



CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-12
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:366805.93 N:5968379.85	ELEVATION: 625.46 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input checked="" type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



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LOGGED BY: H. LOVETT

REVIEWED BY: D. YOSHISAKA

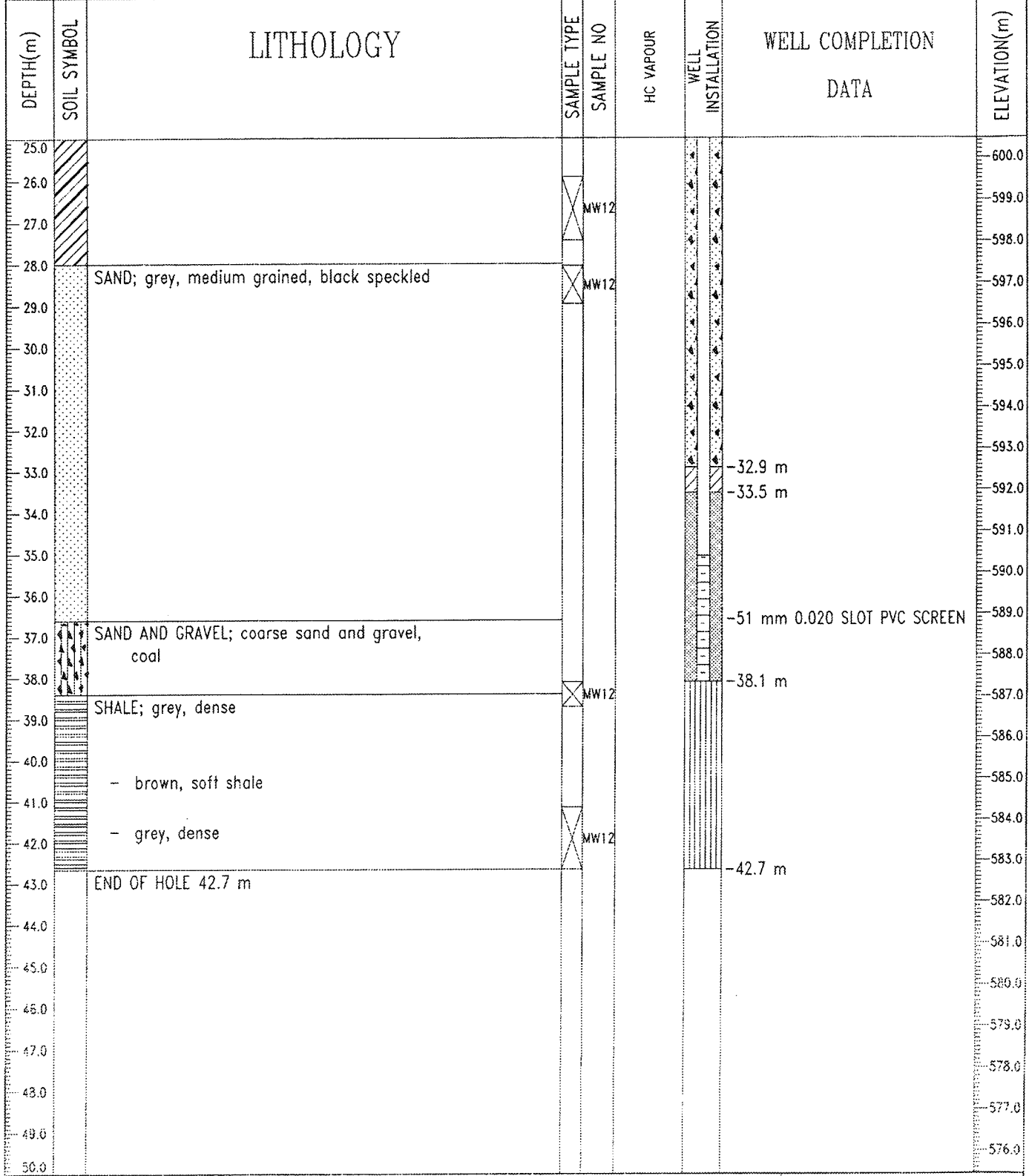
Fig. No: 17094

COMPLETION DEPTH: 42.7 m

COMPLETE: 01/02/05

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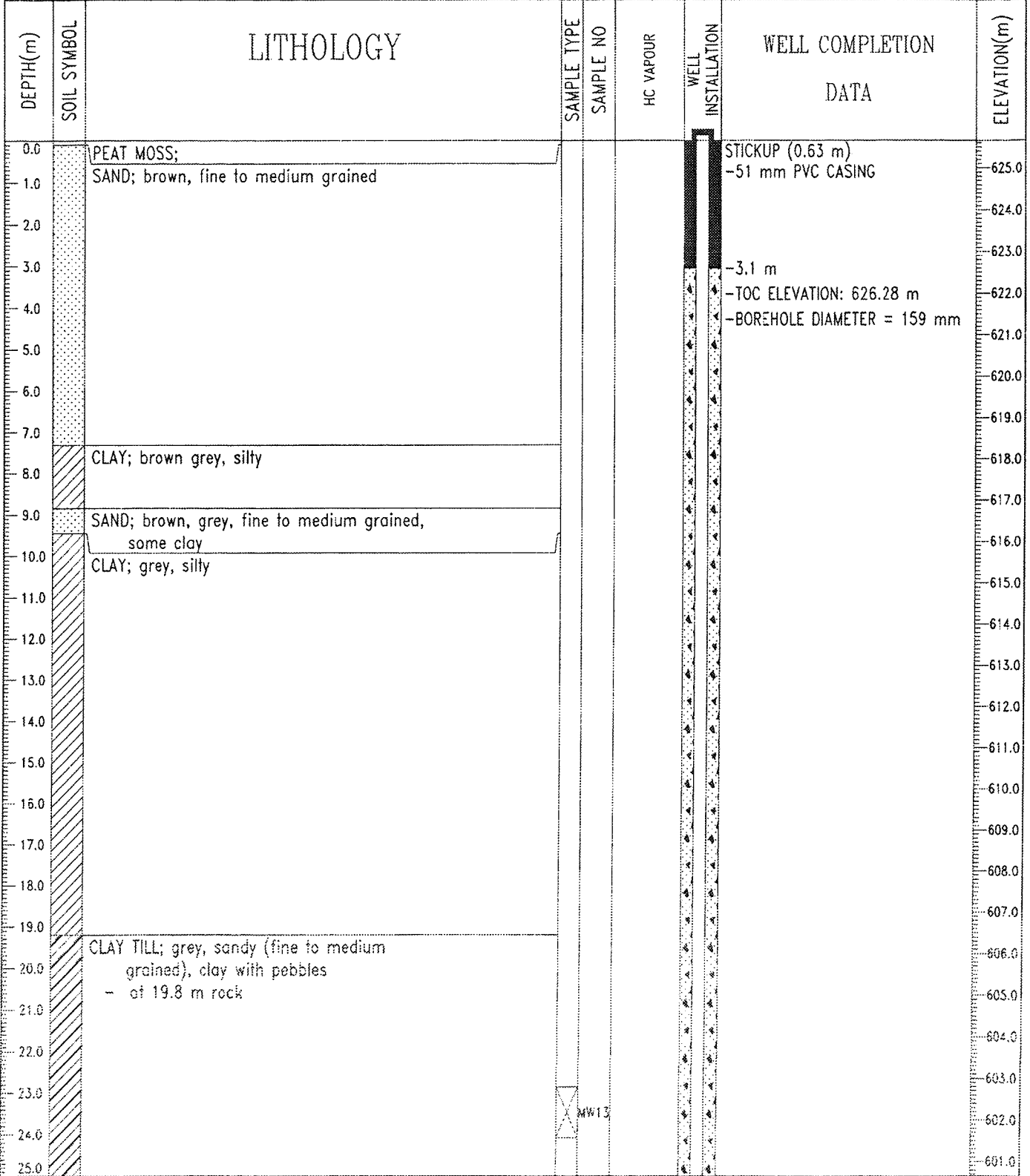
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PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:366805.93 N:5968379.85	ELEVATION: 625.46 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT <input type="checkbox"/> A-CASING <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	



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LOGGED BY: H. LOVETT	COMPLETION DEPTH: 42.7 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
Fig. No: 17094	Page 2 of 2

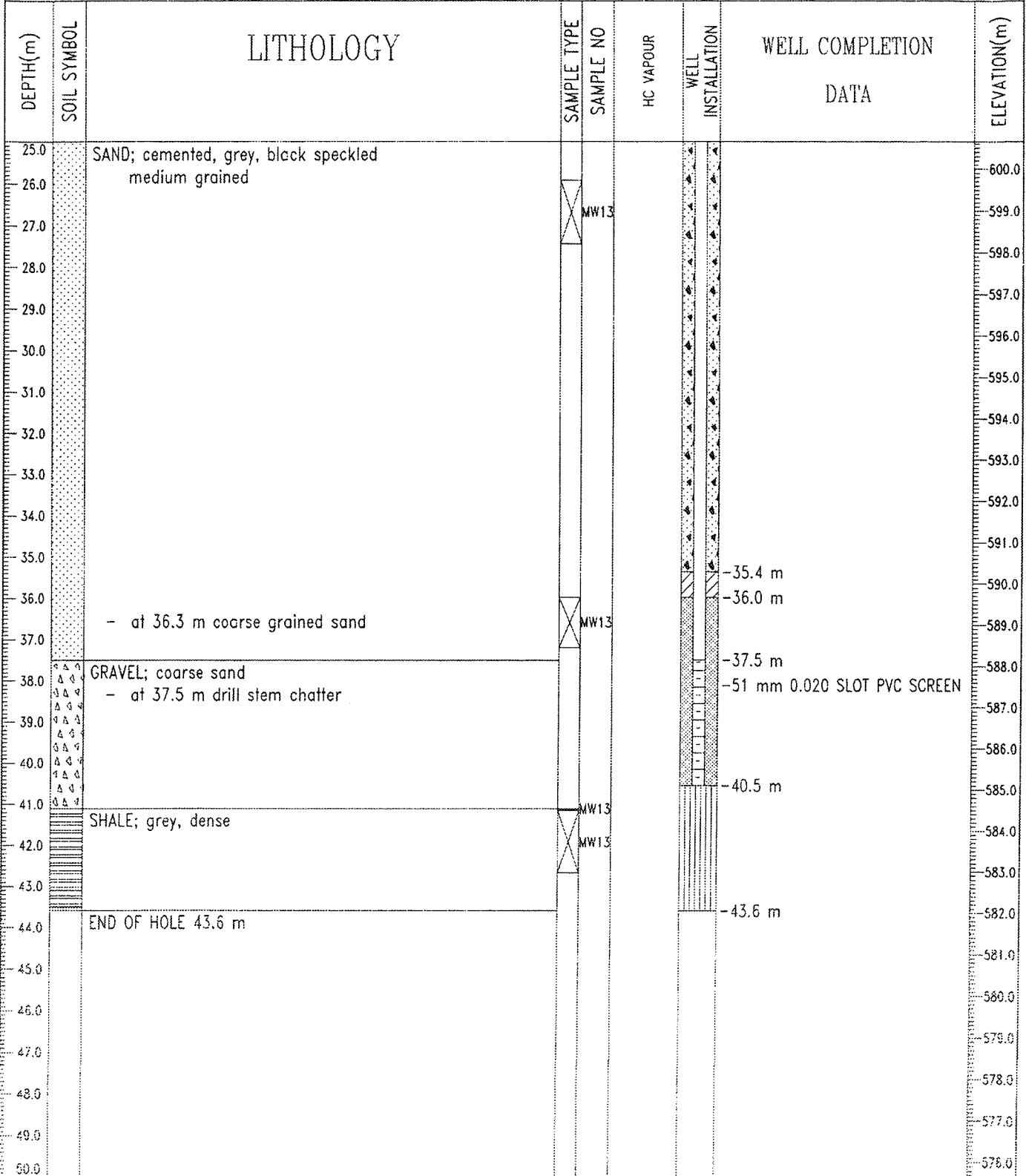
CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-13
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:365292.72 N:5968147.12	ELEVATION: 625.65 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT	<input type="checkbox"/> A-CASING <input type="checkbox"/> CORE
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND



Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
	Fig. No: 17094	Page 1 of 2

05/11/04 02:43PM (FILETON-1)

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-13
PROJECT: BEVERLY CHANNEL INVESTIGATION	DRILLING METHOD: MUD ROTARY	PROJECT NO: 1102-17094/400
LOCATION: FORT SASKATCHEWAN, AB	COORDINATES: E:365292.72 N:5968147.12	ELEVATION: 625.65 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> SPT <input type="checkbox"/> A-CASING <input type="checkbox"/> CORE	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> PEA GRAVEL <input type="checkbox"/> SLOUGH <input type="checkbox"/> GROUT <input type="checkbox"/> PELTONITE <input type="checkbox"/> SAND	

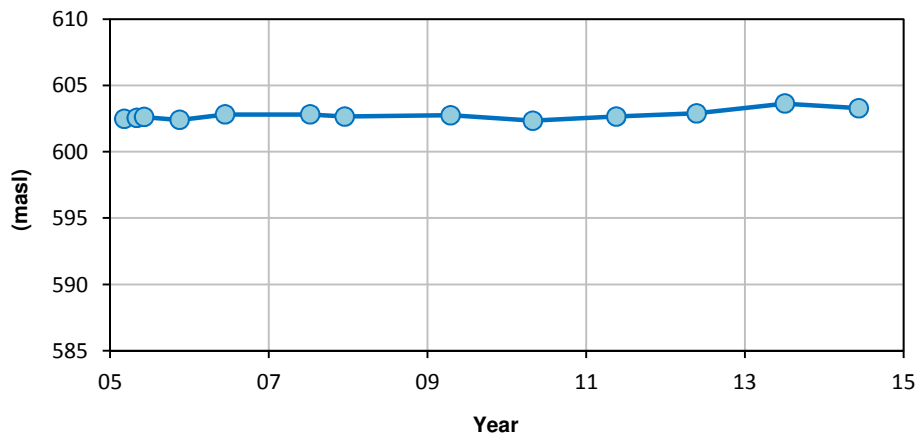


Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
	Fig. No: 17094	Page 2 of 2

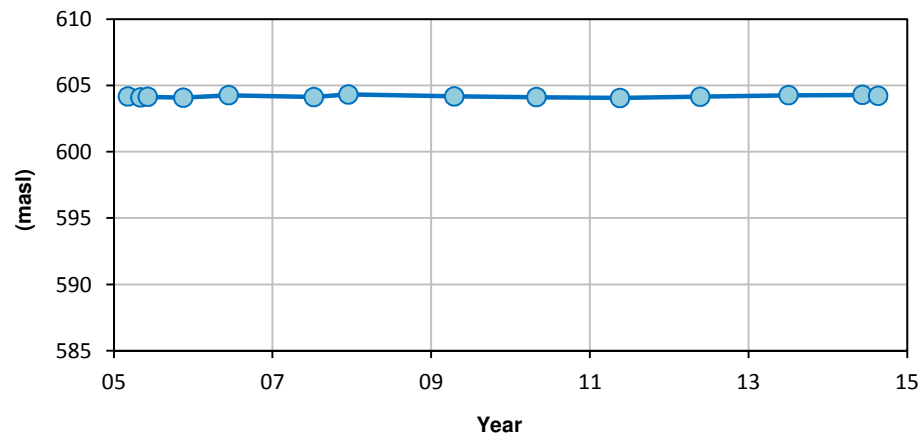
## Appendix 3 Groundwater Hydrographs



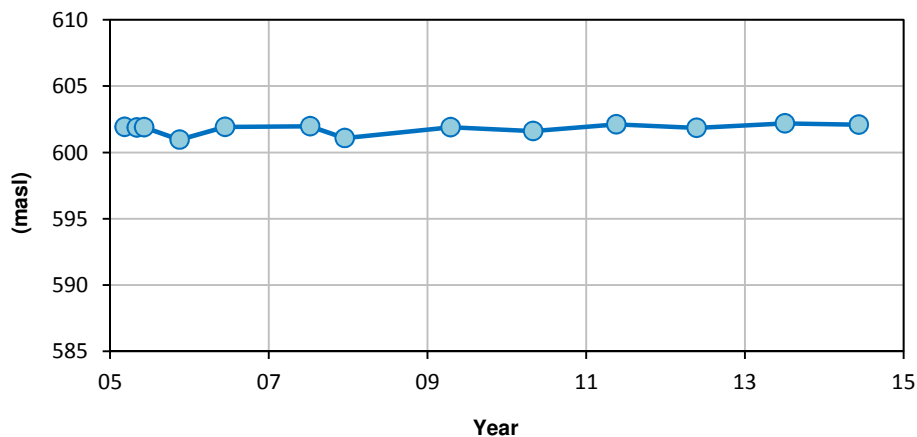
**MW-01**



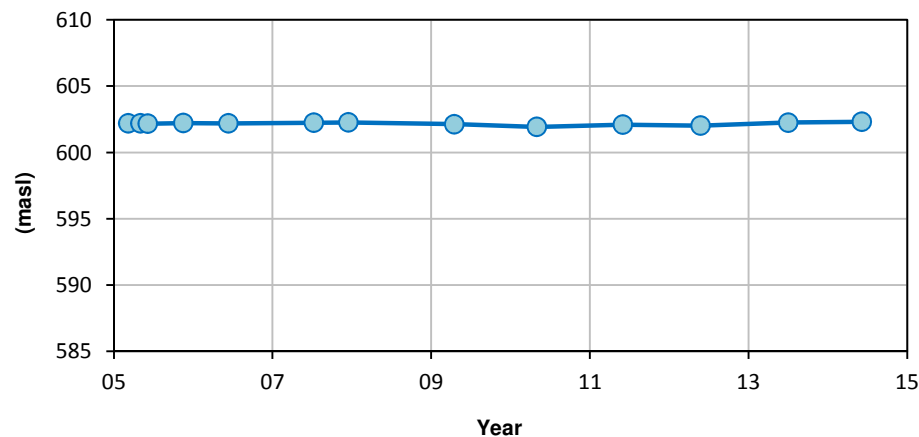
**MW-02**



**MW-03**



**MW-04**



**Notes:**

- Filled symbols denote measurable water levels; unfilled symbols denote dry wells

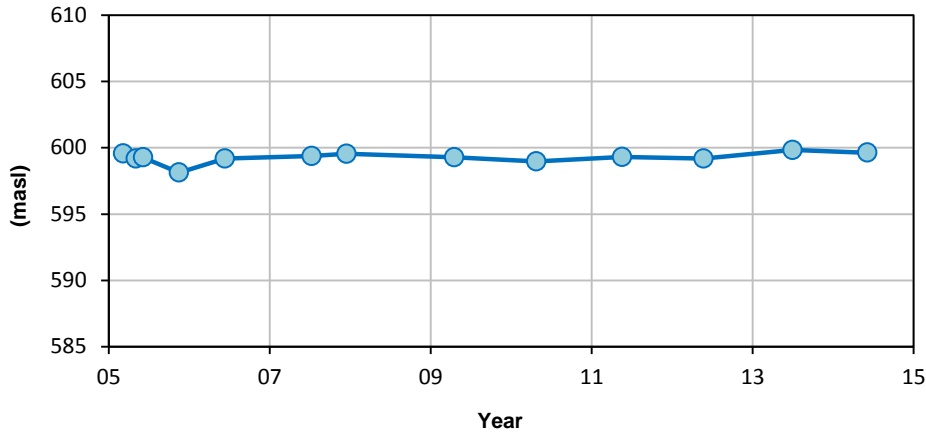
NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
2014 GROUNDWATER QUALITY MONITORING  
BEVERLY CHANNEL MONITORING WELLS

**GROUNDWATER HYDROGRAPHS**

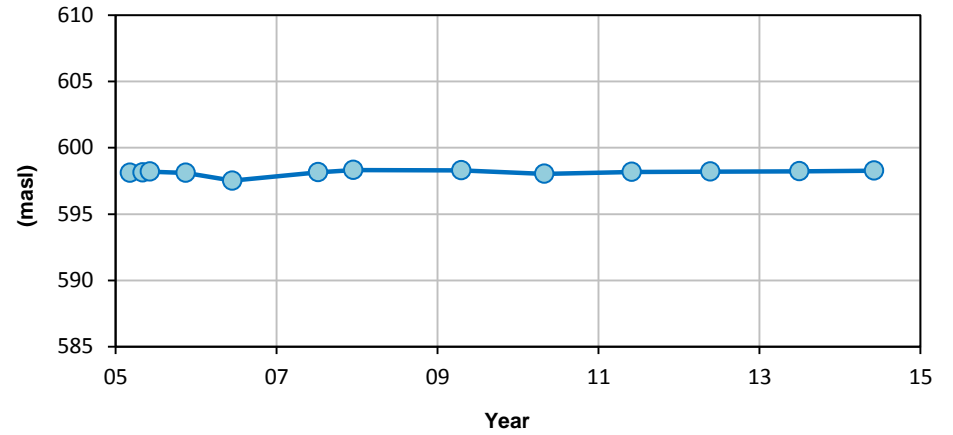
	Date: <b>07-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
	WorleyParsons Project No. <b>307076-06086</b>			
	FIG No. <b>A3-1</b>			REV <b>A</b>
<small>* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>				



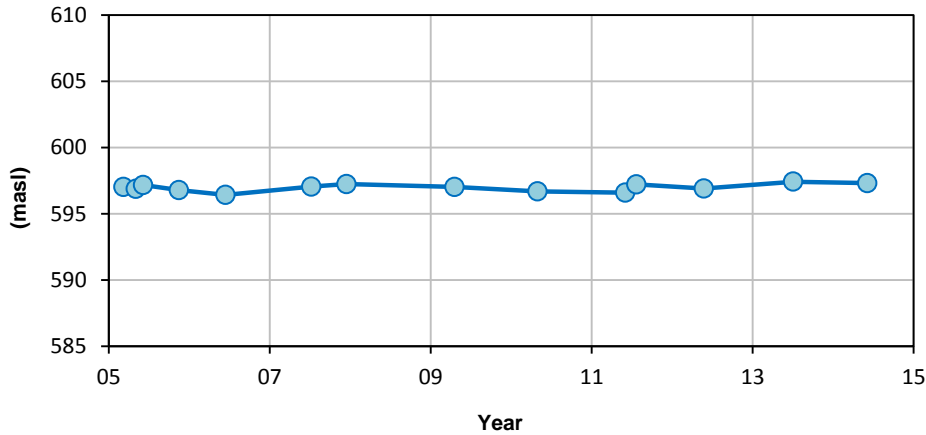
**MW-05**



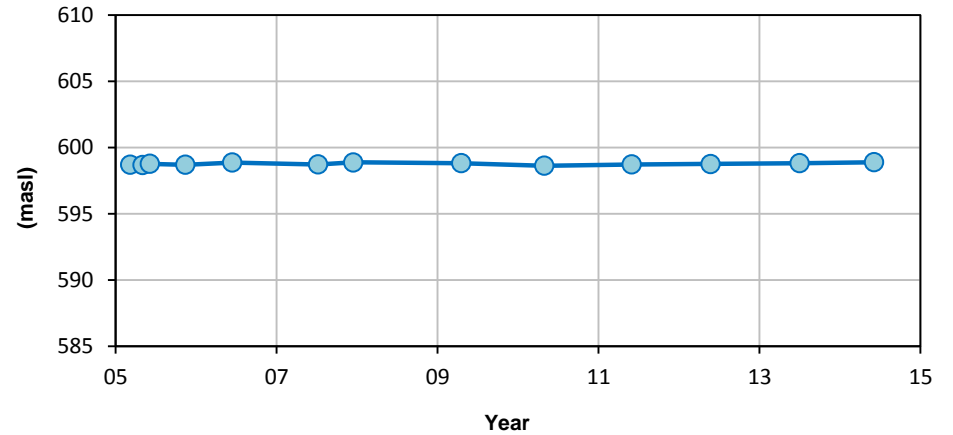
**MW-06**



**MW-07**



**MW-08**



**Notes:**

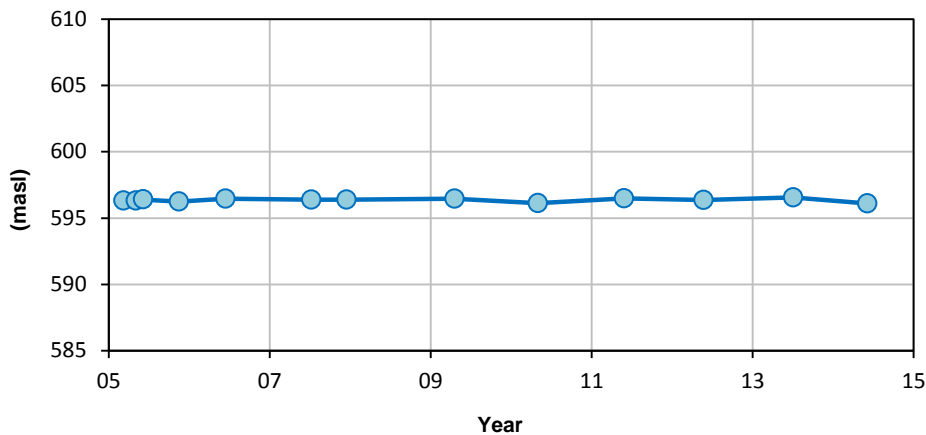
- Filled symbols denote measurable water levels; unfilled symbols denote dry wells

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
2014 GROUNDWATER QUALITY MONITORING  
BEVERLY CHANNEL MONITORING WELLS

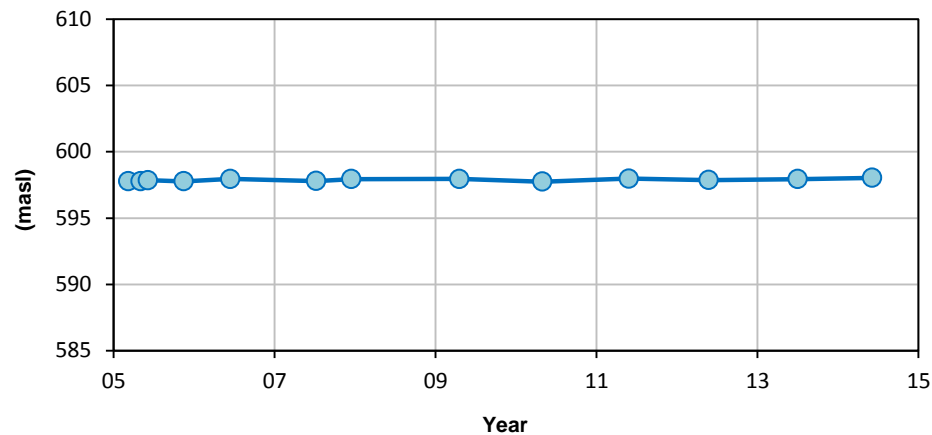
**GROUNDWATER HYDROGRAPHS**

	Date: <b>07-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
			WorleyParsons Project No. <b>307076-06086</b>	
			FIG No. <b>A3-2</b>	REV <b>A</b>
<small>* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>				

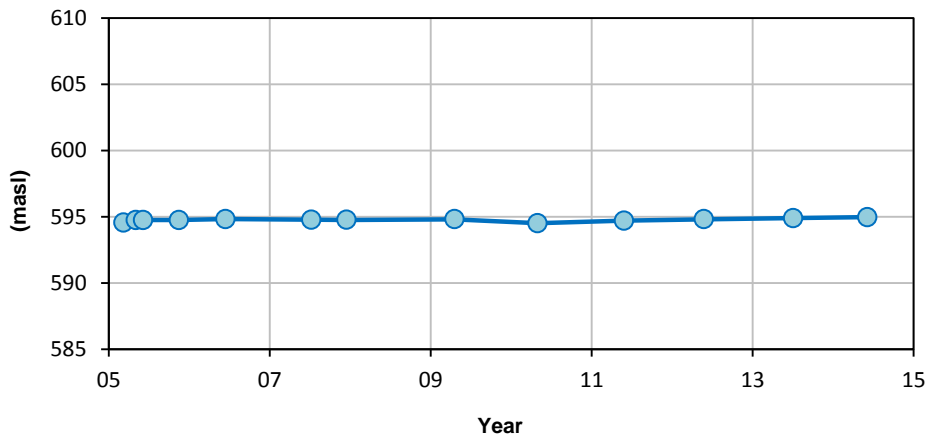
**MW-09**



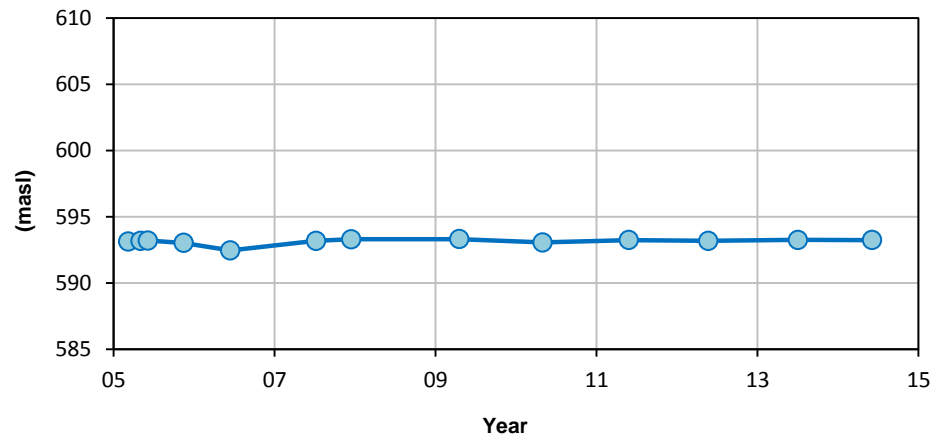
**MW-10**



**MW-11**



**MW-12**



**Notes:**

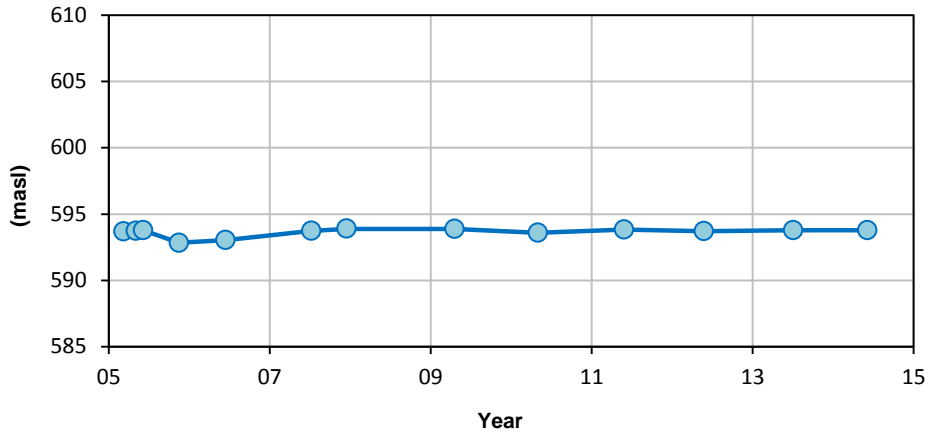
- Filled symbols denote measurable water levels; unfilled symbols denote dry wells

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
2014 GROUNDWATER QUALITY MONITORING  
BEVERLY CHANNEL MONITORING WELLS

**GROUNDWATER HYDROGRAPHS**

	Date: <b>07-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
	WorleyParsons Project No. <b>307076-06086</b>			
	FIG No. <b>A3-3</b>			REV <b>A</b>
<small>* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>				

**MW-13**



**Notes:**

- Filled symbols denote measurable water levels; unfilled symbols denote dry wells

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION  
2014 GROUNDWATER QUALITY MONITORING  
BEVERLY CHANNEL MONITORING WELLS

**GROUNDWATER HYDROGRAPHS**

	Date: <b>07-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
			WorleyParsons Project No. <b>307076-06086</b>	
			FIG No. <b>A3-4</b>	REV <b>A</b>

\* This drawing is prepared solely for the use of our customer as specified in the accompanying report.  
WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.\*

## Appendix 4 Laboratory Analytical Data





WorleyParsons Canada  
ATTN: Trevor Butterfield  
700 - 4445 Calgary Trail  
Terrace Plaza  
EDMONTON AB T6H 5R7

Date Received: 16-JUN-14  
Report Date: 25-JUN-14 18:02 (MT)  
Version: FINAL

Client Phone: 780-496-9055

## Certificate of Analysis

**Lab Work Order #:** L1471334  
**Project P.O. #:** NOT SUBMITTED  
**Job Reference:** 307076-06086-200  
**C of C Numbers:** 14-391807  
**Legal Site Desc:**

Maureen Olinek  
Senior Account Manager

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ADDRESS: 9936-67 Avenue, Edmonton, AB T6E 0P5 Canada | Phone: +1 780 413 5227 | Fax: +1 780 437 2311  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471334-1 MW-01							
Sampled By: SG/NU on 16-JUN-14 @ 11:20							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2864410
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2864410
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2864410
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2864410
Surrogate: 1,4-Difluorobenzene (SS)	99.6		70-130	%		20-JUN-14	R2864410
Surrogate: 4-Bromofluorobenzene (SS)	91.5		70-130	%		20-JUN-14	R2864410
Surrogate: 3,4-Dichlorotoluene (SS)	101.5		70-130	%		20-JUN-14	R2864410
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868431
Surrogate: 2-Bromobenzotrifluoride	96.9		65-135	%	18-JUN-14	18-JUN-14	R2868431
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	0.254		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	4.5		1.0	mg/L		25-JUN-14	R2872454
Fluoride (F)	0.119		0.020	mg/L		19-JUN-14	R2868443
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	470		10	mg/L		17-JUN-14	R2867465
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	4.58		0.50	mg/L		19-JUN-14	R2868443
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00092		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.144		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	<0.050		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	87.2		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00072		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	1.92		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	26.4		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.737		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000281		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	2.80		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	32.7		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00212		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471334-1 MW-01 Sampled By: SG/NU on 16-JUN-14 @ 11:20 Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	99.4			%		23-JUN-14	
TDS (Calculated)	414			mg/L		23-JUN-14	
Hardness (as CaCO3)	326			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		19-JUN-14	R2868443
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		24-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		19-JUN-14	R2868443
<b>Sulfate by IC</b>							
Sulfate (SO4)	59.8		0.50	mg/L		19-JUN-14	R2868443
<b>pH, Conductivity and Total Alkalinity</b>							
pH	7.94		0.10	pH		20-JUN-14	R2868417
Conductivity (EC)	677		0.20	uS/cm		20-JUN-14	R2868417
Bicarbonate (HCO3)	408		5.0	mg/L		20-JUN-14	R2868417
Carbonate (CO3)	<5.0		5.0	mg/L		20-JUN-14	R2868417
Hydroxide (OH)	<5.0		5.0	mg/L		20-JUN-14	R2868417
Alkalinity, Total (as CaCO3)	334		2.0	mg/L		20-JUN-14	R2868417
L1471334-2 MW-02 Sampled By: SG/NU on 16-JUN-14 @ 10:30 Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2864410
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2864410
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2864410
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2864410
Surrogate: 1,4-Difluorobenzene (SS)	98.5		70-130	%		20-JUN-14	R2864410
Surrogate: 4-Bromofluorobenzene (SS)	90.6		70-130	%		20-JUN-14	R2864410
Surrogate: 3,4-Dichlorotoluene (SS)	101.2		70-130	%		20-JUN-14	R2864410
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868431
Surrogate: 2-Bromobenzotrifluoride	99.2		65-135	%	18-JUN-14	18-JUN-14	R2868431
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	0.682		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	4.5		1.0	mg/L		25-JUN-14	R2872454
Fluoride (F)	0.080		0.020	mg/L		19-JUN-14	R2868443
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	1180		10	mg/L		17-JUN-14	R2867465
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	211	RRV	0.50	mg/L		19-JUN-14	R2868443

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471334-2 MW-02							
Sampled By: SG/NU on 16-JUN-14 @ 10:30							
Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00319		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0659		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.163		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	144		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00059		0.00020	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	10.8		0.020	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	52.0		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.446		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.00037		0.00010	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	4.75		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	122		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00060		0.00060	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00097		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00020		0.00020	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	80.2	BL:INT		%		23-JUN-14	
TDS (Calculated)	1090			mg/L		23-JUN-14	
Hardness (as CaCO3)	574			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		19-JUN-14	R2868443
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		24-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		19-JUN-14	R2868443
<b>Sulfate by IC</b>							
Sulfate (SO4)	282	RRV	0.50	mg/L		19-JUN-14	R2868443
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.02		0.10	pH		20-JUN-14	R2868417
Conductivity (EC)	1850		0.20	uS/cm		20-JUN-14	R2868417
Bicarbonate (HCO3)	563		5.0	mg/L		20-JUN-14	R2868417
Carbonate (CO3)	<5.0		5.0	mg/L		20-JUN-14	R2868417
Hydroxide (OH)	<5.0		5.0	mg/L		20-JUN-14	R2868417
Alkalinity, Total (as CaCO3)	461		2.0	mg/L		20-JUN-14	R2868417
L1471334-3 MW-03							
Sampled By: SG/NU on 16-JUN-14 @ 13:00							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471334-3 MW-03							
Sampled By: SG/NU on 16-JUN-14 @ 13:00							
Matrix: WATER							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2864410
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2864410
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2864410
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2864410
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2864410
Surrogate: 1,4-Difluorobenzene (SS)	97.8		70-130	%		20-JUN-14	R2864410
Surrogate: 4-Bromofluorobenzene (SS)	90.1		70-130	%		20-JUN-14	R2864410
Surrogate: 3,4-Dichlorotoluene (SS)	98.8		70-130	%		20-JUN-14	R2864410
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868431
Surrogate: 2-Bromobenzotrifluoride	100.1		65-135	%	18-JUN-14	18-JUN-14	R2868431
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	0.377		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	5.9		1.0	mg/L		25-JUN-14	R2872454
Fluoride (F)	0.073		0.020	mg/L		19-JUN-14	R2868443
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	612	RRV	10	mg/L		24-JUN-14	R2872566
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	55.9		0.50	mg/L		19-JUN-14	R2868443
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00143		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0428		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.097		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	100		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00070		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	5.13		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	36.9		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.263		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000496		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	3.23		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	48.4		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00058		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471334-3 MW-03							
Sampled By: SG/NU on 16-JUN-14 @ 13:00							
Matrix: WATER							
<b>Ion Balance Calculation</b>							
Ion Balance	95.1			%		23-JUN-14	
TDS (Calculated)	568			mg/L		23-JUN-14	
Hardness (as CaCO3)	402			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		19-JUN-14	R2868443
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		24-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		19-JUN-14	R2868443
<b>Sulfate by IC</b>							
Sulfate (SO4)	129		0.50	mg/L		19-JUN-14	R2868443
<b>pH, Conductivity and Total Alkalinity</b>							
pH	7.96		0.10	pH		20-JUN-14	R2868417
Conductivity (EC)	933		0.20	uS/cm		20-JUN-14	R2868417
Bicarbonate (HCO3)	395		5.0	mg/L		20-JUN-14	R2868417
Carbonate (CO3)	<5.0		5.0	mg/L		20-JUN-14	R2868417
Hydroxide (OH)	<5.0		5.0	mg/L		20-JUN-14	R2868417
Alkalinity, Total (as CaCO3)	324		2.0	mg/L		20-JUN-14	R2868417

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## Reference Information

## Sample Parameter Qualifier Key:

Qualifier	Description
BL:INT	Balance Reviewed: Interference Or Non-Measured Component
RRV	Reported Result Verified By Repeat Analysis

## Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTXS,F1-ED	Water	BTEX, Styrene and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
C-DIS-ORG-ED	Water	Dissolved Organic Carbon	APHA 5310 B-Instrumental
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F-IC-ED	Water	Fluoride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F2-ED	Water	F2 (>C10-C16)	EPA 3510/CCME PHC CWS-GC-FID
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
IONBALANCE-ED	Water	Ion Balance Calculation	APHA 1030E
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
NH3-D-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-ED	Water	Nitrite as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
PH/EC/ALK-ED	Water	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
PHENOLS-4AAP-ED	Water	Phenols (4AAP)	AB ENV.06537-COLORIMETRIC
This analysis is carried out using procedures adapted from ENVIRODAT VMV 06537 689, Method Code 154, in "Methods Manual for Chemical Analysis of Water and Wastes" published by the Alberta Environmental Centre. This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide and 4-aminoantipyrine to form a red complex which is measured at 505 nm.			
SO4-IC-ED	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY
SOLIDS-TDS-ED	Water	Total Dissolved Solids	APHA 2540 C

\*\* 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

## Chain of Custody Numbers:

14-391807

## Reference Information

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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#### GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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.

# ALS LABORATORY GROUP SOIL SALINITY CONVERSION

L1471334

Lab ID	Sample ID				Lab ID	Sample ID			

"Calculations are as per:  
Methods of Analysis for Soils, Plants and Waters  
Homer D. Chapman and Parker F. Pratt  
University of California, Riverside, Cl.  
August, 1961."



## Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTXS,F1-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2864410</b>							
<b>WG1894249-2</b>	<b>LCS</b>							
Benzene			103.4		%		70-130	20-JUN-14
Toluene			106.7		%		70-130	20-JUN-14
EthylBenzene			104.9		%		70-130	20-JUN-14
o-Xylene			105.1		%		70-130	20-JUN-14
m+p-Xylene			101.2		%		70-130	20-JUN-14
Styrene			99.8		%		70-130	20-JUN-14
<b>WG1894249-3</b>	<b>LCS</b>							
F1(C6-C10)			97.6		%		70-130	20-JUN-14
<b>WG1894249-6</b>	<b>LCS</b>							
Benzene			93.8		%		70-130	18-JUN-14
Toluene			103.3		%		70-130	18-JUN-14
EthylBenzene			99.6		%		70-130	18-JUN-14
o-Xylene			100.9		%		70-130	18-JUN-14
m+p-Xylene			97.8		%		70-130	18-JUN-14
Styrene			96.9		%		70-130	18-JUN-14
<b>WG1894249-7</b>	<b>LCS</b>							
F1(C6-C10)			83.3		%		70-130	18-JUN-14
<b>WG1894249-1</b>	<b>MB</b>							
Benzene			<0.00050		mg/L		0.0005	20-JUN-14
Toluene			<0.00050		mg/L		0.0005	20-JUN-14
EthylBenzene			<0.00050		mg/L		0.0005	20-JUN-14
o-Xylene			<0.00050		mg/L		0.0005	20-JUN-14
m+p-Xylene			<0.00050		mg/L		0.0005	20-JUN-14
Styrene			<0.0010		mg/L		0.001	20-JUN-14
F1(C6-C10)			<0.10		mg/L		0.1	20-JUN-14
Surrogate: 1,4-Difluorobenzene (SS)			100.4		%		70-130	20-JUN-14
Surrogate: 4-Bromofluorobenzene (SS)			91.9		%		70-130	20-JUN-14
Surrogate: 3,4-Dichlorotoluene (SS)			98.3		%		70-130	20-JUN-14
<b>WG1894249-5</b>	<b>MB</b>							
Benzene			<0.00050		mg/L		0.0005	18-JUN-14
Toluene			<0.00050		mg/L		0.0005	18-JUN-14
EthylBenzene			<0.00050		mg/L		0.0005	18-JUN-14
o-Xylene			<0.00050		mg/L		0.0005	18-JUN-14
m+p-Xylene			<0.00050		mg/L		0.0005	18-JUN-14
							0.001	





## Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTXS,F1-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2864410</b>							
<b>WG1894249-5</b>	<b>MB</b>							
Styrene			<0.0010		mg/L		0.001	18-JUN-14
F1(C6-C10)			<0.10		mg/L		0.1	18-JUN-14
Surrogate: 1,4-Difluorobenzene (SS)			101.0		%		70-130	18-JUN-14
Surrogate: 4-Bromofluorobenzene (SS)			88.0		%		70-130	18-JUN-14
Surrogate: 3,4-Dichlorotoluene (SS)			106.0		%		70-130	18-JUN-14
<b>C-DIS-ORG-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2872454</b>							
<b>WG1898370-3</b>	<b>CVS</b>							
Dissolved Organic Carbon			99.6		%		80-160	25-JUN-14
<b>WG1898370-6</b>	<b>DUP</b>	<b>L1470927-5</b>						
Dissolved Organic Carbon		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-JUN-14
<b>WG1898370-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			101.3		%		80-120	24-JUN-14
<b>WG1898370-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<1.0		mg/L		1	24-JUN-14
<b>CL-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-3</b>	<b>DUP</b>	<b>L1470374-4</b>						
Chloride (Cl)		2.12	2.13		mg/L	0.6	20	19-JUN-14
<b>WG1894620-11</b>	<b>LCS</b>							
Chloride (Cl)			108.6		%		90-110	19-JUN-14
<b>WG1894620-2</b>	<b>LCS</b>							
Chloride (Cl)			102.1		%		90-110	19-JUN-14
<b>WG1894620-5</b>	<b>LCS</b>							
Chloride (Cl)			103.6		%		90-110	19-JUN-14
<b>WG1894620-7</b>	<b>LCS</b>							
Chloride (Cl)			103.3		%		90-110	19-JUN-14
<b>WG1894620-9</b>	<b>LCS</b>							
Chloride (Cl)			103.9		%		90-110	19-JUN-14
<b>WG1894620-1</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-10</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-12</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-6</b>	<b>MB</b>							



### Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>CL-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-6</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-8</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-4</b>	<b>MS</b>	<b>L1470374-4</b>						
Chloride (Cl)			97.2		%		75-125	19-JUN-14
<b>F-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-3</b>	<b>DUP</b>	<b>L1470374-4</b>						
Fluoride (F)		0.143	0.142		mg/L	0.7	20	19-JUN-14
<b>WG1894620-11</b>	<b>LCS</b>							
Fluoride (F)			104.8		%		90-110	19-JUN-14
<b>WG1894620-2</b>	<b>LCS</b>							
Fluoride (F)			100.7		%		90-110	19-JUN-14
<b>WG1894620-5</b>	<b>LCS</b>							
Fluoride (F)			101.9		%		90-110	19-JUN-14
<b>WG1894620-7</b>	<b>LCS</b>							
Fluoride (F)			101.0		%		90-110	19-JUN-14
<b>WG1894620-9</b>	<b>LCS</b>							
Fluoride (F)			94.8		%		90-110	19-JUN-14
<b>WG1894620-1</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	19-JUN-14
<b>WG1894620-10</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	19-JUN-14
<b>WG1894620-12</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	19-JUN-14
<b>WG1894620-6</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	19-JUN-14
<b>WG1894620-8</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	19-JUN-14
<b>WG1894620-4</b>	<b>MS</b>	<b>L1470374-4</b>						
Fluoride (F)			78.7		%		75-125	19-JUN-14
<b>F2-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868431</b>							
<b>WG1893317-2</b>	<b>LCS</b>							
F2 (C10-C16)			86.2		%		65-135	18-JUN-14
<b>WG1893317-5</b>	<b>LCS</b>							
F2 (C10-C16)			89.3		%		65-135	18-JUN-14



### Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
<b>F2-ED</b>		<b>Water</b>							
<b>Batch</b>	<b>R2868431</b>								
<b>WG1893317-8</b>	<b>LCS</b>								
F2 (C10-C16)			89.3		%		65-135	18-JUN-14	
<b>WG1893317-1</b>	<b>MB</b>								
F2 (C10-C16)			<0.25		mg/L		0.25	18-JUN-14	
Surrogate: 2-Bromobenzotrifluoride			90.6		%		65-135	18-JUN-14	
<b>WG1893317-4</b>	<b>MB</b>								
F2 (C10-C16)			<0.25		mg/L		0.25	18-JUN-14	
Surrogate: 2-Bromobenzotrifluoride			94.6		%		65-135	18-JUN-14	
<b>WG1893317-7</b>	<b>MB</b>								
F2 (C10-C16)			<0.25		mg/L		0.25	18-JUN-14	
Surrogate: 2-Bromobenzotrifluoride			94.6		%		65-135	18-JUN-14	
<b>WG1893317-3</b>	<b>MS</b>	<b>L1470694-1</b>							
F2 (C10-C16)			89.8		%		50-150	18-JUN-14	
<b>WG1893317-6</b>	<b>MS</b>	<b>L1471158-12</b>							
F2 (C10-C16)			93.6		%		50-150	18-JUN-14	
<b>WG1893317-9</b>	<b>MS</b>	<b>L1470692-7</b>							
F2 (C10-C16)			89.8		%		50-150	18-JUN-14	
<b>HG-D-L-CVAA-ED</b>		<b>Water</b>							
<b>Batch</b>	<b>R2870708</b>								
<b>WG1896939-11</b>	<b>DUP</b>	<b>L1470749-1</b>							
Mercury (Hg)-Dissolved			<0.0000050	<0.0000050C	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-15</b>	<b>DUP</b>	<b>L1470810-1</b>							
Mercury (Hg)-Dissolved			<0.0000050	<0.0000050C	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-3</b>	<b>DUP</b>	<b>L1466505-1</b>							
Mercury (Hg)-Dissolved			N/A	<0.0000050C	RPD-NA	mg/L	N/A	20	22-JUN-14
Mercury (Hg)-Dissolved			N/A	<0.0000050C	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-7</b>	<b>DUP</b>	<b>L1469314-1</b>							
Mercury (Hg)-Dissolved			<0.0000050	<0.0000050C	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-10</b>	<b>LCS</b>								
Mercury (Hg)-Dissolved			92.2		%		80-120	22-JUN-14	
<b>WG1896939-14</b>	<b>LCS</b>								
Mercury (Hg)-Dissolved			88.4		%		80-120	22-JUN-14	
<b>WG1896939-2</b>	<b>LCS</b>								
Mercury (Hg)-Dissolved			89.9		%		80-120	22-JUN-14	
<b>WG1896939-6</b>	<b>LCS</b>								
Mercury (Hg)-Dissolved			85.6		%		80-120	22-JUN-14	
<b>WG1896939-1</b>	<b>MB</b>						0.000005		



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>HG-D-L-CVAA-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870708</b>							
<b>WG1896939-1 MB</b>								
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	22-JUN-14
<b>WG1896939-5 MB</b>								
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	22-JUN-14
<b>WG1896939-9 MB</b>								
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	22-JUN-14
<b>WG1896939-12 MS</b>		<b>L1470749-1</b>						
Mercury (Hg)-Dissolved			83.0		%		70-130	22-JUN-14
<b>WG1896939-16 MS</b>		<b>L1470810-1</b>						
Mercury (Hg)-Dissolved			83.6		%		70-130	22-JUN-14
<b>WG1896939-4 MS</b>		<b>L1466505-1</b>						
Mercury (Hg)-Dissolved			86.2		%		70-130	22-JUN-14
<b>WG1896939-8 MS</b>		<b>L1469314-1</b>						
Mercury (Hg)-Dissolved			81.0		%		70-130	22-JUN-14
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-11 CRM</b>		<b>ED-HIGH-WATRM</b>						
Aluminum (Al)-Dissolved			105.0		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			102.5		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			103.2		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			102.7		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.7		%		80-120	22-JUN-14
Boron (B)-Dissolved			95.6		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			99.2		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			95.0		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			104.5		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			103.0		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			103.4		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			102.9		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			107.4		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			105.4		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			94.3		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			106.1		%		80-120	22-JUN-14
Potassium (K)-Dissolved			112.3		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.8		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			103.9		%		80-120	22-JUN-14



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-11 CRM</b>	<b>ED-HIGH-WATRM</b>							
Sodium (Na)-Dissolved			100.4		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			101.1		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			101.7		%		80-120	22-JUN-14
Uranium (U)-Dissolved			103.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			106.2		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			102.0		%		80-120	22-JUN-14
<b>WG1896861-14 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			104.7		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			101.7		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			101.2		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			102.9		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			92.2		%		80-120	22-JUN-14
Boron (B)-Dissolved			94.1		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			100.0		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			93.2		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			101.5		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			100.8		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			100.3		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			101.7		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			107.1		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			103.8		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.9		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			104.1		%		80-120	22-JUN-14
Potassium (K)-Dissolved			109.4		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.0		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			102.4		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			99.6		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			96.7		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			104.3		%		80-120	22-JUN-14
Uranium (U)-Dissolved			101.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			103.9		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			101.7		%		80-120	22-JUN-14
<b>WG1896861-17 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			105.4		%		80-120	22-JUN-14



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-17 CRM</b>	<b>ED-HIGH-WATRM</b>							
Antimony (Sb)-Dissolved			102.3		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			102.6		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			104.4		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.1		%		80-120	22-JUN-14
Boron (B)-Dissolved			94.7		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			100.6		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			93.0		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			102.9		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			101.5		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			102.1		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			102.5		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			104.9		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			104.7		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.0		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			105.0		%		80-120	22-JUN-14
Potassium (K)-Dissolved			110.8		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.2		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			105.3		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			100.1		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			100.4		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			106.3		%		80-120	22-JUN-14
Uranium (U)-Dissolved			102.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			106.0		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			101.3		%		80-120	22-JUN-14
<b>WG1896861-2 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			104.5		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			100.6		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			104.8		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			105.2		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.8		%		80-120	22-JUN-14
Boron (B)-Dissolved			112.8		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			101.5		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			102.1		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			104.4		%		80-120	22-JUN-14



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-2 CRM</b>	<b>ED-HIGH-WATRM</b>							
Cobalt (Co)-Dissolved			103.5		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			104.3		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			102.2		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			110.3		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			107.5		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			102.5		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			104.0		%		80-120	22-JUN-14
Potassium (K)-Dissolved			110.1		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			103.6		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			103.5		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			104.7		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			98.9		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			100.3		%		80-120	22-JUN-14
Uranium (U)-Dissolved			99.8		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			106.7		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			101.9		%		80-120	22-JUN-14
<b>WG1896861-20 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			98.0		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			105.2		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.1		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			108.6		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			89.5		%		80-120	22-JUN-14
Boron (B)-Dissolved			81.2		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			93.3		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			97.0		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			97.4		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			100.9		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			99.3		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			98.7		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			98.7		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			113.1		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.9		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			100.2		%		80-120	22-JUN-14
Potassium (K)-Dissolved			103.8		%		80-120	22-JUN-14



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-20 CRM</b>	<b>ED-HIGH-WATRM</b>							
Selenium (Se)-Dissolved			101.6		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			102.1		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			104.2		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			101.8		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			97.2		%		80-120	22-JUN-14
Uranium (U)-Dissolved			109.0		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			101.5		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			99.4		%		80-120	22-JUN-14
<b>WG1896861-23 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			100.2		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			100.0		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.1		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			106.8		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			88.4		%		80-120	22-JUN-14
Boron (B)-Dissolved			80.9		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			92.5		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			91.6		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			96.7		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			99.4		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			98.4		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			95.3		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			99.9		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			109.9		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			91.3		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			101.8		%		80-120	22-JUN-14
Potassium (K)-Dissolved			111.0		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.8		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			99.4		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			104.9		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			96.2		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			109.9		%		80-120	22-JUN-14
Uranium (U)-Dissolved			99.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			102.4		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			99.8		%		80-120	22-JUN-14





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Client: WorleyParsons Canada  
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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-26 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			100.9		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			100.5		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.7		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			110.2		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.1		%		80-120	22-JUN-14
Boron (B)-Dissolved			86.1		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			92.1		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			96.6		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			99.4		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			99.9		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			98.6		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			97.0		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			98.0		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			104.8		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			96.1		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			102.4		%		80-120	22-JUN-14
Potassium (K)-Dissolved			105.7		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			101.5		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			99.7		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			105.8		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			100.4		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			105.0		%		80-120	22-JUN-14
Uranium (U)-Dissolved			97.1		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			102.8		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			100.0		%		80-120	22-JUN-14
<b>WG1896861-4 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			100.6		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			99.4		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.3		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			99.0		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			93.8		%		80-120	22-JUN-14
Boron (B)-Dissolved			93.7		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			97.9		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			93.7		%		80-120	22-JUN-14



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-4 CRM</b>	<b>ED-HIGH-WATRM</b>							
Chromium (Cr)-Dissolved			99.8		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			98.9		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			99.4		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			99.4		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			100.9		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			100.0		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.0		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			101.3		%		80-120	22-JUN-14
Potassium (K)-Dissolved			104.3		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			97.4		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			100.0		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			95.8		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			96.2		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			97.3		%		80-120	22-JUN-14
Uranium (U)-Dissolved			99.7		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			100.9		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			97.5		%		80-120	22-JUN-14
<b>WG1896861-6 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			99.5		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			97.4		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			96.9		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			97.2		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			91.4		%		80-120	22-JUN-14
Boron (B)-Dissolved			93.3		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			92.8		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			92.1		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			97.2		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			97.0		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			96.1		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			95.8		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			100.0		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			98.6		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			92.9		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			99.1		%		80-120	22-JUN-14



### Quality Control Report

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-6 CRM</b>	<b>ED-HIGH-WATRM</b>							
Potassium (K)-Dissolved			105.5		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			94.2		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			98.2		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			93.4		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			95.7		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			97.6		%		80-120	22-JUN-14
Uranium (U)-Dissolved			94.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			99.3		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			95.9		%		80-120	22-JUN-14
<b>WG1896861-12 DUP</b>	<b>L1470943-2</b>							
Aluminum (Al)-Dissolved		0.0055	0.0058		mg/L	5.2	20	22-JUN-14
Antimony (Sb)-Dissolved		0.00031	0.00032		mg/L	1.4	20	22-JUN-14
Arsenic (As)-Dissolved		0.00095	0.00095		mg/L	0.4	20	22-JUN-14
Barium (Ba)-Dissolved		0.628	0.632		mg/L	0.8	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.213	0.204		mg/L	4.3	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.000080	0.000079		mg/L	1.0	20	22-JUN-14
Calcium (Ca)-Dissolved		165	166		mg/L	0.2	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		0.00244	0.00244		mg/L	0.0	20	22-JUN-14
Copper (Cu)-Dissolved		0.00106	0.00109		mg/L	3.0	20	22-JUN-14
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		36.7	36.3		mg/L	1.2	20	22-JUN-14
Manganese (Mn)-Dissolved		1.33	1.33		mg/L	0.0	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000314	0.000314		mg/L	0.2	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00532	0.00540		mg/L	1.3	20	22-JUN-14
Potassium (K)-Dissolved		1.60	1.58		mg/L	0.8	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		34.0	33.8		mg/L	0.6	20	22-JUN-14
Thallium (Tl)-Dissolved		0.000030	0.000030		mg/L	0.2	20	22-JUN-14
Titanium (Ti)-Dissolved		0.00067	0.00057		mg/L	16	20	22-JUN-14



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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-12 DUP</b>		<b>L1470943-2</b>						
Uranium (U)-Dissolved		0.00191	0.00189		mg/L	1.3	20	22-JUN-14
Vanadium (V)-Dissolved		0.00114	0.00127		mg/L	10	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0019	0.0018		mg/L	6.3	20	22-JUN-14
<b>WG1896861-15 DUP</b>		<b>L1470932-2</b>						
Aluminum (Al)-Dissolved		0.0029	0.0026		mg/L	9.4	20	22-JUN-14
Antimony (Sb)-Dissolved		0.00031	0.00029		mg/L	5.4	20	22-JUN-14
Arsenic (As)-Dissolved		0.00014	0.00015		mg/L	6.8	20	22-JUN-14
Barium (Ba)-Dissolved		0.215	0.222		mg/L	3.1	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.015	0.015		mg/L	0.6	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		78.6	79.4		mg/L	1.0	20	22-JUN-14
Chromium (Cr)-Dissolved		0.00014	0.00015		mg/L	2.3	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		0.00049	0.00047		mg/L	3.6	20	22-JUN-14
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		16.4	16.6		mg/L	1.1	20	22-JUN-14
Manganese (Mn)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000149	0.000149		mg/L	0.1	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00061	0.00062		mg/L	1.7	20	22-JUN-14
Potassium (K)-Dissolved		1.24	1.25		mg/L	0.4	20	22-JUN-14
Selenium (Se)-Dissolved		0.00034	0.00035		mg/L	2.6	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		4.2	4.2		mg/L	0.9	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00210	0.00208		mg/L	0.7	20	22-JUN-14
Vanadium (V)-Dissolved		0.00025	0.00024		mg/L	5.1	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0016	0.0014		mg/L	8.5	20	22-JUN-14
<b>WG1896861-18 DUP</b>		<b>L1470946-5</b>						
Aluminum (Al)-Dissolved		0.0037	0.0039		mg/L	5.0	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14



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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-18</b>	<b>DUP</b>	<b>L1470946-5</b>						
Arsenic (As)-Dissolved		0.00038	0.00036		mg/L	5.1	20	22-JUN-14
Barium (Ba)-Dissolved		0.546	0.541		mg/L	0.8	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.022	0.022		mg/L	3.5	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.000038	0.000039		mg/L	3.1	20	22-JUN-14
Calcium (Ca)-Dissolved		128	128		mg/L	0.4	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.00010	0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		0.00111	0.00109		mg/L	1.2	20	22-JUN-14
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		30.0	29.6		mg/L	1.5	20	22-JUN-14
Manganese (Mn)-Dissolved		0.0432	0.0424		mg/L	1.9	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000359	0.000348		mg/L	3.3	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00281	0.00290		mg/L	3.2	20	22-JUN-14
Potassium (K)-Dissolved		1.52	1.51		mg/L	0.8	20	22-JUN-14
Selenium (Se)-Dissolved		0.00013	0.00015		mg/L	17	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		24.2	24.3		mg/L	0.5	20	22-JUN-14
Thallium (Tl)-Dissolved		0.000026	0.000026		mg/L	2.2	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00438	0.00445		mg/L	1.6	20	22-JUN-14
Vanadium (V)-Dissolved		0.00028	0.00031		mg/L	9.7	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0012	0.0012		mg/L	4.8	20	22-JUN-14
<b>WG1896861-21</b>	<b>DUP</b>	<b>L1470617-1</b>						
Aluminum (Al)-Dissolved		0.0016	0.0017		mg/L	4.6	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		0.00019	0.00017		mg/L	10	20	22-JUN-14
Barium (Ba)-Dissolved		0.157	0.154		mg/L	1.5	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.227	0.241		mg/L	5.7	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		69.1	68.1		mg/L	1.4	20	22-JUN-14



### Quality Control Report

Workorder: L1471334

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-21 DUP</b>		<b>L1470617-1</b>						
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Iron (Fe)-Dissolved		4.79	4.79		mg/L	0.0	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		10.3	10.2		mg/L	0.8	20	22-JUN-14
Manganese (Mn)-Dissolved		0.309	0.313		mg/L	1.3	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000217	0.000215		mg/L	1.0	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00025	0.00024		mg/L	1.9	20	22-JUN-14
Potassium (K)-Dissolved		2.75	2.70		mg/L	1.9	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		126	126		mg/L	0.0	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		0.00034	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.000047	0.000046		mg/L	4.0	20	22-JUN-14
Vanadium (V)-Dissolved		0.00057	0.00057		mg/L	0.8	20	22-JUN-14
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896861-27 DUP</b>		<b>L1470924-5</b>						
Aluminum (Al)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Barium (Ba)-Dissolved		0.0202	0.0190		mg/L	6.2	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.11	0.11		mg/L	2.5	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.00011	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		443	451		mg/L	1.7	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		0.0023	0.0022		mg/L	5.2	20	22-JUN-14
Iron (Fe)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		498	490		mg/L	1.5	20	22-JUN-14



## Quality Control Report

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-27 DUP</b>		<b>L1470924-5</b>						
Manganese (Mn)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.00270	0.00246		mg/L	9.3	20	22-JUN-14
Nickel (Ni)-Dissolved		0.0045	0.0041		mg/L	10	20	22-JUN-14
Potassium (K)-Dissolved		5.27	5.17		mg/L	1.9	20	22-JUN-14
Selenium (Se)-Dissolved		0.0093	0.0088		mg/L	5.5	20	22-JUN-14
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		245	238		mg/L	3.1	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.0768	0.0739		mg/L	3.9	20	22-JUN-14
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Zinc (Zn)-Dissolved		0.013	<0.010	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896861-7 DUP</b>		<b>L1469662-13</b>						
Aluminum (Al)-Dissolved		0.0052	0.0057		mg/L	10	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		0.00430	0.00429		mg/L	0.3	20	22-JUN-14
Barium (Ba)-Dissolved		0.301	0.315		mg/L	4.5	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.023	0.019		mg/L	17	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	0.000014	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		138	138		mg/L	0.0	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		0.00218	0.00219		mg/L	0.4	20	22-JUN-14
Copper (Cu)-Dissolved		0.00042	0.00060	J	mg/L	0.00018	0.0002	22-JUN-14
Iron (Fe)-Dissolved		32.3	32.5		mg/L	0.6	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		26.9	26.9		mg/L	0.0	20	22-JUN-14
Manganese (Mn)-Dissolved		2.21	2.23		mg/L	1.0	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.00163	0.00157		mg/L	4.0	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00580	0.00567		mg/L	2.2	20	22-JUN-14
Potassium (K)-Dissolved		1.39	1.40		mg/L	0.7	20	22-JUN-14
Selenium (Se)-Dissolved		0.00015	0.00016		mg/L	6.0	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14



## Quality Control Report

Workorder: L1471334

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-7</b>	<b>DUP</b>	<b>L1469662-13</b>						
Sodium (Na)-Dissolved		21.5	21.5		mg/L	0.2	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		0.00034	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00149	0.00148		mg/L	0.8	20	22-JUN-14
Vanadium (V)-Dissolved		0.00029	0.00029		mg/L	0.8	20	22-JUN-14
<b>WG1896861-8</b>	<b>DUP</b>	<b>L1469662-5</b>						
Aluminum (Al)-Dissolved		0.0015	0.0015		mg/L	0.3	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		0.00036	0.00034		mg/L	5.2	20	22-JUN-14
Barium (Ba)-Dissolved		0.361	0.363		mg/L	0.6	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.024	0.024		mg/L	2.5	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.000129	0.000127		mg/L	1.2	20	22-JUN-14
Calcium (Ca)-Dissolved		117	121		mg/L	3.7	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		0.00609	0.00617		mg/L	1.2	20	22-JUN-14
Copper (Cu)-Dissolved		0.00111	0.00107		mg/L	3.4	20	22-JUN-14
Iron (Fe)-Dissolved		1.03	1.02		mg/L	0.9	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		28.1	28.0		mg/L	0.2	20	22-JUN-14
Manganese (Mn)-Dissolved		3.16	3.24		mg/L	2.4	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000295	0.000319		mg/L	7.9	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00851	0.00854		mg/L	0.3	20	22-JUN-14
Potassium (K)-Dissolved		2.06	2.06		mg/L	0.2	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		19.6	19.3		mg/L	1.5	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00127	0.00123		mg/L	3.1	20	22-JUN-14
Vanadium (V)-Dissolved		0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0048	0.0049		mg/L	3.4	20	22-JUN-14
<b>WG1896861-9</b>	<b>DUP</b>	<b>L1466505-2</b>						





### Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-9</b>	<b>DUP</b>	<b>L1466505-2</b>						
Aluminum (Al)-Dissolved		0.0133	0.0127		mg/L	4.5	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	22-JUN-14
Barium (Ba)-Dissolved		0.0421	0.0428		mg/L	1.6	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		7.85	7.88		mg/L	0.4	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Iron (Fe)-Dissolved		0.291	0.289		mg/L	0.8	20	22-JUN-14
Lead (Pb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		2.62	2.62		mg/L	0.2	20	22-JUN-14
Manganese (Mn)-Dissolved		0.0266	0.0264		mg/L	0.9	20	22-JUN-14
Molybdenum (Mo)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-JUN-14
Nickel (Ni)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-JUN-14
Potassium (K)-Dissolved		0.74	0.74		mg/L	0.7	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		2.7	2.6		mg/L	3.0	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0041	<0.0040	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896861-1</b>	<b>MB</b>							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14



### Quality Control Report

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-1 MB</b>								
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-10 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14



### Quality Control Report

Workorder: L1471334

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-10 MB</b>								
	Magnesium (Mg)-Dissolved		<0.0050		mg/L		0.005	22-JUN-14
	Manganese (Mn)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Molybdenum (Mo)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Potassium (K)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Selenium (Se)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Silver (Ag)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Sodium (Na)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Thallium (Tl)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	22-JUN-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-13 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Beryllium (Be)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	22-JUN-14
	Chromium (Cr)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Cobalt (Co)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Copper (Cu)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Iron (Fe)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Lead (Pb)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Magnesium (Mg)-Dissolved		<0.0050		mg/L		0.005	22-JUN-14
	Manganese (Mn)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Molybdenum (Mo)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Nickel (Ni)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Potassium (K)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Selenium (Se)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Silver (Ag)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Sodium (Na)-Dissolved		<0.050		mg/L		0.05	22-JUN-14



### Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-13 MB</b>								
	Thallium (Tl)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	22-JUN-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-16 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Beryllium (Be)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	22-JUN-14
	Chromium (Cr)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Cobalt (Co)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Copper (Cu)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Iron (Fe)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Lead (Pb)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Magnesium (Mg)-Dissolved		<0.0050		mg/L		0.005	22-JUN-14
	Manganese (Mn)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Molybdenum (Mo)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Nickel (Ni)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Potassium (K)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Selenium (Se)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Silver (Ag)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Sodium (Na)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Thallium (Tl)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	22-JUN-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-19 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14



### Quality Control Report

Workorder: L1471334

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-19 MB</b>								
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Beryllium (Be)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	22-JUN-14
	Chromium (Cr)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Cobalt (Co)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Copper (Cu)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Iron (Fe)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Lead (Pb)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Magnesium (Mg)-Dissolved		<0.0050		mg/L		0.005	22-JUN-14
	Manganese (Mn)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Molybdenum (Mo)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Nickel (Ni)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Potassium (K)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Selenium (Se)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Silver (Ag)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Sodium (Na)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Thallium (Tl)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	22-JUN-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-22 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Beryllium (Be)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-22 MB</b>								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-25 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-25 MB</b>								
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-3 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-3 MB</b>								
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-5 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14

**NH3-D-CFA-ED** **Water**





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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NH3-D-CFA-ED</b>								
	Water							
<b>Batch</b>	<b>R2870753</b>							
<b>WG1897042-4</b>	<b>DUP</b>	<b>L1470810-1</b>						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	23-JUN-14
<b>NO2-IC-ED</b>								
	Water							
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-3</b>	<b>DUP</b>	<b>L1470374-4</b>						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	19-JUN-14
<b>WG1894620-11</b>	<b>LCS</b>		96.6		%		90-110	19-JUN-14
Nitrite (as N)								
<b>WG1894620-2</b>	<b>LCS</b>		94.5		%		90-110	19-JUN-14
Nitrite (as N)								
<b>WG1894620-5</b>	<b>LCS</b>		90.7		%		90-110	19-JUN-14
Nitrite (as N)								
<b>WG1894620-7</b>	<b>LCS</b>		93.8		%		90-110	19-JUN-14
Nitrite (as N)								
<b>WG1894620-9</b>	<b>LCS</b>		108.5		%		90-110	19-JUN-14
Nitrite (as N)								
<b>WG1894620-1</b>	<b>MB</b>		<0.020		mg/L		0.02	19-JUN-14
Nitrite (as N)								
<b>WG1894620-10</b>	<b>MB</b>		<0.020		mg/L		0.02	19-JUN-14
Nitrite (as N)								
<b>WG1894620-12</b>	<b>MB</b>		<0.020		mg/L		0.02	19-JUN-14
Nitrite (as N)								
<b>WG1894620-6</b>	<b>MB</b>		<0.020		mg/L		0.02	19-JUN-14
Nitrite (as N)								
<b>WG1894620-8</b>	<b>MB</b>		<0.020		mg/L		0.02	19-JUN-14
Nitrite (as N)								
<b>NO3-IC-ED</b>								
	Water							
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-3</b>	<b>DUP</b>	<b>L1470374-4</b>						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	19-JUN-14
<b>WG1894620-11</b>	<b>LCS</b>		105.0		%		90-110	19-JUN-14
Nitrate (as N)								
<b>WG1894620-2</b>	<b>LCS</b>		100.1		%		90-110	19-JUN-14
Nitrate (as N)								
<b>WG1894620-5</b>	<b>LCS</b>		102.7		%		90-110	19-JUN-14
Nitrate (as N)								
<b>WG1894620-7</b>	<b>LCS</b>							



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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NO3-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-7</b>	<b>LCS</b>							
Nitrate (as N)			103.5		%		90-110	19-JUN-14
<b>WG1894620-9</b>	<b>LCS</b>							
Nitrate (as N)			102.2		%		90-110	19-JUN-14
<b>WG1894620-1</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	19-JUN-14
<b>WG1894620-10</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	19-JUN-14
<b>WG1894620-12</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	19-JUN-14
<b>WG1894620-6</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	19-JUN-14
<b>WG1894620-8</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	19-JUN-14
<b>WG1894620-4</b>	<b>MS</b>	<b>L1470374-4</b>						
Nitrate (as N)			91.1		%		75-125	19-JUN-14
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2868417</b>							
<b>WG1894818-10</b>	<b>DUP</b>	<b>L1470943-10</b>						
pH		7.78	7.82	J	pH	0.04	0.3	20-JUN-14
Conductivity (EC)		5600	5620		uS/cm	0.4	10	20-JUN-14
Bicarbonate (HCO3)		688	689		mg/L	0.1	25	20-JUN-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	20-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	20-JUN-14
Alkalinity, Total (as CaCO3)		564	565		mg/L	0.1	20	20-JUN-14
<b>WG1894818-9</b>	<b>DUP</b>	<b>L1471923-1</b>						
pH		8.19	8.18	J	pH	0.01	0.3	19-JUN-14
Conductivity (EC)		875	867		uS/cm	0.9	10	19-JUN-14
Bicarbonate (HCO3)		611	605		mg/L	1.0	25	19-JUN-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	19-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	19-JUN-14
Alkalinity, Total (as CaCO3)		501	496		mg/L	1.0	20	19-JUN-14
<b>WG1894818-13</b>	<b>LCS</b>							
Conductivity (EC)			98.1		%		90-110	19-JUN-14
<b>WG1894818-14</b>	<b>LCS</b>							
pH			7.01		pH		6.7-7.3	19-JUN-14
<b>WG1894818-15</b>	<b>LCS</b>							



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2868417</b>							
<b>WG1894818-15</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			104.0		%		85-115	19-JUN-14
<b>WG1894818-16</b>	<b>LCS</b>							
Conductivity (EC)			96.2		%		90-110	19-JUN-14
<b>WG1894818-18</b>	<b>LCS</b>							
Conductivity (EC)			98.2		%		90-110	19-JUN-14
<b>WG1894818-19</b>	<b>LCS</b>							
pH			7.02		pH		6.7-7.3	19-JUN-14
<b>WG1894818-2</b>	<b>LCS</b>							
Conductivity (EC)			98.7		%		90-110	19-JUN-14
<b>WG1894818-20</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			104.4		%		85-115	19-JUN-14
<b>WG1894818-21</b>	<b>LCS</b>							
Conductivity (EC)			94.8		%		90-110	19-JUN-14
<b>WG1894818-23</b>	<b>LCS</b>							
Conductivity (EC)			97.1		%		90-110	19-JUN-14
<b>WG1894818-24</b>	<b>LCS</b>							
pH			7.00		pH		6.7-7.3	19-JUN-14
<b>WG1894818-25</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			103.7		%		85-115	19-JUN-14
<b>WG1894818-26</b>	<b>LCS</b>							
Conductivity (EC)			93.8		%		90-110	19-JUN-14
<b>WG1894818-28</b>	<b>LCS</b>							
Conductivity (EC)			96.7		%		90-110	20-JUN-14
<b>WG1894818-29</b>	<b>LCS</b>							
pH			7.04		pH		6.7-7.3	20-JUN-14
<b>WG1894818-3</b>	<b>LCS</b>							
pH			7.02		pH		6.7-7.3	19-JUN-14
<b>WG1894818-30</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			102.4		%		85-115	20-JUN-14
<b>WG1894818-31</b>	<b>LCS</b>							
Conductivity (EC)			93.5		%		90-110	20-JUN-14
<b>WG1894818-4</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			104.1		%		85-115	19-JUN-14
<b>WG1894818-5</b>	<b>LCS</b>							
Conductivity (EC)			97.2		%		90-110	19-JUN-14
<b>WG1894818-1</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	19-JUN-14



### Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch R2868417</b>								
<b>WG1894818-1 MB</b>								
Carbonate (CO3)			<5.0		mg/L		5	19-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	19-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	19-JUN-14
<b>WG1894818-12 MB</b>								
Bicarbonate (HCO3)			<5.0		mg/L		5	19-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	19-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	19-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	19-JUN-14
<b>WG1894818-17 MB</b>								
Bicarbonate (HCO3)			<5.0		mg/L		5	19-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	19-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	19-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	19-JUN-14
<b>WG1894818-22 MB</b>								
Bicarbonate (HCO3)			<5.0		mg/L		5	19-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	19-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	19-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	19-JUN-14
<b>WG1894818-27 MB</b>								
Bicarbonate (HCO3)			<5.0		mg/L		5	20-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	20-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	20-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	20-JUN-14
<b>PHENOLS-4AAP-ED</b>		<b>Water</b>						
<b>Batch R2872696</b>								
<b>WG1899179-2 LCS</b>								
Phenols (4AAP)			107.0		%		85-115	25-JUN-14
<b>WG1899179-1 MB</b>								
Phenols (4AAP)			<0.0010		mg/L		0.001	25-JUN-14
<b>SO4-IC-ED</b>		<b>Water</b>						
<b>Batch R2868443</b>								
<b>WG1894620-3 DUP</b>		<b>L1470374-4</b>						
Sulfate (SO4)		6.08	5.99		mg/L	1.6	20	19-JUN-14
<b>WG1894620-11 LCS</b>								
Sulfate (SO4)			105.5		%		90-110	19-JUN-14



### Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SO4-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-2</b>	<b>LCS</b>							
Sulfate (SO4)			102.5		%		90-110	19-JUN-14
<b>WG1894620-5</b>	<b>LCS</b>							
Sulfate (SO4)			104.1		%		90-110	19-JUN-14
<b>WG1894620-7</b>	<b>LCS</b>							
Sulfate (SO4)			99.7		%		90-110	19-JUN-14
<b>WG1894620-9</b>	<b>LCS</b>							
Sulfate (SO4)			104.3		%		90-110	19-JUN-14
<b>WG1894620-1</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-10</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-12</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-6</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-8</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-4</b>	<b>MS</b>	<b>L1470374-4</b>						
Sulfate (SO4)			95.0		%		75-125	19-JUN-14
<b>SOLIDS-TDS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2867465</b>							
<b>WG1893193-3</b>	<b>DUP</b>	<b>L1470440-2</b>						
Total Dissolved Solids		3930	4160		mg/L	5.5	20	17-JUN-14
<b>WG1893193-2</b>	<b>LCS</b>							
Total Dissolved Solids			98.6		%		85-115	17-JUN-14
<b>WG1893193-1</b>	<b>MB</b>							
Total Dissolved Solids			<10		mg/L		10	17-JUN-14
<b>Batch</b>	<b>R2872566</b>							
<b>WG1898235-3</b>	<b>DUP</b>	<b>L1474852-1</b>						
Total Dissolved Solids		620	623		mg/L	0.5	20	24-JUN-14
<b>WG1898235-2</b>	<b>LCS</b>							
Total Dissolved Solids			97.6		%		85-115	24-JUN-14
<b>WG1898235-1</b>	<b>MB</b>							
Total Dissolved Solids			<10		mg/L		10	24-JUN-14

# Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

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Contact: Trevor Butterfield

## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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# Quality Control Report

Workorder: L1471334

Report Date: 25-JUN-14

Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

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Contact: Trevor Butterfield

## Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
<b>Anions and Nutrients</b>							
Nitrate as N by IC	1	16-JUN-14 11:20	19-JUN-14 08:59	48	70	hours	EHT
	2	16-JUN-14 10:30	19-JUN-14 08:59	48	71	hours	EHT
	3	16-JUN-14 13:00	19-JUN-14 08:59	48	68	hours	EHT
Nitrite as N by IC	1	16-JUN-14 11:20	19-JUN-14 08:59	48	70	hours	EHT
	2	16-JUN-14 10:30	19-JUN-14 08:59	48	71	hours	EHT
	3	16-JUN-14 13:00	19-JUN-14 08:59	48	68	hours	EHT

## Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.  
EHTR: Exceeded ALS recommended hold time prior to sample receipt.  
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.  
EHT: Exceeded ALS recommended hold time prior to analysis.  
Rec. HT: ALS recommended hold time (see units).

Notes\*:  
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.  
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1471334 were received on 16-JUN-14 13:46.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

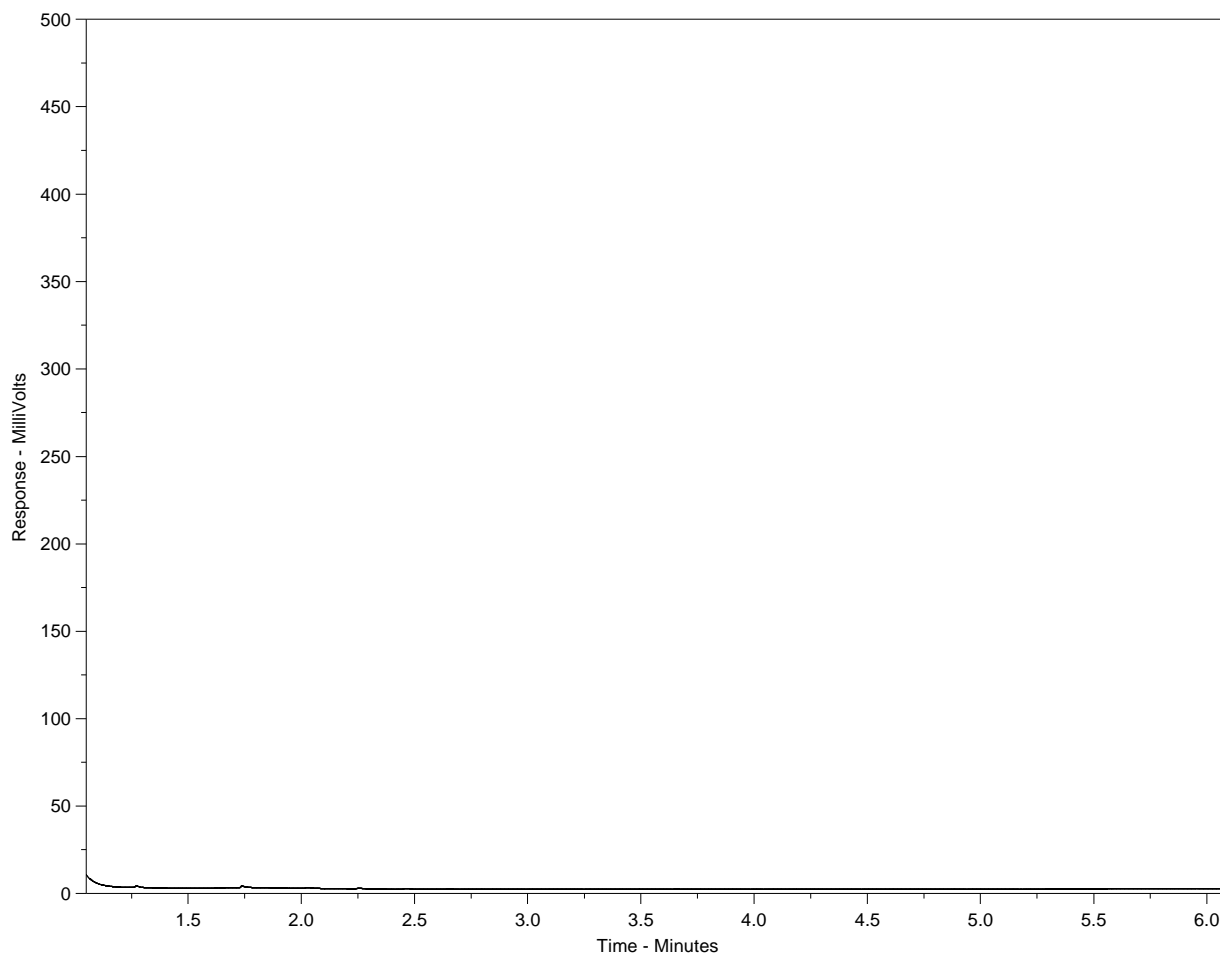
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# Hydrocarbon Distribution Report



ALS Sample ID: L1471334-1  
Client ID: MW-01



← F2 →		← F3 →		← F4 →		← F4 →	
nC10		nC16		nC34		nC50	
174°C		287°C		481°C		575°C	
346°F		549°F		898°F		1067°F	
← Gasoline →				← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →							

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

**Note:**

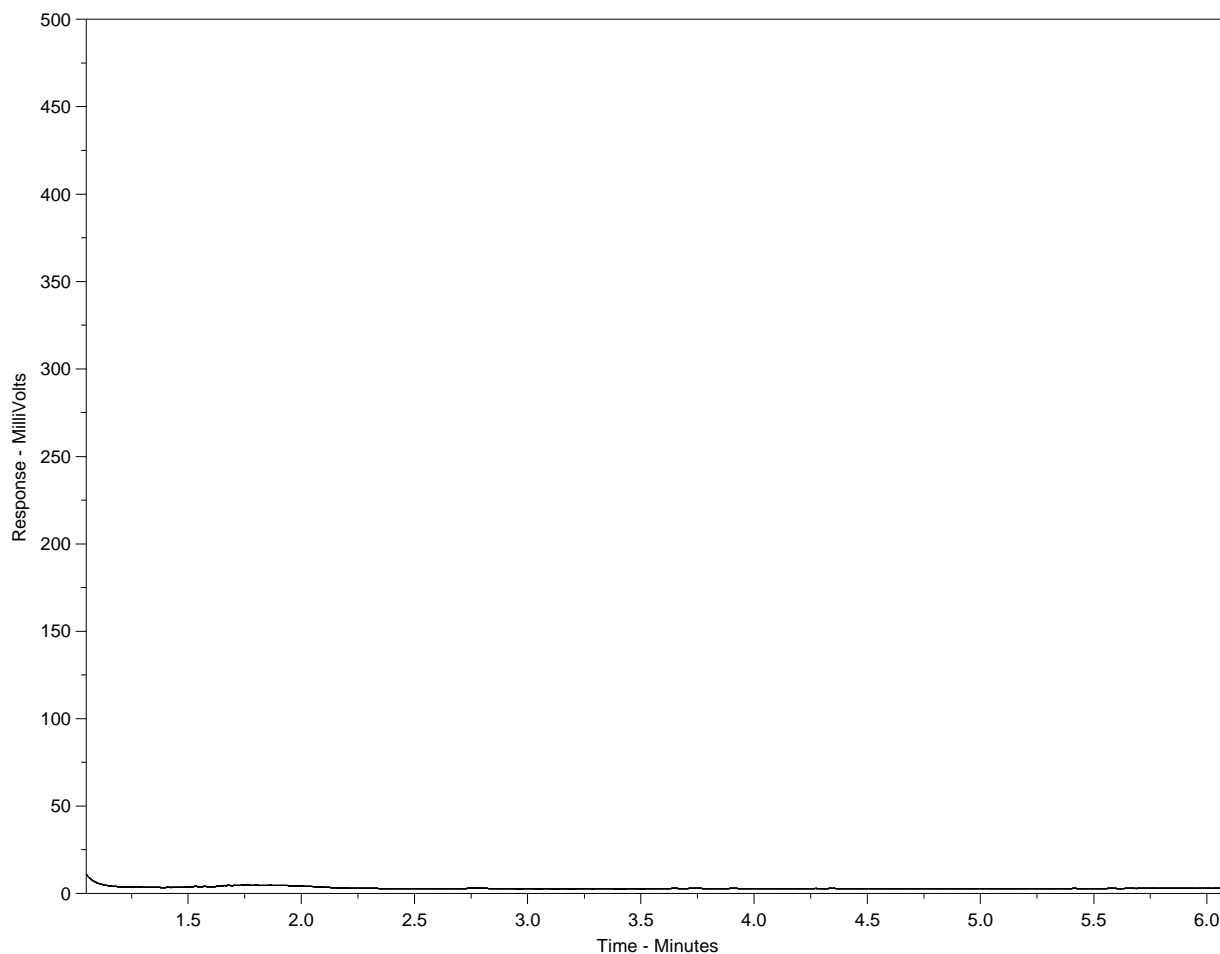
This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.



# Hydrocarbon Distribution Report



ALS Sample ID: L1471334-2  
Client ID: MW-02



← F2 →		← F3 →		← F4 →		← F4 →	
nC10		nC16		nC34		nC50	
174°C		287°C		481°C		575°C	
346°F		549°F		898°F		1067°F	
← Gasoline →				← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →							

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

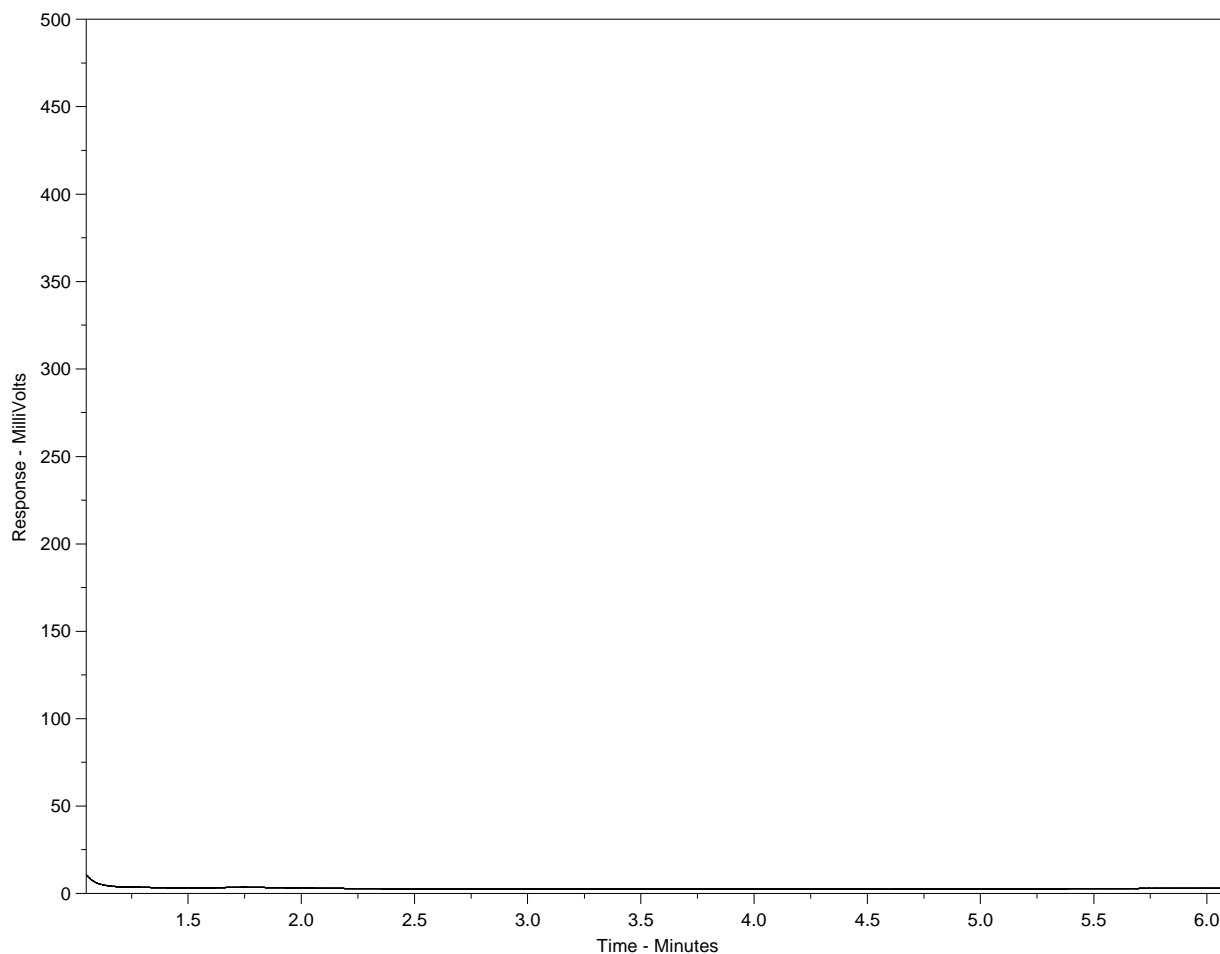
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: L1471334-3  
Client ID: MW-03



← F2 →		← F3 →		← F4 →		← F4 →	
nC10	nC16	nC34	nC50				
174°C	287°C	481°C	575°C				
346°F	549°F	898°F	1067°F				
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →				
← Diesel/ Jet Fuels →							

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.







WorleyParsons Canada  
ATTN: Trevor Butterfield  
700 - 4445 Calgary Trail  
Terrace Plaza  
EDMONTON AB T6H 5R7

Date Received: 13-JUN-14  
Report Date: 26-JUN-14 16:27 (MT)  
Version: FINAL

Client Phone: 780-496-9055

## Certificate of Analysis

**Lab Work Order #:** L1470810  
**Project P.O. #:** NOT SUBMITTED  
**Job Reference:** 307076-06086-200  
**C of C Numbers:** 10-391797  
**Legal Site Desc:**

Maureen Olinek  
Senior Account Manager

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-1 MW-04							
Sampled By: SG/NU on 13-JUN-14 @ 10:15							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	99.7		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	93.1		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	102.0		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	95.3		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	<0.050		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	3.0		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.093		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	808		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	146		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00053		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.109		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.069		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	143		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00035		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	1.39		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	40.8		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.494		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000297		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	9.68		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	52.9		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00390		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-1 MW-04 Sampled By: SG/NU on 13-JUN-14 @ 10:15 Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	100			%		23-JUN-14	
TDS (Calculated)	695			mg/L		23-JUN-14	
Hardness (as CaCO3)	525			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	92.8		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.10		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1190		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	426		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	350		2.0	mg/L		18-JUN-14	R2867343
L1470810-2 MW-05 Sampled By: SG/NU on 13-JUN-14 @ 11:30 Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	99.0		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	93.2		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	100.6		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	97.3		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	0.272		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	6.6		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.073		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	635		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	37.8		0.50	mg/L		16-JUN-14	R2865916

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-2 MW-05							
Sampled By: SG/NU on 13-JUN-14 @ 11:30							
Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00173		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0486		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	<0.050		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	117		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00081		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	4.37		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	34.8		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.758		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000415		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	8.31		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	42.0		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00071		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	111	BL:INT		%		23-JUN-14	
TDS (Calculated)	550			mg/L		23-JUN-14	
Hardness (as CaCO3)	435			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	143		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.00		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	853		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	341		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	279		2.0	mg/L		18-JUN-14	R2867343
L1470810-3 MW-06							
Sampled By: SG/NU on 12-JUN-14 @ 13:15							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-3 MW-06							
Sampled By: SG/NU on 12-JUN-14 @ 13:15							
Matrix: WATER							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	98.8		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	93.1		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	101.4		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	94.8		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	1.84		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	5.8		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.119		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	1260		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	6.67		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00505		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0315		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.112		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	163		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00030		0.00020	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	5.93		0.020	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	57.6		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	1.62		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.00084		0.00010	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	5.56		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	152		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00060		0.00060	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00169		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00020		0.00020	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-3 MW-06 Sampled By: SG/NU on 12-JUN-14 @ 13:15 Matrix: WATER							
<b>Ion Balance Calculation</b>							
Ion Balance	99.9			%		23-JUN-14	
TDS (Calculated)	1160			mg/L		23-JUN-14	
Hardness (as CaCO3)	644			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	519		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.10		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1630		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	528		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	433		2.0	mg/L		18-JUN-14	R2867343
L1470810-4 MW-07 Sampled By: SG/NU on 13-JUN-14 @ 16:15 Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	99.1		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	91.5		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	104.0		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	95.2		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	2.68		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	5.8		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.047		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	2320		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	13.2		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-4 MW-07 Sampled By: SG/NU on 13-JUN-14 @ 16:15 Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Antimony (Sb)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00319		0.00050	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0298		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.226		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	289		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00105		0.00050	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	13.8		0.050	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00025		0.00025	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	97.9		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	2.26		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.00067		0.00025	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	6.09		0.25	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	270		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.0015		0.0015	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00170		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	92.3			%		23-JUN-14	
TDS (Calculated)	2260			mg/L		23-JUN-14	
Hardness (as CaCO3)	1120			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	1270	DLM	5.0	mg/L		19-JUN-14	R2868443
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.06		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	2800		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	636		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	521		2.0	mg/L		18-JUN-14	R2867343
L1470810-5 MW-08 Sampled By: SG/NU on 12-JUN-14 @ 14:40 Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-5 MW-08							
Sampled By: SG/NU on 12-JUN-14 @ 14:40							
Matrix: WATER							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	99.1		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	91.2		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	102.8		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	101.7		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	1.90		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	5.1		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.083		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	938		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	1.23		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00675		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0551		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.130		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	144		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00017		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	7.19		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	38.5		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.476		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.00129		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	5.95		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	110		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00071		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-5 MW-08 Sampled By: SG/NU on 12-JUN-14 @ 14:40 Matrix: WATER							
<b>Ion Balance Calculation</b>							
Ion Balance	102			%		23-JUN-14	
TDS (Calculated)	878			mg/L		23-JUN-14	
Hardness (as CaCO3)	518			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	345		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	7.94		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1260		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	474		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	388		2.0	mg/L		18-JUN-14	R2867343
L1470810-6 MW-09 Sampled By: SG/NU on 13-JUN-14 @ 13:40 Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	98.2		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	89.1		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	104.7		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	99.7		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	2.17		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	5.8		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.199		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	1030		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	5.39		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-6 MW-09							
Sampled By: SG/NU on 13-JUN-14 @ 13:40							
Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00232		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0224		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.196		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	87.8		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00120		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	1.85		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	25.6		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.868		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.00131		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	4.23		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	222		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00132		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	102			%		23-JUN-14	
TDS (Calculated)	944			mg/L		23-JUN-14	
Hardness (as CaCO3)	325			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	341		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.12		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1390		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	525		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	430		2.0	mg/L		18-JUN-14	R2867343
L1470810-7 MW-10							
Sampled By: SG/NU on 12-JUN-14 @ 17:45							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-7 MW-10							
Sampled By: SG/NU on 12-JUN-14 @ 17:45							
Matrix: WATER							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	97.6		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	89.4		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	104.3		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	97.9		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	1.77		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	6.9		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.110		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	845		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	0.67		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00463		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0282		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.127		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	125		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00031		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	6.10		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	34.2		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.689		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000770		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	5.79		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	108		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00117		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-7 MW-10							
Sampled By: SG/NU on 12-JUN-14 @ 17:45							
Matrix: WATER							
<b>Ion Balance Calculation</b>							
Ion Balance	106			%		23-JUN-14	
TDS (Calculated)	752			mg/L		23-JUN-14	
Hardness (as CaCO3)	453			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	229		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.05		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1110		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	507		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	416		2.0	mg/L		18-JUN-14	R2867343
L1470810-8 MW-11							
Sampled By: SG/NU on 12-JUN-14 @ 16:00							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	97.9		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	89.0		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	105.8		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	97.3		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	1.58		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	5.6		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.074		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	856		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	14.1		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-8 MW-11							
Sampled By: SG/NU on 12-JUN-14 @ 16:00							
Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00255		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0421		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.135		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	136		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00030		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	7.07		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	41.5		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.672		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000539		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	5.32		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	89.0		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	0.00119		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00099		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	110			%		23-JUN-14	
TDS (Calculated)	746			mg/L		23-JUN-14	
Hardness (as CaCO3)	510			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	227		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	7.99		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1090		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	473		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	388		2.0	mg/L		18-JUN-14	R2867343
L1470810-9 MW-12							
Sampled By: SG/NU on 12-JUN-14 @ 09:20							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-9 MW-12							
Sampled By: SG/NU on 12-JUN-14 @ 09:20							
Matrix: WATER							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	97.7		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	89.4		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	104.5		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	98.4		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	1.36		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	8.3		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.064		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	619		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	7.20		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00266		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.125		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.178		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	93.8		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00044		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	3.88		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	27.7		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.462		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000921		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	5.14		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	97.6		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00080		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	0.0044		0.0030	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-9 MW-12							
Sampled By: SG/NU on 12-JUN-14 @ 09:20							
Matrix: WATER							
<b>Ion Balance Calculation</b>							
Ion Balance	103			%		23-JUN-14	
TDS (Calculated)	573			mg/L		23-JUN-14	
Hardness (as CaCO3)	348			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	47.4		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.02		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	915		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	598		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	490		2.0	mg/L		18-JUN-14	R2867343
L1470810-10 MW-13							
Sampled By: SG/NU on 12-JUN-14 @ 11:10							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	97.8		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	88.5		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	109.2		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	97.0		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	1.33		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	6.3		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.129		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	457		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	2.63		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	0.0371		0.0050	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-10 MW-13							
Sampled By: SG/NU on 12-JUN-14 @ 11:10							
Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00179		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.420		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.196		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	48.8		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00074		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	1.30		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	15.4		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.245		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.00183		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	4.07		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	104		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	0.00148		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00069		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	0.00013		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	101			%		23-JUN-14	
TDS (Calculated)	425			mg/L		23-JUN-14	
Hardness (as CaCO3)	185			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	11.0		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.16		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	698		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	485		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	398		2.0	mg/L		18-JUN-14	R2867343
L1470810-11 D14-01							
Sampled By: SG/NU on 12-JUN-14 @ 17:45							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-11 D14-01							
Sampled By: SG/NU on 12-JUN-14 @ 17:45							
Matrix: WATER							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	98.1		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	90.4		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	105.9		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	101.4		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	1.78		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	5.0		1.0	mg/L		24-JUN-14	R2872454
Fluoride (F)	0.104		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	834		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	0.82		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	0.00450		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	0.0293		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	0.129		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	124		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	0.00032		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	6.08		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	34.5		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	0.740		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	0.000782		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	5.84		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	110		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	0.00112		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-11 D14-01 Sampled By: SG/NU on 12-JUN-14 @ 17:45 Matrix: WATER							
<b>Ion Balance Calculation</b>							
Ion Balance	102			%		23-JUN-14	
TDS (Calculated)	771			mg/L		23-JUN-14	
Hardness (as CaCO3)	452			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	229		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	8.04		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1140		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	543		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	445		2.0	mg/L		18-JUN-14	R2867343
L1470810-12 F14-01 Sampled By: SG/NU on 13-JUN-14 @ 15:30 Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Toluene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
EthylBenzene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
o-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
m+p-Xylene	<0.00050		0.00050	mg/L		20-JUN-14	R2868051
Styrene	<0.0010		0.0010	mg/L		20-JUN-14	R2868051
F1(C6-C10)	<0.10		0.10	mg/L		20-JUN-14	R2868051
F1-BTEX	<0.10		0.10	mg/L		20-JUN-14	R2868051
Xylenes	<0.00071		0.00071	mg/L		20-JUN-14	R2868051
Surrogate: 1,4-Difluorobenzene (SS)	97.7		70-130	%		20-JUN-14	R2868051
Surrogate: 4-Bromofluorobenzene (SS)	89.8		70-130	%		20-JUN-14	R2868051
Surrogate: 3,4-Dichlorotoluene (SS)	108.1		70-130	%		20-JUN-14	R2868051
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	18-JUN-14	18-JUN-14	R2868411
Surrogate: 2-Bromobenzotrifluoride	99.9		65-135	%	18-JUN-14	18-JUN-14	R2868411
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	<0.050		0.050	mg/L		23-JUN-14	R2870753
Dissolved Organic Carbon	<1.0		1.0	mg/L		25-JUN-14	R2872844
Fluoride (F)	<0.020		0.020	mg/L		16-JUN-14	R2865916
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-JUN-14	R2872696
Total Dissolved Solids	<10		10	mg/L		16-JUN-14	R2865295
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	<0.50		0.50	mg/L		16-JUN-14	R2865916
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1470810-12 F14-01							
Sampled By: SG/NU on 13-JUN-14 @ 15:30							
Matrix: WATER							
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Arsenic (As)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Barium (Ba)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		22-JUN-14	R2870239
Boron (B)-Dissolved	<0.050		0.050	mg/L		22-JUN-14	R2870239
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Calcium (Ca)-Dissolved	<0.50		0.50	mg/L		22-JUN-14	R2870239
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		22-JUN-14	R2870239
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		22-JUN-14	R2870239
Iron (Fe)-Dissolved	<0.010		0.010	mg/L		22-JUN-14	R2870239
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Magnesium (Mg)-Dissolved	<0.10		0.10	mg/L		22-JUN-14	R2870239
Manganese (Mn)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		22-JUN-14	R2870239
Potassium (K)-Dissolved	<0.10		0.10	mg/L		22-JUN-14	R2870239
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		22-JUN-14	R2870239
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Sodium (Na)-Dissolved	<1.0		1.0	mg/L		22-JUN-14	R2870239
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870239
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-JUN-14	R2870239
Uranium (U)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		22-JUN-14	R2870239
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		22-JUN-14	R2870239
<b>Ion Balance Calculation</b>							
Ion Balance	Low TDS			%		23-JUN-14	
TDS (Calculated)	<1.0			mg/L		23-JUN-14	
Hardness (as CaCO3)	<1.0			mg/L		23-JUN-14	
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	<0.000050		0.000050	mg/L		22-JUN-14	R2870708
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		16-JUN-14	R2865916
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		19-JUN-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		16-JUN-14	R2865916
<b>Sulfate by IC</b>							
Sulfate (SO4)	<0.50		0.50	mg/L		16-JUN-14	R2865916
<b>pH, Conductivity and Total Alkalinity</b>							
pH	5.52		0.10	pH		18-JUN-14	R2867343
Conductivity (EC)	1.80		0.20	uS/cm		18-JUN-14	R2867343
Bicarbonate (HCO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Carbonate (CO3)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Hydroxide (OH)	<5.0		5.0	mg/L		18-JUN-14	R2867343
Alkalinity, Total (as CaCO3)	<2.0		2.0	mg/L		18-JUN-14	R2867343

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## Reference Information

## Sample Parameter Qualifier Key:

Qualifier	Description
BL:INT	Balance Reviewed: Interference Or Non-Measured Component
DLM	Detection Limit Adjusted due to sample matrix effects.
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**
BTXS,F1-ED	Water	BTEX, Styrene and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
C-DIS-ORG-ED	Water	Dissolved Organic Carbon	APHA 5310 B-Instrumental
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F-IC-ED	Water	Fluoride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F2-ED	Water	F2 (>C10-C16)	EPA 3510/CCME PHC CWS-GC-FID
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
IONBALANCE-ED	Water	Ion Balance Calculation	APHA 1030E
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
NH3-D-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-ED	Water	Nitrite as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
PH/EC/ALK-ED	Water	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
PHENOLS-4AAP-ED	Water	Phenols (4AAP)	AB ENV.06537-COLORIMETRIC
This analysis is carried out using procedures adapted from ENVIRODAT VMV 06537 689, Method Code 154, in "Methods Manual for Chemical Analysis of Water and Wastes" published by the Alberta Environmental Centre. This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide and 4-aminoantipyrine to form a red complex which is measured at 505 nm.			
SO4-IC-ED	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY
SOLIDS-TDS-ED	Water	Total Dissolved Solids	APHA 2540 C

\*\* 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

## Chain of Custody Numbers:

10-391797



## Reference Information

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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#### GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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.

# ALS LABORATORY GROUP SOIL SALINITY CONVERSION

L1470810

Lab ID	Sample ID				Lab ID	Sample ID			
<p>"Calculations are as per: Methods of Analysis for Soils, Plants and Waters Homer D. Chapman and Parker F. Pratt University of California, Riverside, Cl. August, 1961."</p>									



## Quality Control Report

Workorder: L1470810

Report Date: 26-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTXS,F1-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868051</b>							
<b>WG1894521-4</b>	<b>DUP</b>	<b>L1470810-5</b>						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	20-JUN-14
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	20-JUN-14
EthylBenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	20-JUN-14
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	20-JUN-14
m+p-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	20-JUN-14
Styrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	20-JUN-14
F1(C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	20-JUN-14
<b>WG1894521-2</b>	<b>LCS</b>							
Benzene			114.6		%		70-130	20-JUN-14
Toluene			111.5		%		70-130	20-JUN-14
EthylBenzene			116.7		%		70-130	20-JUN-14
o-Xylene			116.5		%		70-130	20-JUN-14
m+p-Xylene			110.9		%		70-130	20-JUN-14
Styrene			109.2		%		70-130	20-JUN-14
<b>WG1894521-3</b>	<b>LCS</b>							
F1(C6-C10)			95.0		%		70-130	20-JUN-14
<b>WG1894521-6</b>	<b>LCS</b>							
Benzene			90.0		%		70-130	20-JUN-14
Toluene			93.6		%		70-130	20-JUN-14
EthylBenzene			93.1		%		70-130	20-JUN-14
o-Xylene			94.7		%		70-130	20-JUN-14
m+p-Xylene			88.8		%		70-130	20-JUN-14
Styrene			89.6		%		70-130	20-JUN-14
<b>WG1894521-7</b>	<b>LCS</b>							
F1(C6-C10)			101.0		%		70-130	20-JUN-14
<b>WG1894521-1</b>	<b>MB</b>							
Benzene			<0.00050		mg/L		0.0005	20-JUN-14
Toluene			<0.00050		mg/L		0.0005	20-JUN-14
EthylBenzene			<0.00050		mg/L		0.0005	20-JUN-14
o-Xylene			<0.00050		mg/L		0.0005	20-JUN-14
m+p-Xylene			<0.00050		mg/L		0.0005	20-JUN-14
Styrene			<0.0010		mg/L		0.001	20-JUN-14
F1(C6-C10)			<0.10		mg/L		0.1	20-JUN-14
Surrogate: 1,4-Difluorobenzene (SS)			99.6		%		70-130	20-JUN-14



## Quality Control Report

Workorder: L1470810

Report Date: 26-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTXS,F1-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2868051</b>							
<b>WG1894521-1</b>	<b>MB</b>							
Surrogate: 4-Bromofluorobenzene (SS)			93.4		%		70-130	20-JUN-14
Surrogate: 3,4-Dichlorotoluene (SS)			99.7		%		70-130	20-JUN-14
<b>WG1894521-5</b>	<b>MB</b>							
Benzene			<0.00050		mg/L		0.0005	20-JUN-14
Toluene			<0.00050		mg/L		0.0005	20-JUN-14
EthylBenzene			<0.00050		mg/L		0.0005	20-JUN-14
o-Xylene			<0.00050		mg/L		0.0005	20-JUN-14
m+p-Xylene			<0.00050		mg/L		0.0005	20-JUN-14
Styrene			<0.0010		mg/L		0.001	20-JUN-14
F1(C6-C10)			<0.10		mg/L		0.1	20-JUN-14
Surrogate: 1,4-Difluorobenzene (SS)			98.9		%		70-130	20-JUN-14
Surrogate: 4-Bromofluorobenzene (SS)			92.0		%		70-130	20-JUN-14
Surrogate: 3,4-Dichlorotoluene (SS)			103.7		%		70-130	20-JUN-14
<b>C-DIS-ORG-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2872454</b>							
<b>WG1898370-3</b>	<b>CVS</b>							
Dissolved Organic Carbon			99.6		%		80-160	25-JUN-14
<b>WG1898370-6</b>	<b>DUP</b>	<b>L1470927-5</b>						
Dissolved Organic Carbon		<1.0	<1.0	RPD-NA	mg/L	N/A	20	25-JUN-14
<b>WG1898370-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			101.3		%		80-120	24-JUN-14
<b>WG1898370-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<1.0		mg/L		1	24-JUN-14
<b>Batch</b>	<b>R2872844</b>							
<b>WG1899140-3</b>	<b>CVS</b>							
Dissolved Organic Carbon			130.0		%		80-160	25-JUN-14
<b>WG1899140-5</b>	<b>DUP</b>	<b>L1471179-14</b>						
Dissolved Organic Carbon		9.2	9.4		mg/L	1.9	20	25-JUN-14
<b>WG1899140-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			105.4		%		80-120	25-JUN-14
<b>WG1899140-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<1.0		mg/L		1	25-JUN-14

**CL-IC-ED** **Water**



### Quality Control Report

Workorder: L1470810

Report Date: 26-JUN-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>CL-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-3</b>	<b>DUP</b>	<b>L1470810-11</b>						
Chloride (Cl)		0.82	0.67	J	mg/L	0.15	1	16-JUN-14
<b>WG1892832-5</b>	<b>DUP</b>	<b>L1469940-12</b>						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	16-JUN-14
<b>WG1892832-11</b>	<b>LCS</b>							
Chloride (Cl)			103.5		%		90-110	16-JUN-14
<b>WG1892832-13</b>	<b>LCS</b>							
Chloride (Cl)			102.1		%		90-110	16-JUN-14
<b>WG1892832-15</b>	<b>LCS</b>							
Chloride (Cl)			103.8		%		90-110	16-JUN-14
<b>WG1892832-2</b>	<b>LCS</b>							
Chloride (Cl)			101.4		%		90-110	16-JUN-14
<b>WG1892832-7</b>	<b>LCS</b>							
Chloride (Cl)			102.3		%		90-110	16-JUN-14
<b>WG1892832-9</b>	<b>LCS</b>							
Chloride (Cl)			102.4		%		90-110	16-JUN-14
<b>WG1892832-1</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-10</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-12</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-14</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-16</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-8</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-4</b>	<b>MS</b>	<b>L1470810-11</b>						
Chloride (Cl)			104.3		%		75-125	16-JUN-14
<b>WG1892832-6</b>	<b>MS</b>	<b>L1469940-12</b>						
Chloride (Cl)			105.2		%		75-125	16-JUN-14
<b>F-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-3</b>	<b>DUP</b>	<b>L1470810-11</b>						
Fluoride (F)		0.104	0.098		mg/L	6.5	20	16-JUN-14
<b>WG1892832-11</b>	<b>LCS</b>							
Fluoride (F)			103.5		%		90-110	16-JUN-14



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-13</b>	<b>LCS</b>							
Fluoride (F)			101.7		%		90-110	16-JUN-14
<b>WG1892832-15</b>	<b>LCS</b>							
Fluoride (F)			99.4		%		90-110	16-JUN-14
<b>WG1892832-2</b>	<b>LCS</b>							
Fluoride (F)			99.6		%		90-110	16-JUN-14
<b>WG1892832-7</b>	<b>LCS</b>							
Fluoride (F)			100.3		%		90-110	16-JUN-14
<b>WG1892832-9</b>	<b>LCS</b>							
Fluoride (F)			99.8		%		90-110	16-JUN-14
<b>WG1892832-1</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-10</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-12</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-14</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-16</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-8</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-4</b>	<b>MS</b>	<b>L1470810-11</b>						
Fluoride (F)			94.0		%		75-125	16-JUN-14
<b>F2-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868411</b>							
<b>WG1893232-2</b>	<b>LCS</b>							
F2 (C10-C16)			90.7		%		65-135	18-JUN-14
<b>WG1893232-5</b>	<b>LCS</b>							
F2 (C10-C16)			94.8		%		65-135	18-JUN-14
<b>WG1893232-1</b>	<b>MB</b>							
F2 (C10-C16)			<0.25		mg/L		0.25	18-JUN-14
Surrogate: 2-Bromobenzotrifluoride			98.0		%		65-135	18-JUN-14
<b>WG1893232-4</b>	<b>MB</b>							
F2 (C10-C16)			<0.25		mg/L		0.25	18-JUN-14
Surrogate: 2-Bromobenzotrifluoride			99.6		%		65-135	18-JUN-14
<b>WG1893232-3</b>	<b>MS</b>	<b>L1470810-3</b>						
F2 (C10-C16)			96.8		%		50-150	18-JUN-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868411</b>							
<b>WG1893232-6</b>	<b>MS</b>	<b>L1471667-14</b>						
F2 (C10-C16)			99.3		%		50-150	18-JUN-14
<b>HG-D-L-CVAA-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870708</b>							
<b>WG1896939-11</b>	<b>DUP</b>	<b>L1470749-1</b>						
Mercury (Hg)-Dissolved		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-15</b>	<b>DUP</b>	<b>L1470810-1</b>						
Mercury (Hg)-Dissolved		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-3</b>	<b>DUP</b>	<b>L1466505-1</b>						
Mercury (Hg)-Dissolved		N/A	<0.0000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Mercury (Hg)-Dissolved		N/A	<0.0000050	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-7</b>	<b>DUP</b>	<b>L1469314-1</b>						
Mercury (Hg)-Dissolved		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896939-10</b>	<b>LCS</b>							
Mercury (Hg)-Dissolved			92.2		%		80-120	22-JUN-14
<b>WG1896939-14</b>	<b>LCS</b>							
Mercury (Hg)-Dissolved			88.4		%		80-120	22-JUN-14
<b>WG1896939-2</b>	<b>LCS</b>							
Mercury (Hg)-Dissolved			89.9		%		80-120	22-JUN-14
<b>WG1896939-6</b>	<b>LCS</b>							
Mercury (Hg)-Dissolved			85.6		%		80-120	22-JUN-14
<b>WG1896939-1</b>	<b>MB</b>							
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	22-JUN-14
<b>WG1896939-5</b>	<b>MB</b>							
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	22-JUN-14
<b>WG1896939-9</b>	<b>MB</b>							
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	22-JUN-14
<b>WG1896939-12</b>	<b>MS</b>	<b>L1470749-1</b>						
Mercury (Hg)-Dissolved			83.0		%		70-130	22-JUN-14
<b>WG1896939-16</b>	<b>MS</b>	<b>L1470810-1</b>						
Mercury (Hg)-Dissolved			83.6		%		70-130	22-JUN-14
<b>WG1896939-4</b>	<b>MS</b>	<b>L1466505-1</b>						
Mercury (Hg)-Dissolved			86.2		%		70-130	22-JUN-14
<b>WG1896939-8</b>	<b>MS</b>	<b>L1469314-1</b>						
Mercury (Hg)-Dissolved			81.0		%		70-130	22-JUN-14
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-11 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			105.0		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			102.5		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			103.2		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			102.7		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.7		%		80-120	22-JUN-14
Boron (B)-Dissolved			95.6		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			99.2		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			95.0		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			104.5		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			103.0		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			103.4		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			102.9		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			107.4		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			105.4		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			94.3		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			106.1		%		80-120	22-JUN-14
Potassium (K)-Dissolved			112.3		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.8		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			103.9		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			100.4		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			101.1		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			101.7		%		80-120	22-JUN-14
Uranium (U)-Dissolved			103.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			106.2		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			102.0		%		80-120	22-JUN-14
<b>WG1896861-14 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			104.7		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			101.7		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			101.2		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			102.9		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			92.2		%		80-120	22-JUN-14
Boron (B)-Dissolved			94.1		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			100.0		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			93.2		%		80-120	22-JUN-14





Environmental

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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-14 CRM</b>	<b>ED-HIGH-WATRM</b>							
Chromium (Cr)-Dissolved			101.5		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			100.8		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			100.3		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			101.7		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			107.1		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			103.8		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.9		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			104.1		%		80-120	22-JUN-14
Potassium (K)-Dissolved			109.4		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.0		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			102.4		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			99.6		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			96.7		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			104.3		%		80-120	22-JUN-14
Uranium (U)-Dissolved			101.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			103.9		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			101.7		%		80-120	22-JUN-14
<b>WG1896861-17 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			105.4		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			102.3		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			102.6		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			104.4		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.1		%		80-120	22-JUN-14
Boron (B)-Dissolved			94.7		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			100.6		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			93.0		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			102.9		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			101.5		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			102.1		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			102.5		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			104.9		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			104.7		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.0		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			105.0		%		80-120	22-JUN-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-17 CRM</b>	<b>ED-HIGH-WATRM</b>							
Potassium (K)-Dissolved			110.8		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.2		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			105.3		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			100.1		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			100.4		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			106.3		%		80-120	22-JUN-14
Uranium (U)-Dissolved			102.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			106.0		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			101.3		%		80-120	22-JUN-14
<b>WG1896861-2 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			104.5		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			100.6		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			104.8		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			105.2		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.8		%		80-120	22-JUN-14
Boron (B)-Dissolved			112.8		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			101.5		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			102.1		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			104.4		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			103.5		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			104.3		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			102.2		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			110.3		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			107.5		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			102.5		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			104.0		%		80-120	22-JUN-14
Potassium (K)-Dissolved			110.1		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			103.6		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			103.5		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			104.7		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			98.9		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			100.3		%		80-120	22-JUN-14
Uranium (U)-Dissolved			99.8		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			106.7		%		80-120	22-JUN-14



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-2 CRM</b>	<b>ED-HIGH-WATRM</b>							
Zinc (Zn)-Dissolved			101.9		%		80-120	22-JUN-14
<b>WG1896861-20 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			98.0		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			105.2		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.1		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			108.6		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			89.5		%		80-120	22-JUN-14
Boron (B)-Dissolved			81.2		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			93.3		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			97.0		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			97.4		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			100.9		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			99.3		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			98.7		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			98.7		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			113.1		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.9		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			100.2		%		80-120	22-JUN-14
Potassium (K)-Dissolved			103.8		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			101.6		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			102.1		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			104.2		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			101.8		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			97.2		%		80-120	22-JUN-14
Uranium (U)-Dissolved			109.0		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			101.5		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			99.4		%		80-120	22-JUN-14
<b>WG1896861-23 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			100.2		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			100.0		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.1		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			106.8		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			88.4		%		80-120	22-JUN-14
Boron (B)-Dissolved			80.9		%		80-120	22-JUN-14



### Quality Control Report

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-23 CRM</b>	<b>ED-HIGH-WATRM</b>							
Cadmium (Cd)-Dissolved			92.5		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			91.6		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			96.7		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			99.4		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			98.4		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			95.3		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			99.9		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			109.9		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			91.3		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			101.8		%		80-120	22-JUN-14
Potassium (K)-Dissolved			111.0		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			100.8		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			99.4		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			104.9		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			96.2		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			109.9		%		80-120	22-JUN-14
Uranium (U)-Dissolved			99.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			102.4		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			99.8		%		80-120	22-JUN-14
<b>WG1896861-26 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			100.9		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			100.5		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.7		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			110.2		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			94.1		%		80-120	22-JUN-14
Boron (B)-Dissolved			86.1		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			92.1		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			96.6		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			99.4		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			99.9		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			98.6		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			97.0		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			98.0		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			104.8		%		80-120	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-26 CRM</b>	<b>ED-HIGH-WATRM</b>							
Molybdenum (Mo)-Dissolved			96.1		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			102.4		%		80-120	22-JUN-14
Potassium (K)-Dissolved			105.7		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			101.5		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			99.7		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			105.8		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			100.4		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			105.0		%		80-120	22-JUN-14
Uranium (U)-Dissolved			97.1		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			102.8		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			100.0		%		80-120	22-JUN-14
<b>WG1896861-4 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			100.6		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			99.4		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			98.3		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			99.0		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			93.8		%		80-120	22-JUN-14
Boron (B)-Dissolved			93.7		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			97.9		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			93.7		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			99.8		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			98.9		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			99.4		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			99.4		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			100.9		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			100.0		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			93.0		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			101.3		%		80-120	22-JUN-14
Potassium (K)-Dissolved			104.3		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			97.4		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			100.0		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			95.8		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			96.2		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			97.3		%		80-120	22-JUN-14



## Quality Control Report

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-4 CRM</b>		<b>ED-HIGH-WATRM</b>						
Uranium (U)-Dissolved			99.7		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			100.9		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			97.5		%		80-120	22-JUN-14
<b>WG1896861-6 CRM</b>		<b>ED-HIGH-WATRM</b>						
Aluminum (Al)-Dissolved			99.5		%		80-120	22-JUN-14
Antimony (Sb)-Dissolved			97.4		%		80-120	22-JUN-14
Arsenic (As)-Dissolved			96.9		%		80-120	22-JUN-14
Barium (Ba)-Dissolved			97.2		%		80-120	22-JUN-14
Beryllium (Be)-Dissolved			91.4		%		80-120	22-JUN-14
Boron (B)-Dissolved			93.3		%		80-120	22-JUN-14
Cadmium (Cd)-Dissolved			92.8		%		80-120	22-JUN-14
Calcium (Ca)-Dissolved			92.1		%		80-120	22-JUN-14
Chromium (Cr)-Dissolved			97.2		%		80-120	22-JUN-14
Cobalt (Co)-Dissolved			97.0		%		80-120	22-JUN-14
Copper (Cu)-Dissolved			96.1		%		80-120	22-JUN-14
Lead (Pb)-Dissolved			95.8		%		80-120	22-JUN-14
Magnesium (Mg)-Dissolved			100.0		%		80-120	22-JUN-14
Manganese (Mn)-Dissolved			98.6		%		80-120	22-JUN-14
Molybdenum (Mo)-Dissolved			92.9		%		80-120	22-JUN-14
Nickel (Ni)-Dissolved			99.1		%		80-120	22-JUN-14
Potassium (K)-Dissolved			105.5		%		80-120	22-JUN-14
Selenium (Se)-Dissolved			94.2		%		80-120	22-JUN-14
Silver (Ag)-Dissolved			98.2		%		80-120	22-JUN-14
Sodium (Na)-Dissolved			93.4		%		80-120	22-JUN-14
Thallium (Tl)-Dissolved			95.7		%		80-120	22-JUN-14
Titanium (Ti)-Dissolved			97.6		%		80-120	22-JUN-14
Uranium (U)-Dissolved			94.4		%		80-120	22-JUN-14
Vanadium (V)-Dissolved			99.3		%		80-120	22-JUN-14
Zinc (Zn)-Dissolved			95.9		%		80-120	22-JUN-14
<b>WG1896861-12 DUP</b>		<b>L1470943-2</b>						
Aluminum (Al)-Dissolved		0.0055	0.0058		mg/L	5.2	20	22-JUN-14
Antimony (Sb)-Dissolved		0.00031	0.00032		mg/L	1.4	20	22-JUN-14
Arsenic (As)-Dissolved		0.00095	0.00095		mg/L	0.4	20	22-JUN-14
Barium (Ba)-Dissolved		0.628	0.632		mg/L	0.8	20	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-12</b>	<b>DUP</b>	<b>L1470943-2</b>						
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.213	0.204		mg/L	4.3	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.000080	0.000079		mg/L	1.0	20	22-JUN-14
Calcium (Ca)-Dissolved		165	166		mg/L	0.2	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		0.00244	0.00244		mg/L	0.0	20	22-JUN-14
Copper (Cu)-Dissolved		0.00106	0.00109		mg/L	3.0	20	22-JUN-14
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		36.7	36.3		mg/L	1.2	20	22-JUN-14
Manganese (Mn)-Dissolved		1.33	1.33		mg/L	0.0	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000314	0.000314		mg/L	0.2	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00532	0.00540		mg/L	1.3	20	22-JUN-14
Potassium (K)-Dissolved		1.60	1.58		mg/L	0.8	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		34.0	33.8		mg/L	0.6	20	22-JUN-14
Thallium (Tl)-Dissolved		0.000030	0.000030		mg/L	0.2	20	22-JUN-14
Titanium (Ti)-Dissolved		0.00067	0.00057		mg/L	16	20	22-JUN-14
Uranium (U)-Dissolved		0.00191	0.00189		mg/L	1.3	20	22-JUN-14
Vanadium (V)-Dissolved		0.00114	0.00127		mg/L	10	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0019	0.0018		mg/L	6.3	20	22-JUN-14
<b>WG1896861-15</b>	<b>DUP</b>	<b>L1470932-2</b>						
Aluminum (Al)-Dissolved		0.0029	0.0026		mg/L	9.4	20	22-JUN-14
Antimony (Sb)-Dissolved		0.00031	0.00029		mg/L	5.4	20	22-JUN-14
Arsenic (As)-Dissolved		0.00014	0.00015		mg/L	6.8	20	22-JUN-14
Barium (Ba)-Dissolved		0.215	0.222		mg/L	3.1	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.015	0.015		mg/L	0.6	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		78.6	79.4		mg/L	1.0	20	22-JUN-14
Chromium (Cr)-Dissolved		0.00014	0.00015		mg/L	2.3	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-15</b>	<b>DUP</b>	<b>L1470932-2</b>						
Copper (Cu)-Dissolved		0.00049	0.00047		mg/L	3.6	20	22-JUN-14
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		16.4	16.6		mg/L	1.1	20	22-JUN-14
Manganese (Mn)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000149	0.000149		mg/L	0.1	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00061	0.00062		mg/L	1.7	20	22-JUN-14
Potassium (K)-Dissolved		1.24	1.25		mg/L	0.4	20	22-JUN-14
Selenium (Se)-Dissolved		0.00034	0.00035		mg/L	2.6	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		4.2	4.2		mg/L	0.9	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00210	0.00208		mg/L	0.7	20	22-JUN-14
Vanadium (V)-Dissolved		0.00025	0.00024		mg/L	5.1	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0016	0.0014		mg/L	8.5	20	22-JUN-14
<b>WG1896861-18</b>	<b>DUP</b>	<b>L1470946-5</b>						
Aluminum (Al)-Dissolved		0.0037	0.0039		mg/L	5.0	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		0.00038	0.00036		mg/L	5.1	20	22-JUN-14
Barium (Ba)-Dissolved		0.546	0.541		mg/L	0.8	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.022	0.022		mg/L	3.5	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.000038	0.000039		mg/L	3.1	20	22-JUN-14
Calcium (Ca)-Dissolved		128	128		mg/L	0.4	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.00010	0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		0.00111	0.00109		mg/L	1.2	20	22-JUN-14
Iron (Fe)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		30.0	29.6		mg/L	1.5	20	22-JUN-14
Manganese (Mn)-Dissolved		0.0432	0.0424		mg/L	1.9	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000359	0.000348		mg/L	3.3	20	22-JUN-14





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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-18</b>	<b>DUP</b>	<b>L1470946-5</b>						
Nickel (Ni)-Dissolved		0.00281	0.00290		mg/L	3.2	20	22-JUN-14
Potassium (K)-Dissolved		1.52	1.51		mg/L	0.8	20	22-JUN-14
Selenium (Se)-Dissolved		0.00013	0.00015		mg/L	17	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		24.2	24.3		mg/L	0.5	20	22-JUN-14
Thallium (Tl)-Dissolved		0.000026	0.000026		mg/L	2.2	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00438	0.00445		mg/L	1.6	20	22-JUN-14
Vanadium (V)-Dissolved		0.00028	0.00031		mg/L	9.7	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0012	0.0012		mg/L	4.8	20	22-JUN-14
<b>WG1896861-21</b>	<b>DUP</b>	<b>L1470617-1</b>						
Aluminum (Al)-Dissolved		0.0016	0.0017		mg/L	4.6	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		0.00019	0.00017		mg/L	10	20	22-JUN-14
Barium (Ba)-Dissolved		0.157	0.154		mg/L	1.5	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.227	0.241		mg/L	5.7	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		69.1	68.1		mg/L	1.4	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Iron (Fe)-Dissolved		4.79	4.79		mg/L	0.0	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		10.3	10.2		mg/L	0.8	20	22-JUN-14
Manganese (Mn)-Dissolved		0.309	0.313		mg/L	1.3	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000217	0.000215		mg/L	1.0	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00025	0.00024		mg/L	1.9	20	22-JUN-14
Potassium (K)-Dissolved		2.75	2.70		mg/L	1.9	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		126	126		mg/L	0.0	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14



### Quality Control Report

Workorder: L1470810

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-21</b>	<b>DUP</b>	<b>L1470617-1</b>						
Titanium (Ti)-Dissolved		0.00034	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.000047	0.000046		mg/L	4.0	20	22-JUN-14
Vanadium (V)-Dissolved		0.00057	0.00057		mg/L	0.8	20	22-JUN-14
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896861-27</b>	<b>DUP</b>	<b>L1470924-5</b>						
Aluminum (Al)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Barium (Ba)-Dissolved		0.0202	0.0190		mg/L	6.2	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.11	0.11		mg/L	2.5	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.00011	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		443	451		mg/L	1.7	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		0.0023	0.0022		mg/L	5.2	20	22-JUN-14
Iron (Fe)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	22-JUN-14
Lead (Pb)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		498	490		mg/L	1.5	20	22-JUN-14
Manganese (Mn)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.00270	0.00246		mg/L	9.3	20	22-JUN-14
Nickel (Ni)-Dissolved		0.0045	0.0041		mg/L	10	20	22-JUN-14
Potassium (K)-Dissolved		5.27	5.17		mg/L	1.9	20	22-JUN-14
Selenium (Se)-Dissolved		0.0093	0.0088		mg/L	5.5	20	22-JUN-14
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		245	238		mg/L	3.1	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.0768	0.0739		mg/L	3.9	20	22-JUN-14
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Zinc (Zn)-Dissolved		0.013	<0.010	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896861-7</b>	<b>DUP</b>	<b>L1469662-13</b>						
Aluminum (Al)-Dissolved		0.0052	0.0057		mg/L	10	20	22-JUN-14



## Quality Control Report

Workorder: L1470810

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-7</b>	<b>DUP</b>	<b>L1469662-13</b>						
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		0.00430	0.00429		mg/L	0.3	20	22-JUN-14
Barium (Ba)-Dissolved		0.301	0.315		mg/L	4.5	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.023	0.019		mg/L	17	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	0.000014	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		138	138		mg/L	0.0	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		0.00218	0.00219		mg/L	0.4	20	22-JUN-14
Copper (Cu)-Dissolved		0.00042	0.00060	J	mg/L	0.00018	0.0002	22-JUN-14
Iron (Fe)-Dissolved		32.3	32.5		mg/L	0.6	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		26.9	26.9		mg/L	0.0	20	22-JUN-14
Manganese (Mn)-Dissolved		2.21	2.23		mg/L	1.0	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.00163	0.00157		mg/L	4.0	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00580	0.00567		mg/L	2.2	20	22-JUN-14
Potassium (K)-Dissolved		1.39	1.40		mg/L	0.7	20	22-JUN-14
Selenium (Se)-Dissolved		0.00015	0.00016		mg/L	6.0	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		21.5	21.5		mg/L	0.2	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		0.00034	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00149	0.00148		mg/L	0.8	20	22-JUN-14
Vanadium (V)-Dissolved		0.00029	0.00029		mg/L	0.8	20	22-JUN-14
<b>WG1896861-8</b>	<b>DUP</b>	<b>L1469662-5</b>						
Aluminum (Al)-Dissolved		0.0015	0.0015		mg/L	0.3	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		0.00036	0.00034		mg/L	5.2	20	22-JUN-14
Barium (Ba)-Dissolved		0.361	0.363		mg/L	0.6	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		0.024	0.024		mg/L	2.5	20	22-JUN-14
Cadmium (Cd)-Dissolved		0.000129	0.000127		mg/L	1.2	20	22-JUN-14
Calcium (Ca)-Dissolved		117	121		mg/L	3.7	20	22-JUN-14



### Quality Control Report

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-8</b>	<b>DUP</b>	<b>L1469662-5</b>						
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		0.00609	0.00617		mg/L	1.2	20	22-JUN-14
Copper (Cu)-Dissolved		0.00111	0.00107		mg/L	3.4	20	22-JUN-14
Iron (Fe)-Dissolved		1.03	1.02		mg/L	0.9	20	22-JUN-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		28.1	28.0		mg/L	0.2	20	22-JUN-14
Manganese (Mn)-Dissolved		3.16	3.24		mg/L	2.4	20	22-JUN-14
Molybdenum (Mo)-Dissolved		0.000295	0.000319		mg/L	7.9	20	22-JUN-14
Nickel (Ni)-Dissolved		0.00851	0.00854		mg/L	0.3	20	22-JUN-14
Potassium (K)-Dissolved		2.06	2.06		mg/L	0.2	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		19.6	19.3		mg/L	1.5	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		0.00127	0.00123		mg/L	3.1	20	22-JUN-14
Vanadium (V)-Dissolved		0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0048	0.0049		mg/L	3.4	20	22-JUN-14
<b>WG1896861-9</b>	<b>DUP</b>	<b>L1466505-2</b>						
Aluminum (Al)-Dissolved		0.0133	0.0127		mg/L	4.5	20	22-JUN-14
Antimony (Sb)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	22-JUN-14
Arsenic (As)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	22-JUN-14
Barium (Ba)-Dissolved		0.0421	0.0428		mg/L	1.6	20	22-JUN-14
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Boron (B)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	22-JUN-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUN-14
Calcium (Ca)-Dissolved		7.85	7.88		mg/L	0.4	20	22-JUN-14
Chromium (Cr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Cobalt (Co)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-JUN-14
Copper (Cu)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Iron (Fe)-Dissolved		0.291	0.289		mg/L	0.8	20	22-JUN-14
Lead (Pb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Magnesium (Mg)-Dissolved		2.62	2.62		mg/L	0.2	20	22-JUN-14



## Quality Control Report

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-9</b>	<b>DUP</b>	<b>L1466505-2</b>						
Manganese (Mn)-Dissolved		0.0266	0.0264		mg/L	0.9	20	22-JUN-14
Molybdenum (Mo)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-JUN-14
Nickel (Ni)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-JUN-14
Potassium (K)-Dissolved		0.74	0.74		mg/L	0.7	20	22-JUN-14
Selenium (Se)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	22-JUN-14
Silver (Ag)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	22-JUN-14
Sodium (Na)-Dissolved		2.7	2.6		mg/L	3.0	20	22-JUN-14
Thallium (Tl)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Titanium (Ti)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Uranium (U)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUN-14
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUN-14
Zinc (Zn)-Dissolved		0.0041	<0.0040	RPD-NA	mg/L	N/A	20	22-JUN-14
<b>WG1896861-1</b>	<b>MB</b>							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14



### Quality Control Report

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-1 MB</b>								
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-10 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-13 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14



### Quality Control Report

Workorder: L1470810

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-13 MB</b>								
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Beryllium (Be)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	22-JUN-14
	Chromium (Cr)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Cobalt (Co)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Copper (Cu)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Iron (Fe)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Lead (Pb)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Magnesium (Mg)-Dissolved		<0.0050		mg/L		0.005	22-JUN-14
	Manganese (Mn)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Molybdenum (Mo)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Nickel (Ni)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Potassium (K)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Selenium (Se)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Silver (Ag)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Sodium (Na)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Thallium (Tl)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	22-JUN-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-16 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Beryllium (Be)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-16 MB</b>								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-19 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14





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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-19 MB</b>								
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-22 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14



### Quality Control Report

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-22 MB</b>								
	Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	22-JUN-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-25 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Beryllium (Be)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	22-JUN-14
	Chromium (Cr)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Cobalt (Co)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Copper (Cu)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Iron (Fe)-Dissolved		<0.010		mg/L		0.01	22-JUN-14
	Lead (Pb)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Magnesium (Mg)-Dissolved		<0.0050		mg/L		0.005	22-JUN-14
	Manganese (Mn)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Molybdenum (Mo)-Dissolved		<0.000050		mg/L		0.00005	22-JUN-14
	Nickel (Ni)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Potassium (K)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Selenium (Se)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Silver (Ag)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Sodium (Na)-Dissolved		<0.050		mg/L		0.05	22-JUN-14
	Thallium (Tl)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	22-JUN-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	22-JUN-14
	Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-3 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	22-JUN-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-3</b>	<b>MB</b>							
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>WG1896861-5</b>	<b>MB</b>							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUN-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail Terrace Plaza  
EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870239</b>							
<b>WG1896861-5</b>	<b>MB</b>							
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUN-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUN-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUN-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUN-14
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUN-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUN-14
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUN-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUN-14
<b>NH3-D-CFA-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2870753</b>							
<b>WG1897042-4</b>	<b>DUP</b>	<b>L1470810-1</b>						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	23-JUN-14
<b>NO2-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-3</b>	<b>DUP</b>	<b>L1470810-11</b>						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	16-JUN-14
<b>WG1892832-5</b>	<b>DUP</b>	<b>L1469940-12</b>						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	16-JUN-14
<b>WG1892832-11</b>	<b>LCS</b>							
Nitrite (as N)			96.1		%		90-110	16-JUN-14
<b>WG1892832-13</b>	<b>LCS</b>							
Nitrite (as N)			93.1		%		90-110	16-JUN-14
<b>WG1892832-15</b>	<b>LCS</b>							
Nitrite (as N)			96.2		%		90-110	16-JUN-14
<b>WG1892832-2</b>	<b>LCS</b>							



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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NO2-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-2</b>	<b>LCS</b>							
Nitrite (as N)			98.8		%		90-110	16-JUN-14
<b>WG1892832-7</b>	<b>LCS</b>							
Nitrite (as N)			94.2		%		90-110	16-JUN-14
<b>WG1892832-9</b>	<b>LCS</b>							
Nitrite (as N)			93.6		%		90-110	16-JUN-14
<b>WG1892832-1</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-10</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-12</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-14</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-16</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-8</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	16-JUN-14
<b>WG1892832-6</b>	<b>MS</b>	<b>L1469940-12</b>						
Nitrite (as N)			107.3		%		75-125	16-JUN-14
<b>NO3-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-3</b>	<b>DUP</b>	<b>L1470810-11</b>						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	16-JUN-14
<b>WG1892832-5</b>	<b>DUP</b>	<b>L1469940-12</b>						
Nitrate (as N)		0.080	0.065	J	mg/L	0.016	0.1	16-JUN-14
<b>WG1892832-11</b>	<b>LCS</b>							
Nitrate (as N)			99.5		%		90-110	16-JUN-14
<b>WG1892832-13</b>	<b>LCS</b>							
Nitrate (as N)			98.6		%		90-110	16-JUN-14
<b>WG1892832-15</b>	<b>LCS</b>							
Nitrate (as N)			98.8		%		90-110	16-JUN-14
<b>WG1892832-2</b>	<b>LCS</b>							
Nitrate (as N)			97.6		%		90-110	16-JUN-14
<b>WG1892832-7</b>	<b>LCS</b>							
Nitrate (as N)			98.0		%		90-110	16-JUN-14
<b>WG1892832-9</b>	<b>LCS</b>							
Nitrate (as N)			99.3		%		90-110	16-JUN-14



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Client: WorleyParsons Canada  
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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NO3-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-1 MB</b>								
Nitrate (as N)			<0.050		mg/L		0.05	16-JUN-14
<b>WG1892832-10 MB</b>								
Nitrate (as N)			<0.050		mg/L		0.05	16-JUN-14
<b>WG1892832-12 MB</b>								
Nitrate (as N)			<0.050		mg/L		0.05	16-JUN-14
<b>WG1892832-14 MB</b>								
Nitrate (as N)			<0.050		mg/L		0.05	16-JUN-14
<b>WG1892832-16 MB</b>								
Nitrate (as N)			<0.050		mg/L		0.05	16-JUN-14
<b>WG1892832-8 MB</b>								
Nitrate (as N)			<0.050		mg/L		0.05	16-JUN-14
<b>WG1892832-4 MS</b>		<b>L1470810-11</b>						
Nitrate (as N)			94.8		%		75-125	16-JUN-14
<b>WG1892832-6 MS</b>		<b>L1469940-12</b>						
Nitrate (as N)			96.1		%		75-125	16-JUN-14
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2867343</b>							
<b>WG1893828-10 DUP</b>		<b>L1470932-3</b>						
pH		7.91	7.96	J	pH	0.05	0.3	19-JUN-14
Conductivity (EC)		820	857		uS/cm	4.3	10	19-JUN-14
Bicarbonate (HCO3)		483	517		mg/L	6.9	25	19-JUN-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	19-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	19-JUN-14
Alkalinity, Total (as CaCO3)		396	424		mg/L	6.9	20	19-JUN-14
<b>WG1893828-11 DUP</b>		<b>L1471959-24</b>						
pH		6.11	6.12	J	pH	0.01	0.3	19-JUN-14
Conductivity (EC)		4400	4400		uS/cm	0.0	10	19-JUN-14
Bicarbonate (HCO3)		152	154		mg/L	1.7	25	19-JUN-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	19-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	19-JUN-14
Alkalinity, Total (as CaCO3)		124	127		mg/L	1.7	20	19-JUN-14
<b>WG1893828-6 DUP</b>		<b>L1470367-13</b>						
pH		8.31	8.32	J	pH	0.00	0.3	18-JUN-14
Conductivity (EC)		572	575		uS/cm	0.5	10	18-JUN-14
Bicarbonate (HCO3)		270	272		mg/L	0.8	25	18-JUN-14



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2867343</b>							
<b>WG1893828-6</b>	<b>DUP</b>	<b>L1470367-13</b>						
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Alkalinity, Total (as CaCO3)		224	225		mg/L	0.8	20	18-JUN-14
<b>WG1893828-7</b>	<b>DUP</b>	<b>L1470810-11</b>						
pH		8.04	8.05	J	pH	0.00	0.3	18-JUN-14
Conductivity (EC)		1140	1120		uS/cm	1.8	10	18-JUN-14
Bicarbonate (HCO3)		543	526		mg/L	3.1	25	18-JUN-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Alkalinity, Total (as CaCO3)		445	431		mg/L	3.1	20	18-JUN-14
<b>WG1893828-8</b>	<b>DUP</b>	<b>L1470978-3</b>						
pH		8.05	7.99	J	pH	0.06	0.3	18-JUN-14
Conductivity (EC)		1860	1880		uS/cm	1.1	10	18-JUN-14
Bicarbonate (HCO3)		463	459		mg/L	0.9	25	18-JUN-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Alkalinity, Total (as CaCO3)		379	376		mg/L	0.9	20	18-JUN-14
<b>WG1893828-9</b>	<b>DUP</b>	<b>L1470946-11</b>						
pH		7.85	7.91	J	pH	0.06	0.3	18-JUN-14
Conductivity (EC)		1080	1070		uS/cm	0.6	10	18-JUN-14
Bicarbonate (HCO3)		802	800		mg/L	0.3	25	18-JUN-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	18-JUN-14
Alkalinity, Total (as CaCO3)		658	656		mg/L	0.3	20	18-JUN-14
<b>WG1893828-13</b>	<b>LCS</b>							
Conductivity (EC)			98.6		%		90-110	18-JUN-14
<b>WG1893828-14</b>	<b>LCS</b>							
pH			6.98		pH		6.7-7.3	18-JUN-14
<b>WG1893828-15</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			101.7		%		85-115	18-JUN-14
<b>WG1893828-16</b>	<b>LCS</b>							
Conductivity (EC)			93.9		%		90-110	18-JUN-14
<b>WG1893828-18</b>	<b>LCS</b>							
Conductivity (EC)			98.1		%		90-110	18-JUN-14
<b>WG1893828-19</b>	<b>LCS</b>							



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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2867343</b>							
<b>WG1893828-19</b>	<b>LCS</b>							
pH			6.99		pH		6.7-7.3	18-JUN-14
<b>WG1893828-2</b>	<b>LCS</b>							
Conductivity (EC)			99.1		%		90-110	18-JUN-14
<b>WG1893828-20</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			103.2		%		85-115	18-JUN-14
<b>WG1893828-21</b>	<b>LCS</b>							
Conductivity (EC)			93.3		%		90-110	18-JUN-14
<b>WG1893828-23</b>	<b>LCS</b>							
Conductivity (EC)			99.7		%		90-110	18-JUN-14
<b>WG1893828-24</b>	<b>LCS</b>							
pH			6.98		pH		6.7-7.3	18-JUN-14
<b>WG1893828-25</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			103.6		%		85-115	18-JUN-14
<b>WG1893828-26</b>	<b>LCS</b>							
Conductivity (EC)			92.9		%		90-110	18-JUN-14
<b>WG1893828-28</b>	<b>LCS</b>							
Conductivity (EC)			99.2		%		90-110	18-JUN-14
<b>WG1893828-29</b>	<b>LCS</b>							
pH			7.01		pH		6.7-7.3	18-JUN-14
<b>WG1893828-3</b>	<b>LCS</b>							
pH			6.99		pH		6.7-7.3	18-JUN-14
<b>WG1893828-30</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			103.9		%		85-115	18-JUN-14
<b>WG1893828-31</b>	<b>LCS</b>							
Conductivity (EC)			92.3		%		90-110	18-JUN-14
<b>WG1893828-4</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			101.0		%		85-115	18-JUN-14
<b>WG1893828-5</b>	<b>LCS</b>							
Conductivity (EC)			94.5		%		90-110	18-JUN-14
<b>WG1893828-1</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	18-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	18-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	18-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-JUN-14
<b>WG1893828-12</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	18-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	18-JUN-14





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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2867343</b>							
<b>WG1893828-12 MB</b>								
Hydroxide (OH)			<5.0		mg/L		5	18-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-JUN-14
<b>WG1893828-17 MB</b>								
Bicarbonate (HCO3)			<5.0		mg/L		5	18-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	18-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	18-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-JUN-14
<b>WG1893828-22 MB</b>								
Bicarbonate (HCO3)			<5.0		mg/L		5	18-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	18-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	18-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-JUN-14
<b>WG1893828-27 MB</b>								
Bicarbonate (HCO3)			<5.0		mg/L		5	18-JUN-14
Carbonate (CO3)			<5.0		mg/L		5	18-JUN-14
Hydroxide (OH)			<5.0		mg/L		5	18-JUN-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	18-JUN-14
<b>PHENOLS-4AAP-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2872696</b>							
<b>WG1899179-3 DUP</b>		<b>L1470810-12</b>						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	25-JUN-14
<b>WG1899179-4 DUP</b>		<b>L1471334-3</b>						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	25-JUN-14
<b>WG1899179-5 DUP</b>		<b>L1470326-5</b>						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	25-JUN-14
<b>WG1899179-6 DUP</b>		<b>L1471179-14</b>						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	25-JUN-14
<b>WG1899179-2 LCS</b>								
Phenols (4AAP)			107.0		%		85-115	25-JUN-14
<b>WG1899179-1 MB</b>								
Phenols (4AAP)			<0.0010		mg/L		0.001	25-JUN-14
<b>WG1899179-7 MS</b>		<b>L1471179-14</b>						
Phenols (4AAP)			107.0		%		75-125	25-JUN-14
<b>SO4-IC-ED</b>		<b>Water</b>						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SO4-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2865916</b>							
<b>WG1892832-3</b>	<b>DUP</b>	<b>L1470810-11</b>						
Sulfate (SO4)		229	229		mg/L	0.1	20	16-JUN-14
<b>WG1892832-5</b>	<b>DUP</b>	<b>L1469940-12</b>						
Sulfate (SO4)		0.92	0.88		mg/L	4.8	20	16-JUN-14
<b>WG1892832-11</b>	<b>LCS</b>							
Sulfate (SO4)			102.7		%		90-110	16-JUN-14
<b>WG1892832-13</b>	<b>LCS</b>							
Sulfate (SO4)			102.1		%		90-110	16-JUN-14
<b>WG1892832-15</b>	<b>LCS</b>							
Sulfate (SO4)			103.8		%		90-110	16-JUN-14
<b>WG1892832-2</b>	<b>LCS</b>							
Sulfate (SO4)			101.6		%		90-110	16-JUN-14
<b>WG1892832-7</b>	<b>LCS</b>							
Sulfate (SO4)			102.4		%		90-110	16-JUN-14
<b>WG1892832-9</b>	<b>LCS</b>							
Sulfate (SO4)			102.4		%		90-110	16-JUN-14
<b>WG1892832-1</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-10</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-12</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-14</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-16</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-8</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	16-JUN-14
<b>WG1892832-4</b>	<b>MS</b>	<b>L1470810-11</b>						
Sulfate (SO4)			N/A	MS-B	%		-	16-JUN-14
<b>WG1892832-6</b>	<b>MS</b>	<b>L1469940-12</b>						
Sulfate (SO4)			105.6		%		75-125	16-JUN-14
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-3</b>	<b>DUP</b>	<b>L1470374-4</b>						
Sulfate (SO4)		6.08	5.99		mg/L	1.6	20	19-JUN-14
<b>WG1894620-11</b>	<b>LCS</b>							
Sulfate (SO4)			105.5		%		90-110	19-JUN-14
<b>WG1894620-2</b>	<b>LCS</b>							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SO4-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2868443</b>							
<b>WG1894620-2</b>	<b>LCS</b>							
Sulfate (SO4)			102.5		%		90-110	19-JUN-14
<b>WG1894620-5</b>	<b>LCS</b>							
Sulfate (SO4)			104.1		%		90-110	19-JUN-14
<b>WG1894620-7</b>	<b>LCS</b>							
Sulfate (SO4)			99.7		%		90-110	19-JUN-14
<b>WG1894620-9</b>	<b>LCS</b>							
Sulfate (SO4)			104.3		%		90-110	19-JUN-14
<b>WG1894620-1</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-10</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-12</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-6</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-8</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	19-JUN-14
<b>WG1894620-4</b>	<b>MS</b>	<b>L1470374-4</b>						
Sulfate (SO4)			95.0		%		75-125	19-JUN-14
<b>SOLIDS-TDS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2865295</b>							
<b>WG1892476-3</b>	<b>DUP</b>	<b>L1468579-1</b>						
Total Dissolved Solids		968	983		mg/L	1.5	20	16-JUN-14
<b>WG1892476-4</b>	<b>DUP</b>	<b>L1469332-1</b>						
Total Dissolved Solids		601	605		mg/L	0.7	20	16-JUN-14
<b>WG1892476-2</b>	<b>LCS</b>							
Total Dissolved Solids			98.4		%		85-115	16-JUN-14
<b>WG1892476-1</b>	<b>MB</b>							
Total Dissolved Solids			<10		mg/L		10	16-JUN-14

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Contact: Trevor Butterfield

## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

---

# Quality Control Report

Workorder: L1470810

Report Date: 26-JUN-14

Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail Terrace Plaza  
 EDMONTON AB T6H 5R7  
 Contact: Trevor Butterfield

**Hold Time Exceedances:**

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
<b>Anions and Nutrients</b>							
Nitrate as N by IC							
	1	13-JUN-14 10:15	16-JUN-14 08:00	48	70	hours	EHT
	2	13-JUN-14 11:30	16-JUN-14 08:00	48	68	hours	EHT
	3	12-JUN-14 13:15	16-JUN-14 08:00	48	91	hours	EHTL
	4	13-JUN-14 16:15	16-JUN-14 08:00	48	64	hours	EHT
	5	12-JUN-14 14:40	16-JUN-14 08:00	48	89	hours	EHTL
	6	13-JUN-14 13:40	16-JUN-14 08:00	48	66	hours	EHT
	7	12-JUN-14 17:45	16-JUN-14 08:00	48	86	hours	EHT
	8	12-JUN-14 16:00	16-JUN-14 08:00	48	88	hours	EHTL
	9	12-JUN-14 09:20	16-JUN-14 08:00	48	95	hours	EHTL
	10	12-JUN-14 11:10	16-JUN-14 08:00	48	93	hours	EHTL
	11	12-JUN-14 17:45	16-JUN-14 08:00	48	86	hours	EHT
	12	13-JUN-14 15:30	16-JUN-14 08:00	48	65	hours	EHT
Nitrite as N by IC							
	1	13-JUN-14 10:15	16-JUN-14 08:00	48	70	hours	EHT
	2	13-JUN-14 11:30	16-JUN-14 08:00	48	68	hours	EHT
	3	12-JUN-14 13:15	16-JUN-14 08:00	48	91	hours	EHTL
	4	13-JUN-14 16:15	16-JUN-14 08:00	48	64	hours	EHT
	5	12-JUN-14 14:40	16-JUN-14 08:00	48	89	hours	EHTL
	6	13-JUN-14 13:40	16-JUN-14 08:00	48	66	hours	EHT
	7	12-JUN-14 17:45	16-JUN-14 08:00	48	86	hours	EHT
	8	12-JUN-14 16:00	16-JUN-14 08:00	48	88	hours	EHTL
	9	12-JUN-14 09:20	16-JUN-14 08:00	48	95	hours	EHTL
	10	12-JUN-14 11:10	16-JUN-14 08:00	48	93	hours	EHTL
	11	12-JUN-14 17:45	16-JUN-14 08:00	48	86	hours	EHT
	12	13-JUN-14 15:30	16-JUN-14 08:00	48	65	hours	EHT

**Legend & Qualifier Definitions:**

- EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
- EHTR: Exceeded ALS recommended hold time prior to sample receipt.
- EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
- EHT: Exceeded ALS recommended hold time prior to analysis.
- Rec. HT: ALS recommended hold time (see units).

Notes\*:  
 Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.  
 Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1470810 were received on 13-JUN-14 17:50.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

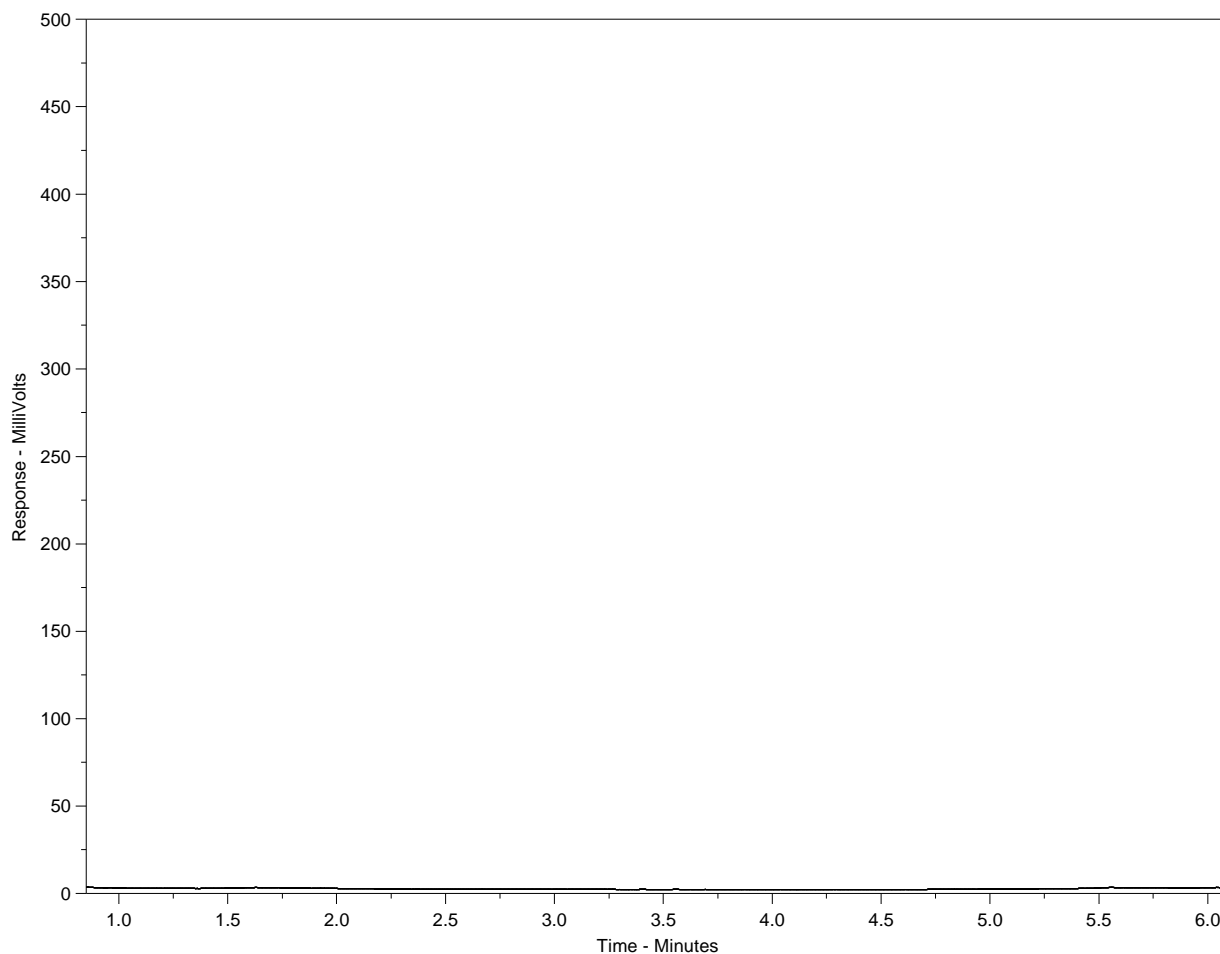
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-1  
Client ID: MW-04



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16		nC34		nC50	
174°C	287°C		481°C		575°C	
346°F	549°F		898°F		1067°F	
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

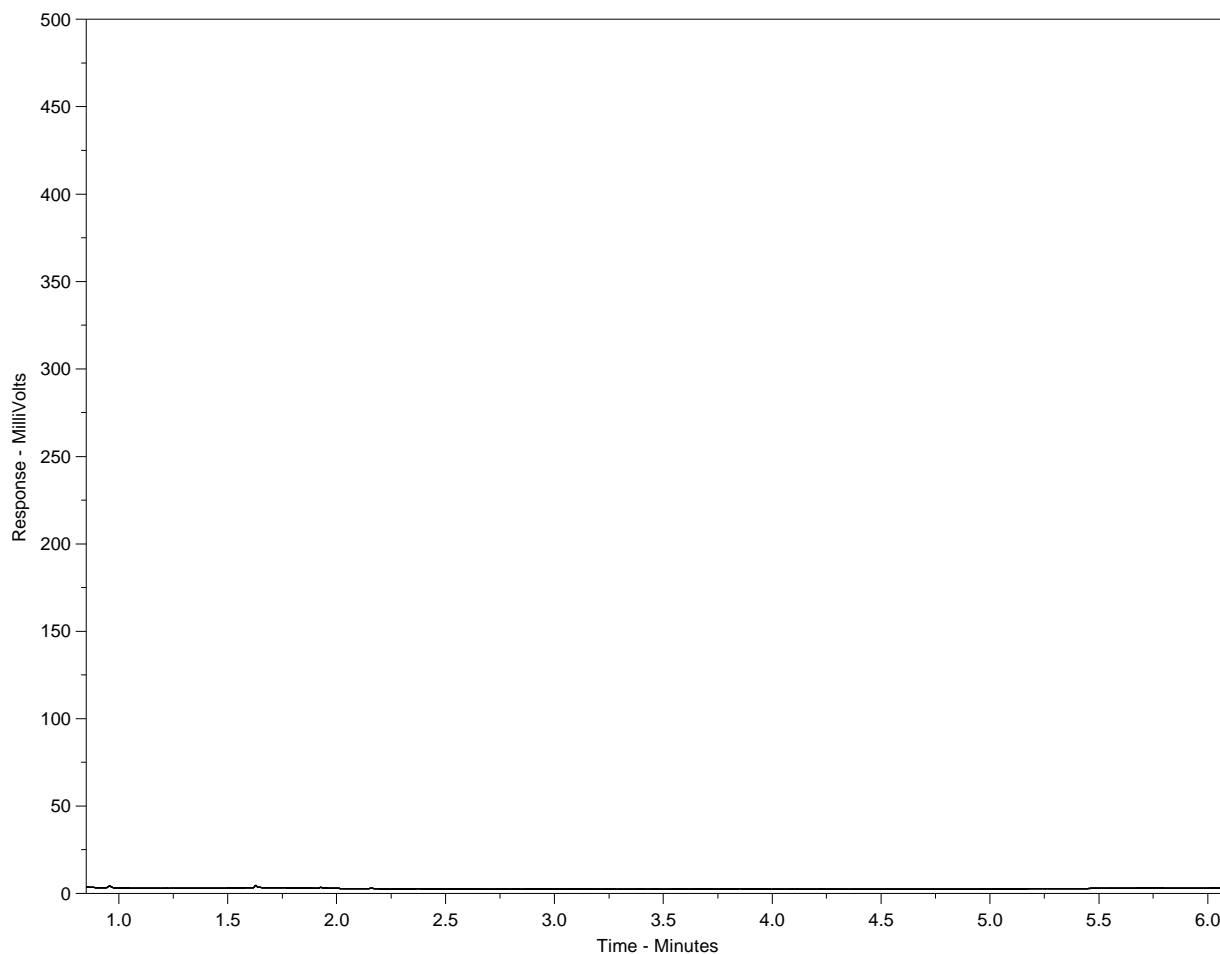
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-2  
Client ID: MW-05



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

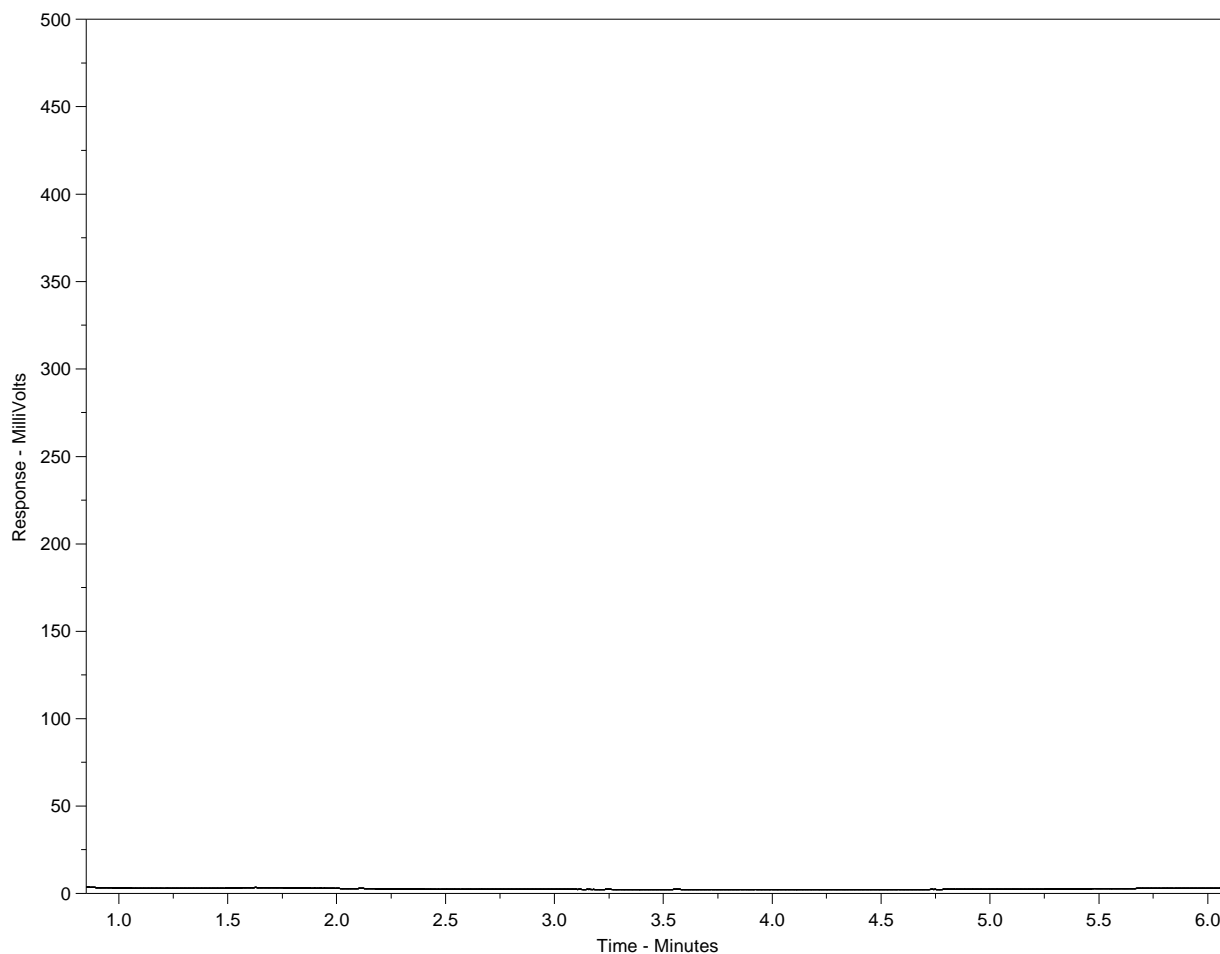
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-3  
Client ID: MW-06



F2		F3		F4		F4
nC10	nC16			nC34		nC50
174°C	287°C			481°C		575°C
346°F	549°F			898°F		1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

**Note:**

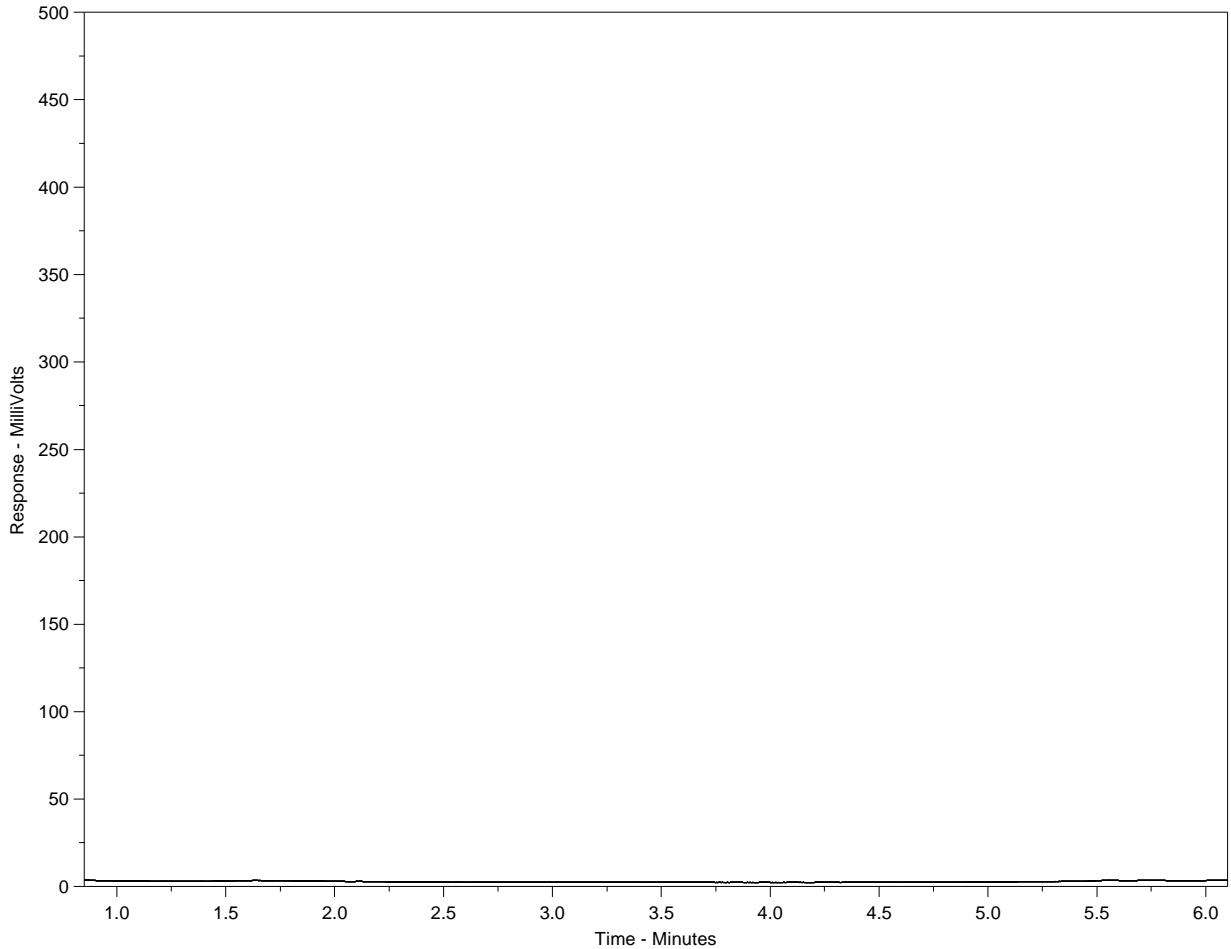
This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.



# Hydrocarbon Distribution Report



**ALS Sample ID:** L1470810-4  
**Client ID:** MW-07



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

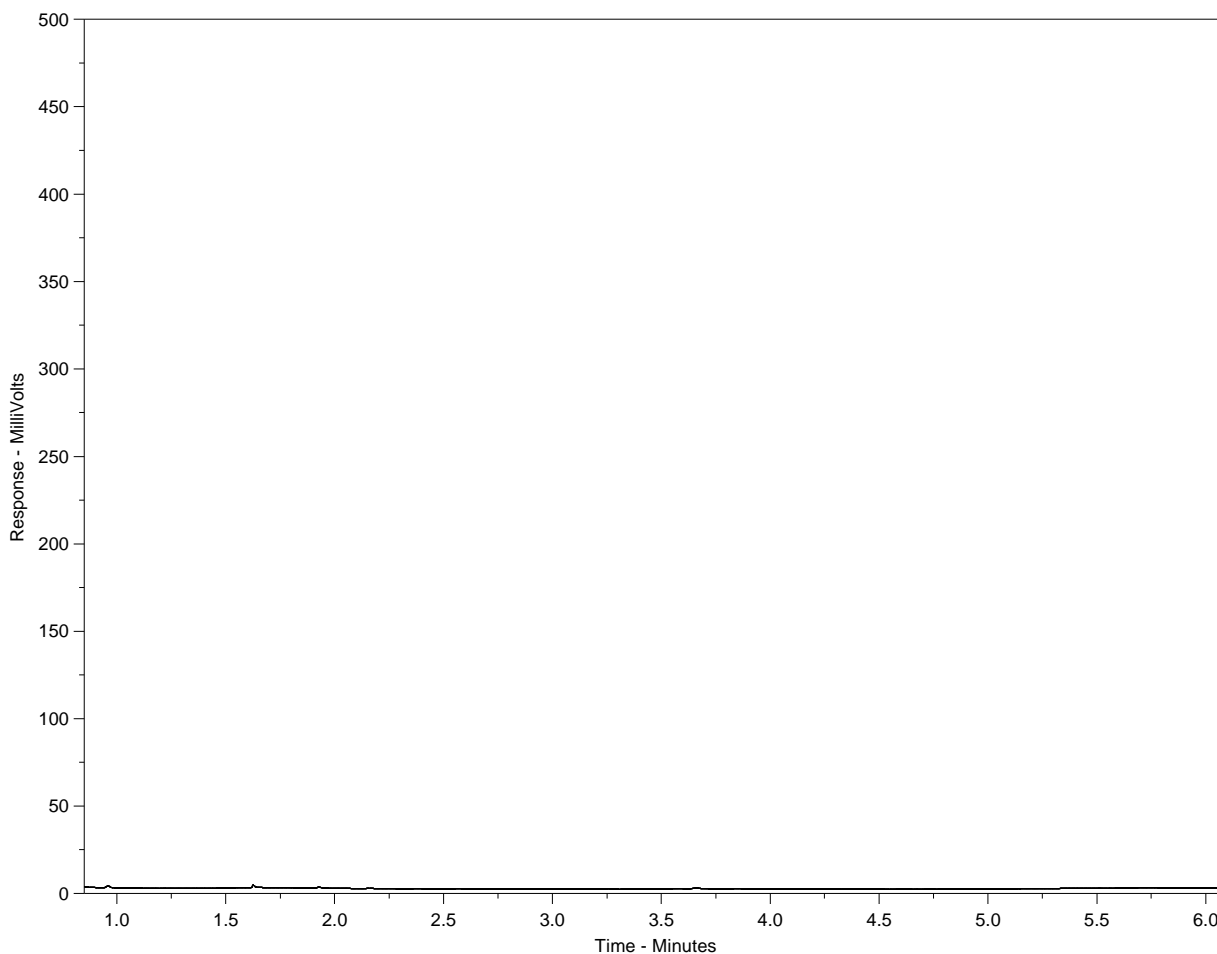
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



**ALS Sample ID: L1470810-5**  
**Client ID: MW-08**



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16			nC34		nC50
174°C	287°C			481°C		575°C
346°F	549°F			898°F		1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

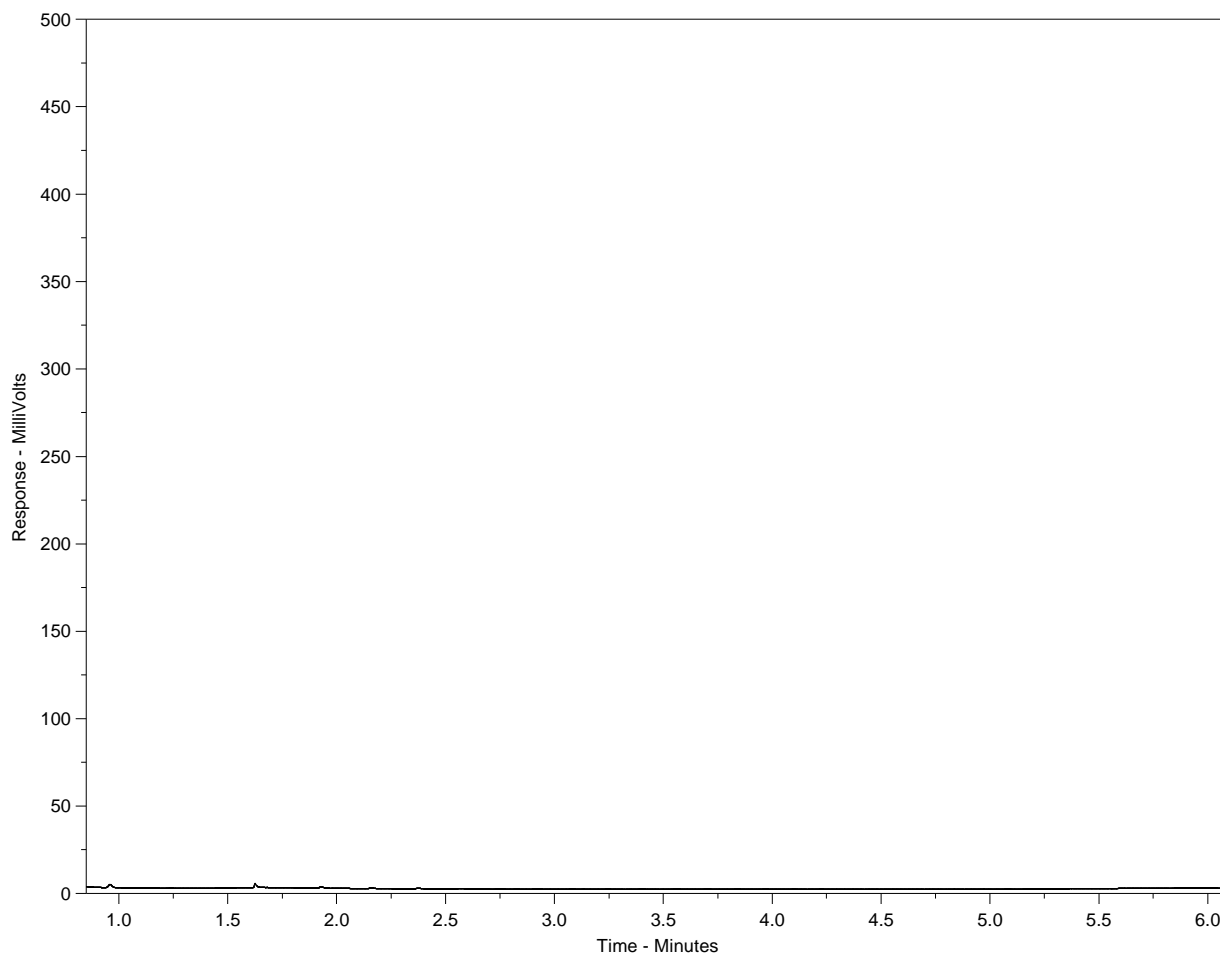
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

**Note:**  
 This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-6  
Client ID: MW-09



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16		nC34		nC50	
174°C	287°C		481°C		575°C	
346°F	549°F		898°F		1067°F	
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

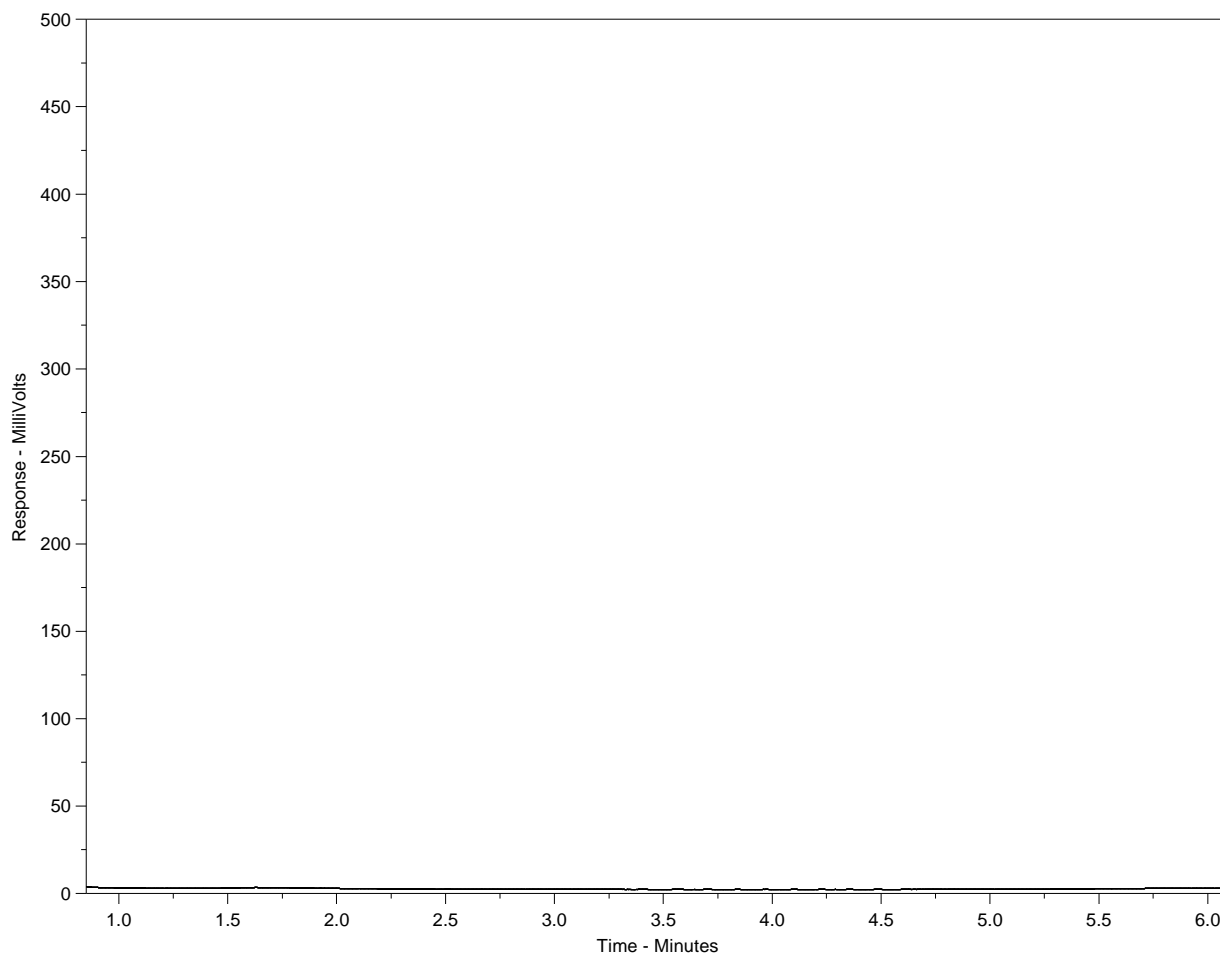
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-7  
Client ID: MW-10



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

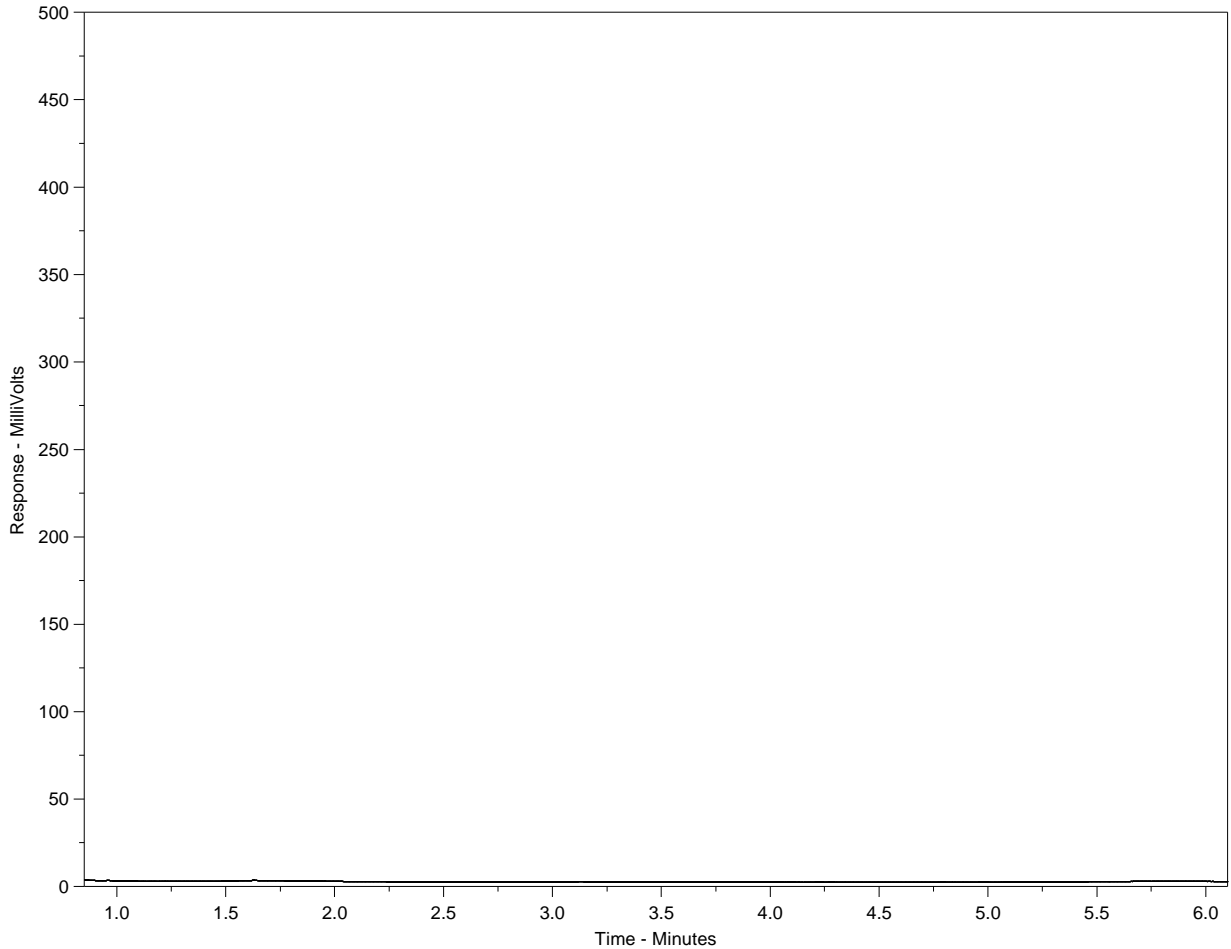
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



**ALS Sample ID: L1470810-8**  
**Client ID: MW-11**



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

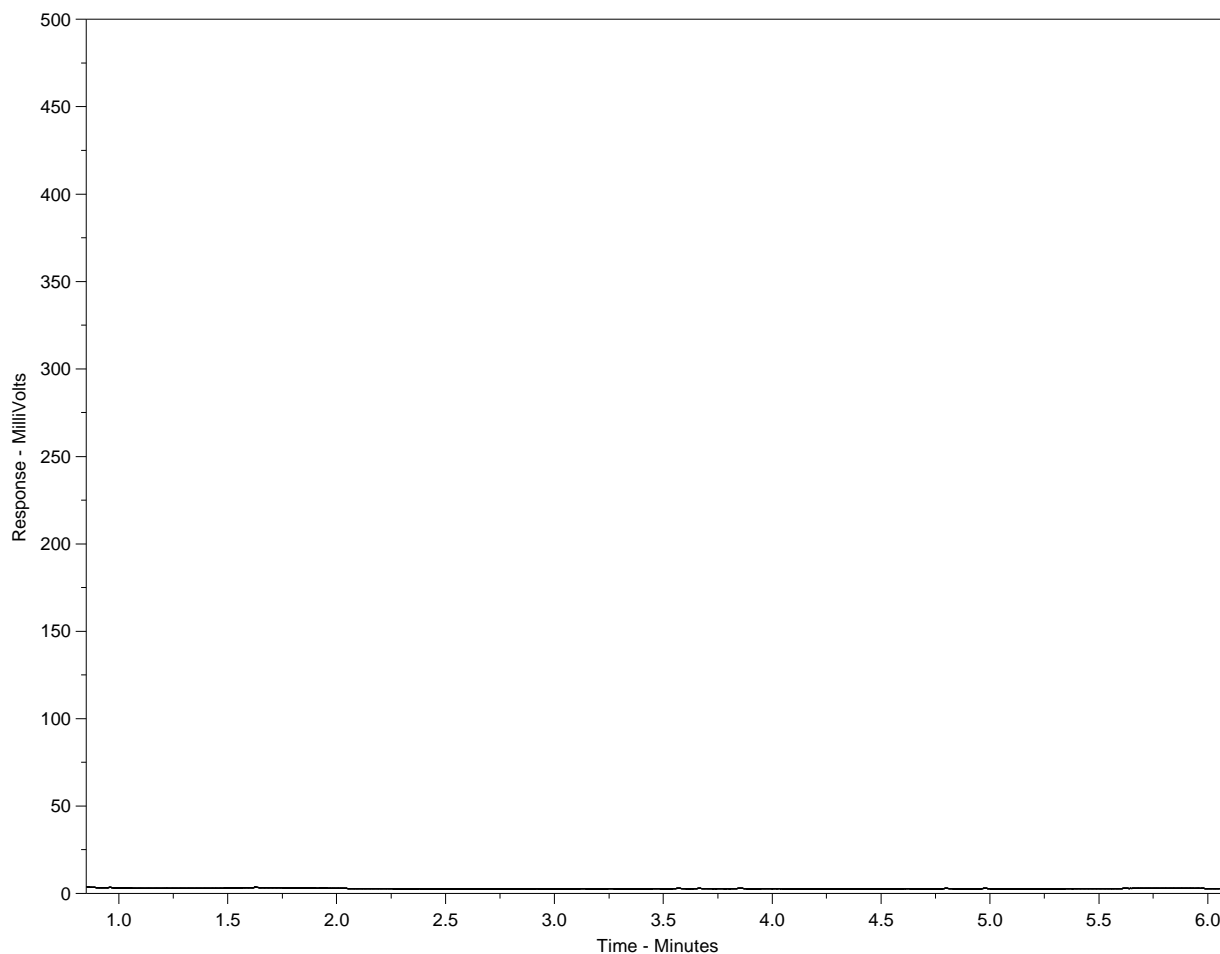
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-9  
Client ID: MW-12



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

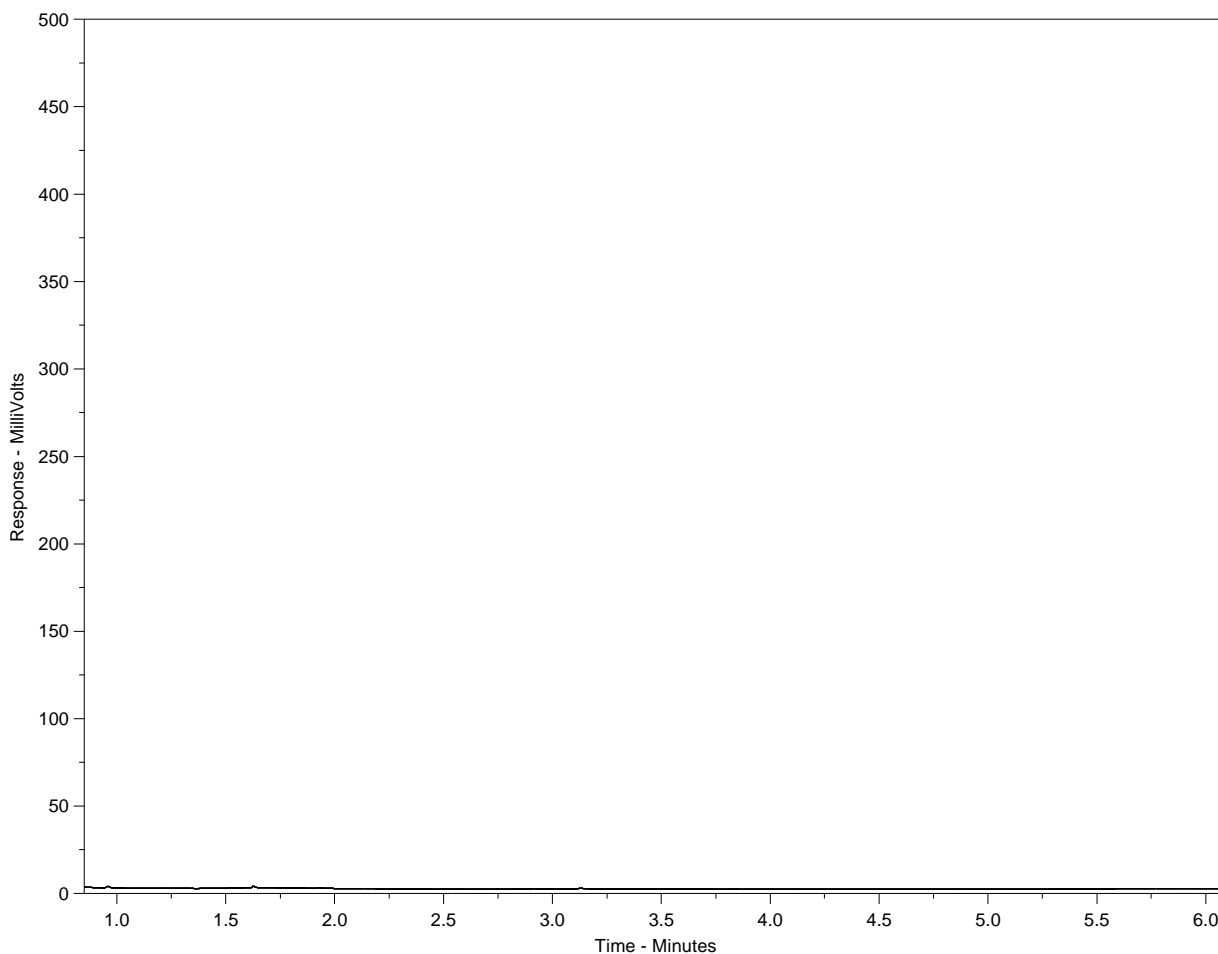
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



**ALS Sample ID: L1470810-10**  
**Client ID: MW-13**



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

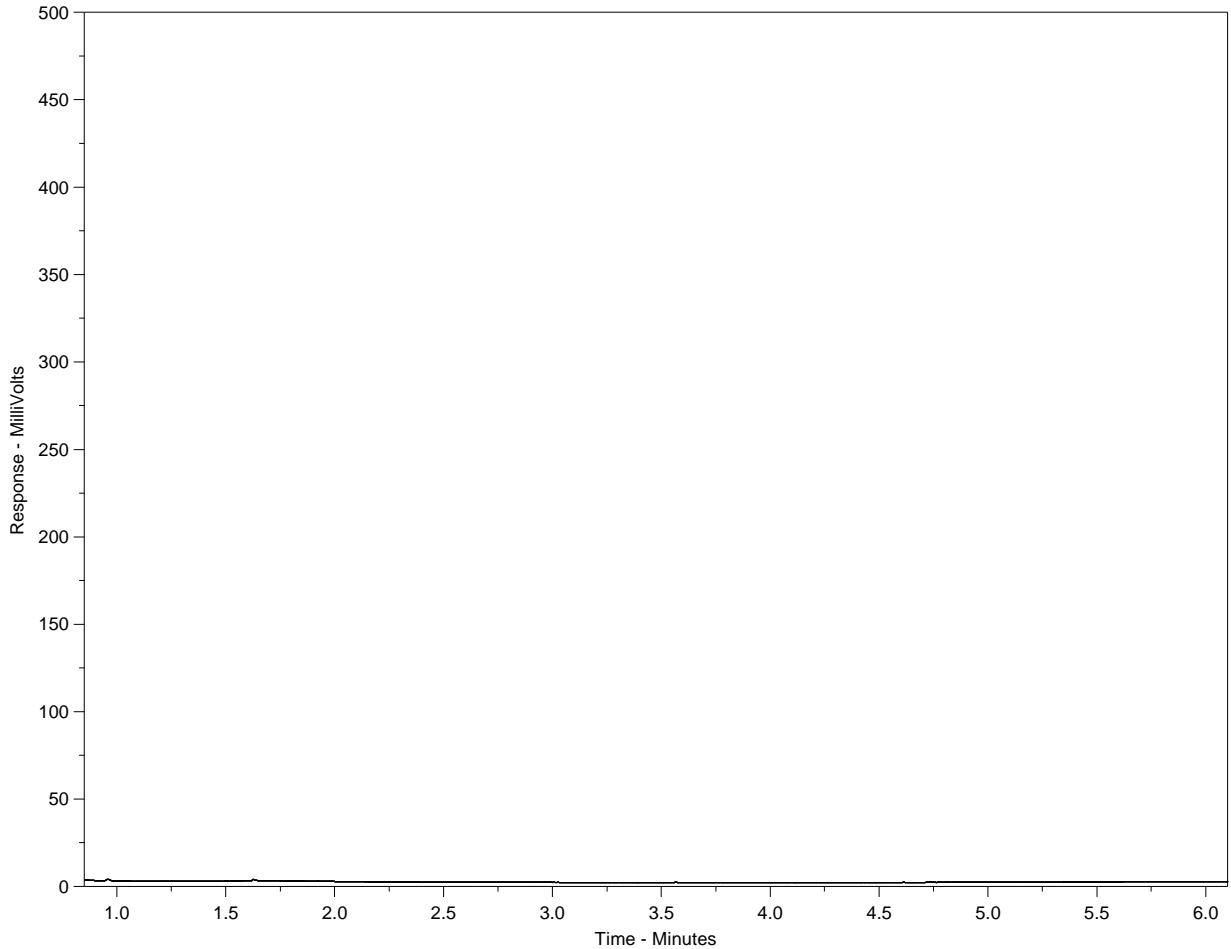
**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-11  
 Client ID: D14-01



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

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Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

**Note:**

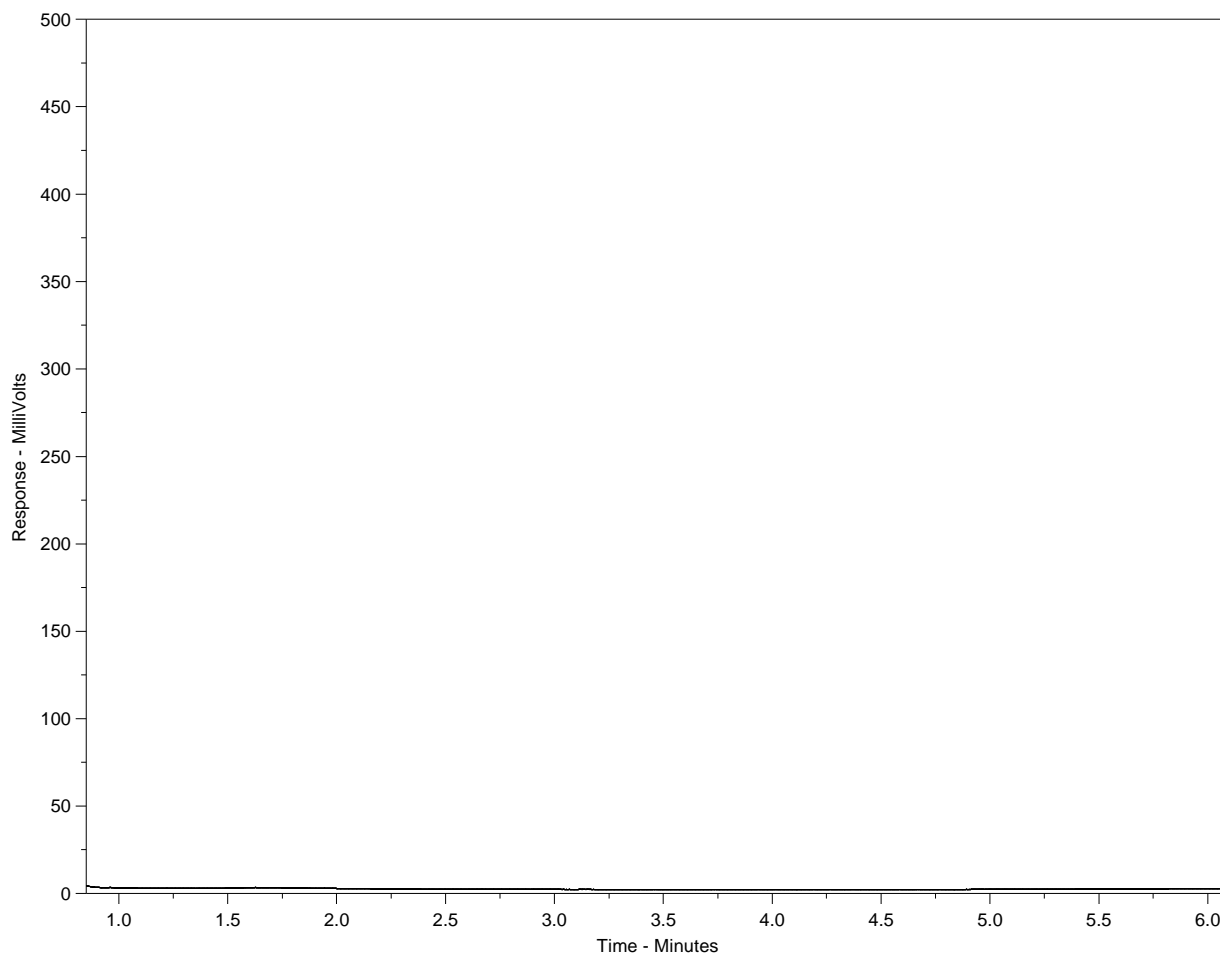
This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.



# Hydrocarbon Distribution Report



ALS Sample ID: L1470810-12  
Client ID: F14-01



← F2 →		← F3 →		← F4 →		← F4 →
nC10	nC16	nC34	nC50			
174°C	287°C	481°C	575°C			
346°F	549°F	898°F	1067°F			
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →			
← Diesel/ Jet Fuels →						

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Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

**Note:**

This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method. Note that retention times and distribution profiles from reports produced using different GC programs will differ.

<b>Report To</b> Company: <u>Worley Parsons</u> Contact: <u>Trevor Butterfield</u> Address: <u>suite 700, Calgary Trail</u> <u>Edmonton AB T6H 5R7</u> Phone: <u>780-496-9055</u>		<b>Report Format / Distribution</b> Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>trevor.butterfield@worley.com</u> Email 2: <u>Edm.chemistry@worley.com</u>			<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b> R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm) P <input type="checkbox"/> Priority (2-4 business days if received by 3pm) E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm) E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge. Specify Date Required for E2,E or P:																																																									
<b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Invoice Distribution</b> Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>trevor.butterfield@worley.com</u> Email 2:			<b>Analysis Request</b> Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below <table border="1"> <tr> <td>P</td><td>P</td><td>F/P</td><td>F/P</td><td>F/P</td><td>F/P</td><td>P</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>										P	P	F/P	F/P	F/P	F/P	P																																									
P	P	F/P	F/P	F/P	F/P	P																																																								
<b>Project Information</b> ALS Quote #: <u>Please Verify w/ Maureen Olinek</u> Job #: <u>307076-06086-200</u> PO / AFE: LSD:		<b>Oil and Gas Required Fields (client use)</b> Approver ID: GL Account: Activity Code: Location:			<table border="1"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>																																																									
ALS Lab Work Order # (lab use only) <u>L1470810</u>		ALS Contact: <u>Maureen Olinek</u> Sampler: <u>SG / NU.</u>			<table border="1"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>																																																									
<b>ALS Sample # (lab use only)</b> Sample Identification and/or Coordinates (This description will appear on the report)		<b>Date</b> (dd-mmm-yy)			<b>Time</b> (hh:mm)			<b>Sample Type</b>			<table border="1"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>																																																			
MW-04 MW-05 MW-06 MW-07 MW-08 MW-09 MW-10 MW-11 MW-12 MW-13 DI4-01 FI4-01		<u>13-Jun-14</u> <u>13-Jun-14</u> <u>12-Jun-14</u> <u>13-Jun-14</u> <u>12-Jun-14</u> <u>13-Jun-14</u> <u>12-Jun-14</u> <u>12-Jun-14</u> <u>12-Jun-14</u> <u>12-Jun-14</u> <u>12-Jun-14</u> <u>12-Jun-14</u> <u>12-Jun-14</u> <u>12-Jun-14</u> <u>13-Jun-14</u>			<u>10:15</u> <u>11:30</u> <u>13:15</u> <u>16:15</u> <u>14:40</u> <u>13:40</u> <u>17:45</u> <u>16:00</u> <u>09:20</u> <u>11:10</u> <u>17:45</u> <u>15:30</u>			<u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u>			<table border="1"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>																																																			
<b>Drinking Water (DW) Samples (client use)</b> Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Special Instructions / Specify Criteria to add on report (client use)			<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b> Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: _____																																																									
<b>SHIPMENT RELEASE (client use)</b> Released by: <u>Stuart Gray</u> Date: <u>13-Jun-14</u> Time: <u>1800</u>		<b>INITIAL SHIPMENT RECEPTION (lab use only)</b> Received by: <u>RD</u> Date: <u>13/24/14</u> Time: <u>5:50PM</u>			<b>FINAL SHIPMENT RECEPTION (lab use only)</b> Received by: _____ Date: _____ Time: _____																																																									

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM 0226e v03 Form 03 October 2013

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.



WorleyParsons Canada  
ATTN: Trevor Butterfield  
700 - 4445 Calgary Trail NW  
Terrace Plaza  
Edmonton AB T6H 5R7

Date Received: 28-AUG-14  
Report Date: 05-SEP-14 18:13 (MT)  
Version: FINAL

Client Phone: 780-496-9055

## Certificate of Analysis

**Lab Work Order #:** L1509708  
**Project P.O. #:** NOT SUBMITTED  
**Job Reference:** 307076-06086-200  
**C of C Numbers:** 10-391355  
**Legal Site Desc:**

---

Dana Brown  
Account Manager

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

ADDRESS: 9936-67 Avenue, Edmonton, AB T6E 0P5 Canada | Phone: +1 780 413 5227 | Fax: +1 780 437 2311  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1509708-1 MW-02							
Sampled By: SG on 28-AUG-14 @ 12:00							
Matrix: WATER							
<b>BTEX, Styrene &amp; F1-F2</b>							
<b>BTEX, Styrene and F1 (C6-C10)</b>							
Benzene	<0.00050		0.00050	mg/L		30-AUG-14	R2932845
Toluene	<0.00050		0.00050	mg/L		30-AUG-14	R2932845
EthylBenzene	<0.00050		0.00050	mg/L		30-AUG-14	R2932845
o-Xylene	<0.00050		0.00050	mg/L		30-AUG-14	R2932845
m+p-Xylene	<0.00050		0.00050	mg/L		30-AUG-14	R2932845
Styrene	<0.0010		0.0010	mg/L		30-AUG-14	R2932845
F1(C6-C10)	<0.10		0.10	mg/L		30-AUG-14	R2932845
F1-BTEX	<0.10		0.10	mg/L		30-AUG-14	R2932845
Xylenes	<0.00071		0.00071	mg/L		30-AUG-14	R2932845
Surrogate: 1,4-Difluorobenzene (SS)	98.2		70-130	%		30-AUG-14	R2932845
Surrogate: 4-Bromofluorobenzene (SS)	84.0		70-130	%		30-AUG-14	R2932845
Surrogate: 3,4-Dichlorotoluene (SS)	97.0		70-130	%		30-AUG-14	R2932845
<b>F2 (&gt;C10-C16)</b>							
F2 (C10-C16)	<0.25		0.25	mg/L	29-AUG-14	29-AUG-14	R2933789
Surrogate: 2-Bromobenzotrifluoride	103.3		65-135	%	29-AUG-14	29-AUG-14	R2933789
<b>Miscellaneous Parameters</b>							
Ammonia, Total Dissolved (as N)	0.545		0.050	mg/L		03-SEP-14	R2936429
Dissolved Organic Carbon	5.3		1.0	mg/L		02-SEP-14	R2934709
Fluoride (F)	0.067		0.020	mg/L		28-AUG-14	R2932867
Phenols (4AAP)	<0.0010		0.0010	mg/L		05-SEP-14	R2939481
Total Dissolved Solids	861		10	mg/L		02-SEP-14	R2937101
<b>Major Ions &amp; Trace Dissolved Metals</b>							
<b>Chloride by IC</b>							
Chloride (Cl)	41.9		0.50	mg/L		28-AUG-14	R2932867
<b>Dissolved Metals in Water by CRC ICPMS</b>							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		04-SEP-14	R2938189
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-SEP-14	R2938189
Arsenic (As)-Dissolved	0.00302		0.00040	mg/L		04-SEP-14	R2938189
Barium (Ba)-Dissolved	0.0686		0.0050	mg/L		04-SEP-14	R2938189
Boron (B)-Dissolved	0.144		0.050	mg/L		04-SEP-14	R2938189
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-SEP-14	R2938189
Calcium (Ca)-Dissolved	139		0.50	mg/L		04-SEP-14	R2938189
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-SEP-14	R2938189
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-SEP-14	R2938189
Iron (Fe)-Dissolved	8.49		0.010	mg/L		04-SEP-14	R2938189
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-SEP-14	R2938189
Magnesium (Mg)-Dissolved	48.5		0.10	mg/L		04-SEP-14	R2938189
Manganese (Mn)-Dissolved	0.488		0.0020	mg/L		04-SEP-14	R2938189
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-SEP-14	R2938189
Potassium (K)-Dissolved	4.66		0.10	mg/L		04-SEP-14	R2938189
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-SEP-14	R2938189
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-SEP-14	R2938189
Sodium (Na)-Dissolved	90.8		1.0	mg/L		04-SEP-14	R2938189
Uranium (U)-Dissolved	0.00132		0.00010	mg/L		04-SEP-14	R2938189
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-SEP-14	R2938189
<b>Ion Balance Calculation</b>							
Ion Balance	98.4			%		05-SEP-14	
TDS (Calculated)	826			mg/L		05-SEP-14	
Hardness (as CaCO3)	547			mg/L		05-SEP-14	
<b>Mercury (Hg) - Dissolved</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1509708-1 MW-02							
Sampled By: SG on 28-AUG-14 @ 12:00							
Matrix: WATER							
<b>Mercury (Hg) - Dissolved</b>							
Mercury (Hg)-Dissolved	0.0000059		0.0000050	mg/L		02-SEP-14	R2936072
<b>Nitrate as N by IC</b>							
Nitrate (as N)	<0.050		0.050	mg/L		28-AUG-14	R2932867
<b>Nitrate+Nitrite</b>							
Nitrate and Nitrite (as N)	<0.054		0.054	mg/L		03-SEP-14	
<b>Nitrite as N by IC</b>							
Nitrite (as N)	<0.020		0.020	mg/L		28-AUG-14	R2932867
<b>Sulfate by IC</b>							
Sulfate (SO4)	211		0.50	mg/L		28-AUG-14	R2932867
<b>pH, Conductivity and Total Alkalinity</b>							
pH	7.85		0.10	pH		29-AUG-14	R2933060
Conductivity (EC)	1340		0.20	uS/cm		29-AUG-14	R2933060
Bicarbonate (HCO3)	590		5.0	mg/L		29-AUG-14	R2933060
Carbonate (CO3)	<5.0		5.0	mg/L		29-AUG-14	R2933060
Hydroxide (OH)	<5.0		5.0	mg/L		29-AUG-14	R2933060
Alkalinity, Total (as CaCO3)	484		2.0	mg/L		29-AUG-14	R2933060

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## Reference Information

## Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTXS,F1-ED	Water	BTEX, Styrene and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
C-DIS-ORG-ED	Water	Dissolved Organic Carbon	APHA 5310 B-Instrumental
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F-IC-ED	Water	Fluoride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F2-ED	Water	F2 (>C10-C16)	EPA 3510/CCME PHC CWS-GC-FID
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
IONBALANCE-ED	Water	Ion Balance Calculation	APHA 1030E
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
NH3-D-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-ED	Water	Nitrite as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
PH/EC/ALK-ED	Water	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
PHENOLS-4AAP-ED	Water	Phenols (4AAP)	AB ENV.06537-COLORIMETRIC
This analysis is carried out using procedures adapted from ENVIRODAT VMV 06537 689, Method Code 154, in "Methods Manual for Chemical Analysis of Water and Wastes" published by the Alberta Environmental Centre. This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide and 4-aminoantipyrene to form a red complex which is measured at 505 nm.			
SO4-IC-ED	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY
SOLIDS-TDS-ED	Water	Total Dissolved Solids	APHA 2540 C

\*\* 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

## Chain of Custody Numbers:

10-391355

## GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample  
 mg/kg wwt - milligrams per kilogram based on wet weight of sample  
 mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight  
 mg/L - unit of concentration based on volume, parts per million.  
 < - Less than.

D.L. - The reporting limit.

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.



**Environmental**

## Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

Page 1 of 20

Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTXS,F1-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2932845</b>							
<b>WG1941349-2</b>	<b>LCS</b>							
Benzene			118.3		%		70-130	30-AUG-14
Toluene			113.3		%		70-130	30-AUG-14
EthylBenzene			110.4		%		70-130	30-AUG-14
o-Xylene			111.0		%		70-130	30-AUG-14
m+p-Xylene			108.4		%		70-130	30-AUG-14
Styrene			99.3		%		70-130	30-AUG-14
<b>WG1941349-3</b>	<b>LCS</b>							
F1(C6-C10)			104.9		%		70-130	29-AUG-14
<b>WG1941349-6</b>	<b>LCS</b>							
Benzene			111.2		%		70-130	30-AUG-14
Toluene			94.4		%		70-130	30-AUG-14
EthylBenzene			98.3		%		70-130	30-AUG-14
o-Xylene			99.1		%		70-130	30-AUG-14
m+p-Xylene			98.3		%		70-130	30-AUG-14
Styrene			90.1		%		70-130	30-AUG-14
<b>WG1941349-7</b>	<b>LCS</b>							
F1(C6-C10)			103.3		%		70-130	30-AUG-14
<b>WG1941349-1</b>	<b>MB</b>							
Benzene			<0.00050		mg/L		0.0005	29-AUG-14
Toluene			<0.00050		mg/L		0.0005	29-AUG-14
EthylBenzene			<0.00050		mg/L		0.0005	29-AUG-14
o-Xylene			<0.00050		mg/L		0.0005	29-AUG-14
m+p-Xylene			<0.00050		mg/L		0.0005	29-AUG-14
Styrene			<0.0010		mg/L		0.001	29-AUG-14
F1(C6-C10)			<0.10		mg/L		0.1	29-AUG-14
Surrogate: 1,4-Difluorobenzene (SS)			105.0		%		70-130	29-AUG-14
Surrogate: 4-Bromofluorobenzene (SS)			92.0		%		70-130	29-AUG-14
Surrogate: 3,4-Dichlorotoluene (SS)			99.0		%		70-130	29-AUG-14
<b>WG1941349-5</b>	<b>MB</b>							
Benzene			<0.00050		mg/L		0.0005	30-AUG-14
Toluene			<0.00050		mg/L		0.0005	30-AUG-14
EthylBenzene			<0.00050		mg/L		0.0005	30-AUG-14
o-Xylene			<0.00050		mg/L		0.0005	30-AUG-14
m+p-Xylene			<0.00050		mg/L		0.0005	30-AUG-14
							0.001	



## Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

Page 2 of 20

Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTXS,F1-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2932845</b>							
<b>WG1941349-5</b>	<b>MB</b>							
Styrene			<0.0010		mg/L		0.001	30-AUG-14
F1(C6-C10)			<0.10		mg/L		0.1	30-AUG-14
Surrogate: 1,4-Difluorobenzene (SS)			101.0		%		70-130	30-AUG-14
Surrogate: 4-Bromofluorobenzene (SS)			86.0		%		70-130	30-AUG-14
Surrogate: 3,4-Dichlorotoluene (SS)			98.4		%		70-130	30-AUG-14
<b>C-DIS-ORG-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2934709</b>							
<b>WG1942697-3</b>	<b>CVS</b>							
Dissolved Organic Carbon			122.3		%		80-160	01-SEP-14
<b>WG1942697-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			93.0		%		80-120	01-SEP-14
<b>WG1942697-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<1.0		mg/L		1	01-SEP-14
<b>CL-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2932867</b>							
<b>WG1940888-11</b>	<b>DUP</b>	<b>L1508600-1</b>						
Chloride (Cl)		15.8	15.8		mg/L	0.0	20	28-AUG-14
<b>WG1940888-5</b>	<b>DUP</b>	<b>L1508669-8</b>						
Chloride (Cl)		12.0	12.2		mg/L	1.2	20	28-AUG-14
<b>WG1940888-13</b>	<b>LCS</b>							
Chloride (Cl)			102.5		%		90-110	28-AUG-14
<b>WG1940888-2</b>	<b>LCS</b>							
Chloride (Cl)			102.3		%		90-110	28-AUG-14
<b>WG1940888-3</b>	<b>LCS</b>							
Chloride (Cl)			102.6		%		90-110	28-AUG-14
<b>WG1940888-7</b>	<b>LCS</b>							
Chloride (Cl)			102.3		%		90-110	28-AUG-14
<b>WG1940888-9</b>	<b>LCS</b>							
Chloride (Cl)			103.3		%		90-110	28-AUG-14
<b>WG1940888-1</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-10</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-14</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-4</b>	<b>MB</b>							





### Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

Page 3 of 20

Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>CL-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2932867</b>							
<b>WG1940888-4</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-8</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-12</b>	<b>MS</b>	<b>L1508600-1</b>						
Chloride (Cl)			101.3		%		75-125	28-AUG-14
<b>WG1940888-6</b>	<b>MS</b>	<b>L1508669-8</b>						
Chloride (Cl)			101.3		%		75-125	28-AUG-14
<b>F-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2932867</b>							
<b>WG1940888-11</b>	<b>DUP</b>	<b>L1508600-1</b>						
Fluoride (F)		0.144	0.142		mg/L	1.2	20	28-AUG-14
<b>WG1940888-13</b>	<b>LCS</b>							
Fluoride (F)			99.1		%		90-110	28-AUG-14
<b>WG1940888-2</b>	<b>LCS</b>							
Fluoride (F)			98.3		%		90-110	28-AUG-14
<b>WG1940888-3</b>	<b>LCS</b>							
Fluoride (F)			98.6		%		90-110	28-AUG-14
<b>WG1940888-7</b>	<b>LCS</b>							
Fluoride (F)			98.0		%		90-110	28-AUG-14
<b>WG1940888-9</b>	<b>LCS</b>							
Fluoride (F)			100.3		%		90-110	28-AUG-14
<b>WG1940888-1</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-10</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-14</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-4</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-8</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-12</b>	<b>MS</b>	<b>L1508600-1</b>						
Fluoride (F)			96.5		%		75-125	28-AUG-14
<b>F2-ED</b>		<b>Water</b>						



## Quality Control Report

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F2-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2933789</b>							
<b>WG1941757-2</b>	<b>LCS</b>							
F2 (C10-C16)			102.3		%		65-135	29-AUG-14
<b>WG1941757-1</b>	<b>MB</b>							
F2 (C10-C16)			<0.25		mg/L		0.25	29-AUG-14
Surrogate: 2-Bromobenzotrifluoride			94.9		%		65-135	29-AUG-14
<b>HG-D-L-CVAA-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2936072</b>							
<b>WG1942902-3</b>	<b>DUP</b>	<b>L1507500-1</b>						
Mercury (Hg)-Dissolved		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	02-SEP-14
<b>WG1942902-7</b>	<b>DUP</b>	<b>L1507518-12</b>						
Mercury (Hg)-Dissolved		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	02-SEP-14
<b>WG1942902-2</b>	<b>LCS</b>							
Mercury (Hg)-Dissolved			85.8		%		80-120	02-SEP-14
<b>WG1942902-6</b>	<b>LCS</b>							
Mercury (Hg)-Dissolved			86.7		%		80-120	02-SEP-14
<b>WG1942902-1</b>	<b>MB</b>							
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	02-SEP-14
<b>WG1942902-5</b>	<b>MB</b>							
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	02-SEP-14
<b>WG1942902-4</b>	<b>MS</b>	<b>L1507500-1</b>						
Mercury (Hg)-Dissolved			87.5		%		70-130	02-SEP-14
<b>WG1942902-8</b>	<b>MS</b>	<b>L1507518-12</b>						
Mercury (Hg)-Dissolved			78.7		%		70-130	02-SEP-14
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-10</b>	<b>CRM</b>	<b>ED-HIGH-WATRM</b>						
Aluminum (Al)-Dissolved			97.7		%		80-120	04-SEP-14
Antimony (Sb)-Dissolved			98.2		%		80-120	04-SEP-14
Arsenic (As)-Dissolved			103.8		%		80-120	04-SEP-14
Barium (Ba)-Dissolved			105.8		%		80-120	04-SEP-14
Boron (B)-Dissolved			88.5		%		80-120	04-SEP-14
Cadmium (Cd)-Dissolved			102.4		%		80-120	04-SEP-14
Calcium (Ca)-Dissolved			105.8		%		80-120	04-SEP-14
Chromium (Cr)-Dissolved			103.9		%		80-120	04-SEP-14
Copper (Cu)-Dissolved			101.0		%		80-120	04-SEP-14
Lead (Pb)-Dissolved			108.8		%		80-120	04-SEP-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
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Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-10 CRM</b>	<b>ED-HIGH-WATRM</b>							
Magnesium (Mg)-Dissolved			104.6		%		80-120	04-SEP-14
Manganese (Mn)-Dissolved			102.6		%		80-120	04-SEP-14
Nickel (Ni)-Dissolved			104.5		%		80-120	04-SEP-14
Potassium (K)-Dissolved			100.8		%		80-120	04-SEP-14
Selenium (Se)-Dissolved			109.1		%		80-120	04-SEP-14
Silver (Ag)-Dissolved			103.6		%		80-120	04-SEP-14
Sodium (Na)-Dissolved			97.4		%		80-120	04-SEP-14
Uranium (U)-Dissolved			105.8		%		80-120	04-SEP-14
Zinc (Zn)-Dissolved			94.3		%		80-120	04-SEP-14
<b>WG1944463-2 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			119.8		%		80-120	04-SEP-14
Antimony (Sb)-Dissolved			103.4		%		80-120	04-SEP-14
Arsenic (As)-Dissolved			111.3		%		80-120	04-SEP-14
Barium (Ba)-Dissolved			114.3		%		80-120	04-SEP-14
Boron (B)-Dissolved			82.8		%		80-120	04-SEP-14
Cadmium (Cd)-Dissolved			110.0		%		80-120	04-SEP-14
Calcium (Ca)-Dissolved			100.6		%		80-120	04-SEP-14
Chromium (Cr)-Dissolved			111.1		%		80-120	04-SEP-14
Copper (Cu)-Dissolved			107.9		%		80-120	04-SEP-14
Lead (Pb)-Dissolved			106.8		%		80-120	04-SEP-14
Magnesium (Mg)-Dissolved			108.1		%		80-120	04-SEP-14
Manganese (Mn)-Dissolved			111.1		%		80-120	04-SEP-14
Nickel (Ni)-Dissolved			112.0		%		80-120	04-SEP-14
Potassium (K)-Dissolved			105.7		%		80-120	04-SEP-14
Selenium (Se)-Dissolved			115.0		%		80-120	04-SEP-14
Silver (Ag)-Dissolved			110.0		%		80-120	04-SEP-14
Sodium (Na)-Dissolved			105.8		%		80-120	04-SEP-14
Uranium (U)-Dissolved			106.9		%		80-120	04-SEP-14
Zinc (Zn)-Dissolved			103.4		%		80-120	04-SEP-14
<b>WG1944463-4 CRM</b>	<b>ED-HIGH-WATRM</b>							
Aluminum (Al)-Dissolved			101.0		%		80-120	04-SEP-14
Antimony (Sb)-Dissolved			101.0		%		80-120	04-SEP-14
Arsenic (As)-Dissolved			101.7		%		80-120	04-SEP-14
Barium (Ba)-Dissolved			104.1		%		80-120	04-SEP-14



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700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-4 CRM</b>		<b>ED-HIGH-WATRM</b>						
Boron (B)-Dissolved			88.1		%		80-120	04-SEP-14
Cadmium (Cd)-Dissolved			101.6		%		80-120	04-SEP-14
Calcium (Ca)-Dissolved			103.5		%		80-120	04-SEP-14
Chromium (Cr)-Dissolved			102.2		%		80-120	04-SEP-14
Copper (Cu)-Dissolved			100.1		%		80-120	04-SEP-14
Lead (Pb)-Dissolved			106.7		%		80-120	04-SEP-14
Magnesium (Mg)-Dissolved			105.3		%		80-120	04-SEP-14
Manganese (Mn)-Dissolved			103.7		%		80-120	04-SEP-14
Nickel (Ni)-Dissolved			100.8		%		80-120	04-SEP-14
Potassium (K)-Dissolved			98.5		%		80-120	04-SEP-14
Selenium (Se)-Dissolved			98.5		%		80-120	04-SEP-14
Silver (Ag)-Dissolved			104.7		%		80-120	04-SEP-14
Sodium (Na)-Dissolved			100.8		%		80-120	04-SEP-14
Uranium (U)-Dissolved			110.8		%		80-120	04-SEP-14
Zinc (Zn)-Dissolved			102.2		%		80-120	04-SEP-14
<b>WG1944463-6 CRM</b>		<b>ED-HIGH-WATRM</b>						
Aluminum (Al)-Dissolved			98.5		%		80-120	04-SEP-14
Antimony (Sb)-Dissolved			98.3		%		80-120	04-SEP-14
Arsenic (As)-Dissolved			101.2		%		80-120	04-SEP-14
Barium (Ba)-Dissolved			103.5		%		80-120	04-SEP-14
Boron (B)-Dissolved			87.3		%		80-120	04-SEP-14
Cadmium (Cd)-Dissolved			101.9		%		80-120	04-SEP-14
Calcium (Ca)-Dissolved			102.0		%		80-120	04-SEP-14
Chromium (Cr)-Dissolved			102.2		%		80-120	04-SEP-14
Copper (Cu)-Dissolved			99.5		%		80-120	04-SEP-14
Lead (Pb)-Dissolved			104.4		%		80-120	04-SEP-14
Magnesium (Mg)-Dissolved			101.8		%		80-120	04-SEP-14
Manganese (Mn)-Dissolved			102.6		%		80-120	04-SEP-14
Nickel (Ni)-Dissolved			100.5		%		80-120	04-SEP-14
Potassium (K)-Dissolved			98.1		%		80-120	04-SEP-14
Selenium (Se)-Dissolved			100.1		%		80-120	04-SEP-14
Silver (Ag)-Dissolved			102.0		%		80-120	04-SEP-14
Sodium (Na)-Dissolved			102.0		%		80-120	04-SEP-14
Uranium (U)-Dissolved			108.5		%		80-120	04-SEP-14



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**Client:** WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

**Contact:** Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-6 CRM</b>		<b>ED-HIGH-WATRM</b>						
Zinc (Zn)-Dissolved			96.5		%		80-120	04-SEP-14
<b>WG1944463-8 CRM</b>		<b>ED-HIGH-WATRM</b>						
Aluminum (Al)-Dissolved			96.6		%		80-120	04-SEP-14
Antimony (Sb)-Dissolved			101.8		%		80-120	04-SEP-14
Arsenic (As)-Dissolved			104.3		%		80-120	04-SEP-14
Barium (Ba)-Dissolved			102.6		%		80-120	04-SEP-14
Boron (B)-Dissolved			85.0		%		80-120	04-SEP-14
Cadmium (Cd)-Dissolved			102.9		%		80-120	04-SEP-14
Calcium (Ca)-Dissolved			101.0		%		80-120	04-SEP-14
Chromium (Cr)-Dissolved			103.9		%		80-120	04-SEP-14
Copper (Cu)-Dissolved			101.0		%		80-120	04-SEP-14
Lead (Pb)-Dissolved			107.6		%		80-120	04-SEP-14
Magnesium (Mg)-Dissolved			103.0		%		80-120	04-SEP-14
Manganese (Mn)-Dissolved			101.9		%		80-120	04-SEP-14
Nickel (Ni)-Dissolved			103.8		%		80-120	04-SEP-14
Potassium (K)-Dissolved			100.5		%		80-120	04-SEP-14
Selenium (Se)-Dissolved			109.1		%		80-120	04-SEP-14
Silver (Ag)-Dissolved			104.2		%		80-120	04-SEP-14
Sodium (Na)-Dissolved			100.9		%		80-120	04-SEP-14
Uranium (U)-Dissolved			105.2		%		80-120	04-SEP-14
Zinc (Zn)-Dissolved			98.3		%		80-120	04-SEP-14
<b>WG1944463-11 DUP</b>		<b>L1444454-32</b>						
Aluminum (Al)-Dissolved		N/A	0.0130		mg/L	3.7	20	04-SEP-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Arsenic (As)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Barium (Ba)-Dissolved		N/A	0.000420		mg/L	12	20	04-SEP-14
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	04-SEP-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Calcium (Ca)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	04-SEP-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Copper (Cu)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Iron (Fe)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	04-SEP-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-SEP-14
Magnesium (Mg)-Dissolved		<0.10	<0.10		mg/L			



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**Client:** WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

**Contact:** Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-11 DUP</b>		<b>L1444454-32</b>						
Magnesium (Mg)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	04-SEP-14
Manganese (Mn)-Dissolved		N/A	0.000099		mg/L	0.0	20	04-SEP-14
Nickel (Ni)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Potassium (K)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	04-SEP-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Sodium (Na)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	04-SEP-14
Uranium (U)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Zinc (Zn)-Dissolved		N/A	0.0017		mg/L	14	20	04-SEP-14
<b>WG1944463-12 DUP</b>		<b>L1509027-33</b>						
Aluminum (Al)-Dissolved		0.0027	0.0036	J	mg/L	0.0009	0.002	04-SEP-14
Antimony (Sb)-Dissolved		0.00018	0.00017		mg/L	4.5	20	04-SEP-14
Arsenic (As)-Dissolved		0.00017	0.00018		mg/L	4.5	20	04-SEP-14
Barium (Ba)-Dissolved		0.329	0.344		mg/L	4.4	20	04-SEP-14
Boron (B)-Dissolved		0.011	<0.010	RPD-NA	mg/L	N/A	20	04-SEP-14
Cadmium (Cd)-Dissolved		0.000152	0.000159		mg/L	5.0	20	04-SEP-14
Calcium (Ca)-Dissolved		148	149		mg/L	0.4	20	04-SEP-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Copper (Cu)-Dissolved		0.00162	0.00168		mg/L	3.2	20	04-SEP-14
Iron (Fe)-Dissolved		0.062	0.057		mg/L	8.3	20	04-SEP-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-SEP-14
Magnesium (Mg)-Dissolved		22.7	23.1		mg/L	1.6	20	04-SEP-14
Manganese (Mn)-Dissolved		0.349	0.351		mg/L	0.4	20	04-SEP-14
Nickel (Ni)-Dissolved		0.00289	0.00300		mg/L	3.6	20	04-SEP-14
Potassium (K)-Dissolved		0.60	0.60		mg/L	0.5	20	04-SEP-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Sodium (Na)-Dissolved		7.1	7.2		mg/L	0.6	20	04-SEP-14
Uranium (U)-Dissolved		0.000658	0.000663		mg/L	0.6	20	04-SEP-14
Zinc (Zn)-Dissolved		0.0013	0.0021	J	mg/L	0.0008	0.002	04-SEP-14
<b>WG1944463-13 DUP</b>		<b>L1509027-24</b>						
Aluminum (Al)-Dissolved		0.0037	0.0036		mg/L	4.1	20	04-SEP-14
Antimony (Sb)-Dissolved		0.00011	0.00011		mg/L	1.3	20	04-SEP-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-13</b>	<b>DUP</b>	<b>L1509027-24</b>						
Arsenic (As)-Dissolved		0.00455	0.00445		mg/L	2.2	20	04-SEP-14
Barium (Ba)-Dissolved		0.410	0.417		mg/L	1.7	20	04-SEP-14
Boron (B)-Dissolved		0.077	0.076		mg/L	0.5	20	04-SEP-14
Cadmium (Cd)-Dissolved		0.000012	0.000011		mg/L	11	20	04-SEP-14
Calcium (Ca)-Dissolved		151	154		mg/L	2.5	20	04-SEP-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Copper (Cu)-Dissolved		0.00084	0.00083		mg/L	1.7	20	04-SEP-14
Iron (Fe)-Dissolved		1.11	1.09		mg/L	1.4	20	04-SEP-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-SEP-14
Magnesium (Mg)-Dissolved		34.0	33.7		mg/L	0.9	20	04-SEP-14
Manganese (Mn)-Dissolved		3.66	3.66		mg/L	0.1	20	04-SEP-14
Nickel (Ni)-Dissolved		0.00681	0.00690		mg/L	1.4	20	04-SEP-14
Potassium (K)-Dissolved		1.38	1.37		mg/L	0.9	20	04-SEP-14
Selenium (Se)-Dissolved		0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Sodium (Na)-Dissolved		109	110		mg/L	0.2	20	04-SEP-14
Uranium (U)-Dissolved		0.00375	0.00379		mg/L	1.1	20	04-SEP-14
Zinc (Zn)-Dissolved		2.70	2.74		mg/L	1.5	20	04-SEP-14
<b>WG1944463-14</b>	<b>DUP</b>	<b>L1509027-5</b>						
Aluminum (Al)-Dissolved		0.0046	0.0050		mg/L	8.7	20	04-SEP-14
Antimony (Sb)-Dissolved		0.00012	0.00013		mg/L	1.0	20	04-SEP-14
Arsenic (As)-Dissolved		0.00033	0.00034		mg/L	3.4	20	04-SEP-14
Barium (Ba)-Dissolved		0.307	0.319		mg/L	3.9	20	04-SEP-14
Boron (B)-Dissolved		0.150	0.146		mg/L	2.3	20	04-SEP-14
Cadmium (Cd)-Dissolved		0.000053	0.000057		mg/L	7.8	20	04-SEP-14
Calcium (Ca)-Dissolved		173	175		mg/L	1.0	20	04-SEP-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Copper (Cu)-Dissolved		0.00173	0.00173		mg/L	0.2	20	04-SEP-14
Iron (Fe)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	04-SEP-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-SEP-14
Magnesium (Mg)-Dissolved		21.7	21.8		mg/L	0.1	20	04-SEP-14
Manganese (Mn)-Dissolved		0.0167	0.0167		mg/L	0.3	20	04-SEP-14
Nickel (Ni)-Dissolved		0.00634	0.00632		mg/L	0.3	20	04-SEP-14



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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-14</b>	<b>DUP</b>	<b>L1509027-5</b>						
Potassium (K)-Dissolved		4.61	4.67		mg/L	1.2	20	04-SEP-14
Selenium (Se)-Dissolved		0.00012	0.00013		mg/L	11	20	04-SEP-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Sodium (Na)-Dissolved		90.7	88.9		mg/L	2.0	20	04-SEP-14
Uranium (U)-Dissolved		0.00150	0.00146		mg/L	2.6	20	04-SEP-14
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	04-SEP-14
<b>WG1944463-15</b>	<b>DUP</b>	<b>L1505554-3</b>						
Aluminum (Al)-Dissolved		N/A	0.0053		mg/L	13	20	04-SEP-14
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Arsenic (As)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Barium (Ba)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-SEP-14
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	04-SEP-14
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Calcium (Ca)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	04-SEP-14
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Copper (Cu)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Iron (Fe)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	04-SEP-14
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-SEP-14
Magnesium (Mg)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	04-SEP-14
Manganese (Mn)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-SEP-14
Nickel (Ni)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Potassium (K)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	04-SEP-14
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-SEP-14
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Sodium (Na)-Dissolved		<1.0	<1.0	RPD-NA	mg/L	N/A	20	04-SEP-14
Uranium (U)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-SEP-14
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	04-SEP-14
<b>WG1944463-1</b>	<b>MB</b>							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	04-SEP-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	04-SEP-14





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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-1</b>	<b>MB</b>							
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	04-SEP-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	04-SEP-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	04-SEP-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	04-SEP-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	04-SEP-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	04-SEP-14
<b>WG1944463-3</b>	<b>MB</b>							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	04-SEP-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	04-SEP-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	04-SEP-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	04-SEP-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	04-SEP-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	04-SEP-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	04-SEP-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-3 MB</b>								
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	04-SEP-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	04-SEP-14
<b>WG1944463-5 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	04-SEP-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	04-SEP-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	04-SEP-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	04-SEP-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	04-SEP-14
	Chromium (Cr)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Copper (Cu)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Iron (Fe)-Dissolved		<0.010		mg/L		0.01	04-SEP-14
	Lead (Pb)-Dissolved		<0.000050		mg/L		0.00005	04-SEP-14
	Magnesium (Mg)-Dissolved		<0.0050		mg/L		0.005	04-SEP-14
	Manganese (Mn)-Dissolved		<0.000050		mg/L		0.00005	04-SEP-14
	Nickel (Ni)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Potassium (K)-Dissolved		<0.050		mg/L		0.05	04-SEP-14
	Selenium (Se)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Silver (Ag)-Dissolved		<0.000010		mg/L		0.00001	04-SEP-14
	Sodium (Na)-Dissolved		<0.050		mg/L		0.05	04-SEP-14
	Uranium (U)-Dissolved		<0.000010		mg/L		0.00001	04-SEP-14
	Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	04-SEP-14
<b>WG1944463-7 MB</b>								
	Aluminum (Al)-Dissolved		<0.0010		mg/L		0.001	04-SEP-14
	Antimony (Sb)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Arsenic (As)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Barium (Ba)-Dissolved		<0.000050		mg/L		0.00005	04-SEP-14
	Boron (B)-Dissolved		<0.010		mg/L		0.01	04-SEP-14
	Cadmium (Cd)-Dissolved		<0.000010		mg/L		0.00001	04-SEP-14
	Calcium (Ca)-Dissolved		<0.020		mg/L		0.02	04-SEP-14
	Chromium (Cr)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Copper (Cu)-Dissolved		<0.00010		mg/L		0.0001	04-SEP-14
	Iron (Fe)-Dissolved		<0.010		mg/L		0.01	04-SEP-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-D-CCMS-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2938189</b>							
<b>WG1944463-7 MB</b>								
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	04-SEP-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	04-SEP-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	04-SEP-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	04-SEP-14
<b>WG1944463-9 MB</b>								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	04-SEP-14
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	04-SEP-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	04-SEP-14
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	04-SEP-14
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	04-SEP-14
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	04-SEP-14
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Potassium (K)-Dissolved			<0.050		mg/L		0.05	04-SEP-14
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	04-SEP-14
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	04-SEP-14
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	04-SEP-14
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	04-SEP-14

**NH3-D-CFA-ED** **Water**



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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NH3-D-CFA-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2936429</b>							
<b>WG1943324-3</b>	<b>DUP</b>	<b>L1507132-1</b>						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	03-SEP-14
<b>WG1943324-4</b>	<b>DUP</b>	<b>L1507000-1</b>						
Ammonia, Total Dissolved (as N)		1.98	2.03		mg/L	2.6	20	03-SEP-14
<b>WG1943324-2</b>	<b>LCS</b>							
Ammonia, Total Dissolved (as N)			100.4		%		85-115	03-SEP-14
<b>WG1943324-1</b>	<b>MB</b>							
Ammonia, Total Dissolved (as N)			<0.050		mg/L		0.05	03-SEP-14
<b>NO2-IC-ED</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R2932867</b>							
<b>WG1940888-11</b>	<b>DUP</b>	<b>L1508600-1</b>						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	28-AUG-14
<b>WG1940888-5</b>	<b>DUP</b>	<b>L1508669-8</b>						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	28-AUG-14
<b>WG1940888-13</b>	<b>LCS</b>							
Nitrite (as N)			90.2		%		90-110	28-AUG-14
<b>WG1940888-2</b>	<b>LCS</b>							
Nitrite (as N)			102.7		%		90-110	28-AUG-14
<b>WG1940888-3</b>	<b>LCS</b>							
Nitrite (as N)			90.1		%		90-110	28-AUG-14
<b>WG1940888-7</b>	<b>LCS</b>							
Nitrite (as N)			90.4		%		90-110	28-AUG-14
<b>WG1940888-9</b>	<b>LCS</b>							
Nitrite (as N)			91.1		%		90-110	28-AUG-14
<b>WG1940888-1</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-10</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-14</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-4</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-8</b>	<b>MB</b>							
Nitrite (as N)			<0.020		mg/L		0.02	28-AUG-14
<b>WG1940888-12</b>	<b>MS</b>	<b>L1508600-1</b>						
Nitrite (as N)			100.4		%		75-125	28-AUG-14
<b>WG1940888-6</b>	<b>MS</b>	<b>L1508669-8</b>						
Nitrite (as N)			101.5		%		75-125	28-AUG-14



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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NO3-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2932867</b>							
<b>WG1940888-11</b>	<b>DUP</b>	<b>L1508600-1</b>						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	28-AUG-14
<b>WG1940888-5</b>	<b>DUP</b>	<b>L1508669-8</b>						
Nitrate (as N)		0.211	0.213		mg/L	1.1	20	28-AUG-14
<b>WG1940888-13</b>	<b>LCS</b>							
Nitrate (as N)			101.2		%		90-110	28-AUG-14
<b>WG1940888-2</b>	<b>LCS</b>							
Nitrate (as N)			100.7		%		90-110	28-AUG-14
<b>WG1940888-3</b>	<b>LCS</b>							
Nitrate (as N)			103.4		%		90-110	28-AUG-14
<b>WG1940888-7</b>	<b>LCS</b>							
Nitrate (as N)			102.4		%		90-110	28-AUG-14
<b>WG1940888-9</b>	<b>LCS</b>							
Nitrate (as N)			103.1		%		90-110	28-AUG-14
<b>WG1940888-1</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	28-AUG-14
<b>WG1940888-10</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	28-AUG-14
<b>WG1940888-14</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	28-AUG-14
<b>WG1940888-4</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	28-AUG-14
<b>WG1940888-8</b>	<b>MB</b>							
Nitrate (as N)			<0.050		mg/L		0.05	28-AUG-14
<b>WG1940888-12</b>	<b>MS</b>	<b>L1508600-1</b>						
Nitrate (as N)			97.5		%		75-125	28-AUG-14
<b>WG1940888-6</b>	<b>MS</b>	<b>L1508669-8</b>						
Nitrate (as N)			98.1		%		75-125	28-AUG-14
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2933060</b>							
<b>WG1941196-10</b>	<b>DUP</b>	<b>L1509878-2</b>						
pH		7.72	7.75	J	pH	0.04	0.3	30-AUG-14
Conductivity (EC)		1050	1050		uS/cm	0.2	10	30-AUG-14
Bicarbonate (HCO3)		682	682		mg/L	0.0	25	30-AUG-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	30-AUG-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	30-AUG-14
Alkalinity, Total (as CaCO3)		559	559		mg/L	0.0	20	30-AUG-14



### Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2933060</b>							
<b>WG1941196-8</b>	<b>DUP</b>	<b>L1509355-10</b>						
pH		8.43	8.49	J	pH	0.06	0.3	29-AUG-14
Conductivity (EC)		503	504		uS/cm	0.2	10	29-AUG-14
Bicarbonate (HCO3)		277	276		mg/L	0.6	25	29-AUG-14
Carbonate (CO3)		5.3	8.1	J	mg/L	2.7	10	29-AUG-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	29-AUG-14
Alkalinity, Total (as CaCO3)		236	239		mg/L	1.3	20	29-AUG-14
<b>WG1941196-9</b>	<b>DUP</b>	<b>L1509862-1</b>						
pH		7.97	7.98	J	pH	0.01	0.3	29-AUG-14
Conductivity (EC)		13000	13000		uS/cm	0.2	10	29-AUG-14
Bicarbonate (HCO3)		2290	2300		mg/L	0.2	25	29-AUG-14
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	29-AUG-14
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	29-AUG-14
Alkalinity, Total (as CaCO3)		1880	1880		mg/L	0.2	20	29-AUG-14
<b>WG1941196-12</b>	<b>LCS</b>							
Conductivity (EC)			93.3		%		90-110	29-AUG-14
<b>WG1941196-13</b>	<b>LCS</b>							
pH			7.00		pH		6.7-7.3	29-AUG-14
<b>WG1941196-14</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			97.5		%		85-115	29-AUG-14
<b>WG1941196-15</b>	<b>LCS</b>							
Conductivity (EC)			96.8		%		90-110	29-AUG-14
<b>WG1941196-17</b>	<b>LCS</b>							
Conductivity (EC)			100.1		%		90-110	29-AUG-14
<b>WG1941196-18</b>	<b>LCS</b>							
pH			7.00		pH		6.7-7.3	29-AUG-14
<b>WG1941196-19</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			99.0		%		85-115	29-AUG-14
<b>WG1941196-2</b>	<b>LCS</b>							
Conductivity (EC)			94.6		%		90-110	29-AUG-14
<b>WG1941196-20</b>	<b>LCS</b>							
Conductivity (EC)			95.4		%		90-110	29-AUG-14
<b>WG1941196-22</b>	<b>LCS</b>							
Conductivity (EC)			99.7		%		90-110	30-AUG-14
<b>WG1941196-23</b>	<b>LCS</b>							
pH			7.01		pH		6.7-7.3	30-AUG-14
<b>WG1941196-24</b>	<b>LCS</b>							



## Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

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**Client:** WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

**Contact:** Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2933060</b>							
<b>WG1941196-24</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			99.0		%		85-115	30-AUG-14
<b>WG1941196-25</b>	<b>LCS</b>							
Conductivity (EC)			95.0		%		90-110	30-AUG-14
<b>WG1941196-27</b>	<b>LCS</b>							
Conductivity (EC)			99.9		%		90-110	30-AUG-14
<b>WG1941196-28</b>	<b>LCS</b>							
pH			7.00		pH		6.7-7.3	30-AUG-14
<b>WG1941196-29</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			99.0		%		85-115	30-AUG-14
<b>WG1941196-3</b>	<b>LCS</b>							
pH			7.01		pH		6.7-7.3	29-AUG-14
<b>WG1941196-30</b>	<b>LCS</b>							
Conductivity (EC)			94.6		%		90-110	30-AUG-14
<b>WG1941196-4</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			98.1		%		85-115	29-AUG-14
<b>WG1941196-5</b>	<b>LCS</b>							
Conductivity (EC)			98.3		%		90-110	29-AUG-14
<b>WG1941196-1</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	29-AUG-14
Carbonate (CO3)			<5.0		mg/L		5	29-AUG-14
Hydroxide (OH)			<5.0		mg/L		5	29-AUG-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	29-AUG-14
<b>WG1941196-11</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	29-AUG-14
Carbonate (CO3)			<5.0		mg/L		5	29-AUG-14
Hydroxide (OH)			<5.0		mg/L		5	29-AUG-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	29-AUG-14
<b>WG1941196-16</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	29-AUG-14
Carbonate (CO3)			<5.0		mg/L		5	29-AUG-14
Hydroxide (OH)			<5.0		mg/L		5	29-AUG-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	29-AUG-14
<b>WG1941196-21</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	30-AUG-14
Carbonate (CO3)			<5.0		mg/L		5	30-AUG-14
Hydroxide (OH)			<5.0		mg/L		5	30-AUG-14



### Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

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Client: WorleyParsons Canada  
 700 - 4445 Calgary Trail NW Terrace Plaza  
 Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH/EC/ALK-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2933060</b>							
<b>WG1941196-21</b>	<b>MB</b>							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	30-AUG-14
<b>WG1941196-26</b>	<b>MB</b>							
Bicarbonate (HCO3)			<5.0		mg/L		5	30-AUG-14
Carbonate (CO3)			<5.0		mg/L		5	30-AUG-14
Hydroxide (OH)			<5.0		mg/L		5	30-AUG-14
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	30-AUG-14
<b>PHENOLS-4AAP-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2939481</b>							
<b>WG1945697-2</b>	<b>LCS</b>							
Phenols (4AAP)			100.0		%		85-115	05-SEP-14
<b>WG1945697-1</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	05-SEP-14
<b>SO4-IC-ED</b>		<b>Water</b>						
<b>Batch</b>	<b>R2932867</b>							
<b>WG1940888-11</b>	<b>DUP</b>	<b>L1508600-1</b>						
Sulfate (SO4)		8.48	8.49		mg/L	0.2	20	28-AUG-14
<b>WG1940888-5</b>	<b>DUP</b>	<b>L1508669-8</b>						
Sulfate (SO4)		321	325		mg/L	1.0	20	28-AUG-14
<b>WG1940888-13</b>	<b>LCS</b>							
Sulfate (SO4)			102.4		%		90-110	28-AUG-14
<b>WG1940888-2</b>	<b>LCS</b>							
Sulfate (SO4)			102.4		%		90-110	28-AUG-14
<b>WG1940888-3</b>	<b>LCS</b>							
Sulfate (SO4)			102.9		%		90-110	28-AUG-14
<b>WG1940888-7</b>	<b>LCS</b>							
Sulfate (SO4)			102.4		%		90-110	28-AUG-14
<b>WG1940888-9</b>	<b>LCS</b>							
Sulfate (SO4)			103.3		%		90-110	28-AUG-14
<b>WG1940888-1</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-10</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-14</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-4</b>	<b>MB</b>							
Sulfate (SO4)			<0.50		mg/L		0.5	28-AUG-14





### Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

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Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7

Contact: Trevor Butterfield

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SO4-IC-ED</b>								
	Water							
<b>Batch</b>	<b>R2932867</b>							
<b>WG1940888-8 MB</b>								
Sulfate (SO4)			<0.50		mg/L		0.5	28-AUG-14
<b>WG1940888-12 MS</b>		<b>L1508600-1</b>						
Sulfate (SO4)			100.9		%		75-125	28-AUG-14
<b>WG1940888-6 MS</b>		<b>L1508669-8</b>						
Sulfate (SO4)			N/A	MS-B	%		-	28-AUG-14
<b>SOLIDS-TDS-ED</b>								
	Water							
<b>Batch</b>	<b>R2937101</b>							
<b>WG1942643-3 DUP</b>		<b>L1508431-1</b>						
Total Dissolved Solids		1030	1040		mg/L	0.8	20	02-SEP-14
<b>WG1942643-4 DUP</b>		<b>L1508740-4</b>						
Total Dissolved Solids		161	157		mg/L	2.5	20	02-SEP-14
<b>WG1942643-2 LCS</b>								
Total Dissolved Solids			103.0		%		85-115	02-SEP-14
<b>WG1942643-1 MB</b>								
Total Dissolved Solids			<10		mg/L		10	02-SEP-14

# Quality Control Report

Workorder: L1509708

Report Date: 05-SEP-14

Client: WorleyParsons Canada  
700 - 4445 Calgary Trail NW Terrace Plaza  
Edmonton AB T6H 5R7  
Contact: Trevor Butterfield

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## Legend:

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Limit ALS Control Limit (Data Quality Objectives)  
DUP Duplicate  
RPD Relative Percent Difference  
N/A Not Available  
LCS Laboratory Control Sample  
SRM Standard Reference Material  
MS Matrix Spike  
MSD Matrix Spike Duplicate  
ADE Average Desorption Efficiency  
MB Method Blank  
IRM Internal Reference Material  
CRM Certified Reference Material  
CCV Continuing Calibration Verification  
CVS Calibration Verification Standard  
LCSD Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

---

## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

---

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Request Form

Affix ALS barcode label here  
(lab use only)

**Report To**  
 Company: Norveglassons  
 Contact: Trevor Butterfield  
 Address: Suite 700, Calgary Trail  
Edmonton AB T6H 5R7  
 Phone: 780-496-9055

**Invoice To**  
 Same as Report To  Yes  No  
 Copy of Invoices with Report  Yes  No

**Company:**  
 Contact:

**Project Information**  
 ALS Order #: 307016-06086-200  
 Job #: 307016-06086-200  
 P/L DATE:  
 LSD:

**ALS Lab Work Order # (lab use only)**  
L1509708

**Sample Identification and/or Coordinates**  
 (This description will appear on the report)  
MAN-02

**ALS Contact: Dana Brown** Sampler: SB

**Select Report Format:**  EXCEL  PDF  REPORT  
 Quality Control (QC) Report with Report  Yes  No  
 Create an Report - provides data's basis if box checked  
 Select Distribution:  EMAIL  MAIL  FAX  
 Email 1 or Fax: trevor.butterfield@norveglassons.com  
 Email 2: daw.chemistry@norveglassons.com

**Invoice Distribution**  
 Select Invoice Distribution:  EMAIL  MAIL  FAX  
 Email 1 or Fax: trevor.butterfield@norveglassons.com  
 Email 2:

**Oil and Gas Required Fields (client use)**  
 Approver ID:  
 GL Account:  
 Activity Code:  
 Location:

**Report Format / Distribution**  
 Select Service Level Below (Risk Individual Time (TAT) is in minutes) (lab use only)  
 Regular (Standard TAT if received by 3pm)  
 Priority (2-4 business days received by 3pm)  
 Emergency (1-2 business days received by 2pm)  
 Same day received, emergency received by 10am - contact ALS for surcharges.  
 Specify Date Required for E2, E or P:  
 R  P  E  E2

**Analysis Request**  
 Indicate Filtered (F), Pyrolyzed (P), Extracted (E), or Other (O) in the box:  
 P P F/A F/R F/R F/R P  
 X BTX, FI X DOC X DTHB X Diss. Metals X Diss. Mercury X Rhenols X Routine + F X TDS Actual

**Number of Containers**  
 10

**Barcode:**  
 L1509708-COFC

**Drinking Water (DW) Samples (client use)**  
 Are samples taken from a Regulated DW System?  
 Yes  No  
 Are samples for human drinking water use?  
 Yes  No

**Shipping/Release (client use)**  
 Released by: STUART Gray Date: 28 Aug - 14 Time: 1355

**Initial Shipment Reception (lab use only)**  
 Received by: [Signature] Date: 08/28/14 Time: 1352

**Special Instructions / Specify Criteria to add on report (client use)**  
 None

**SAMPLE CONDITION AS RECEIVED (lab use only)**  
 Frozen  SIF Observations Yes  No   
 Ice packs Yes  No  Custody seal intact Yes  No   
 Cooling Initiated   
 INITIAL COOLER TEMPERATURES: C 6.50 FINAL COOLER TEMPERATURES: C

**FINAL SHIPMENT RECEPTION (lab use only)**  
 Received by: Date: Time:

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

PLEASE REFER TO BACK PAGE FOR REGULATIONS AND SAMPLING INFORMATION

Submit to ALS by 3:00 PM on the day of the test. Please refer to this form LEGIBLY by the use of this form for our acknowledgements and approval with the forms and conditions. Acknowledgement of this form is required for the test to be performed.



## **Appendix 5    Mann-Kendall/Sen's Slope Analysis and Hydrochemical Control Charts**





Project No.: 307076-06086-200		Trend Analysis				
Monitoring Station	Parameter	Probability (-)	Slope (mg/L/yr)	Normalized Slope (%/yr)	Meets Trend Assumptions? 3	Mann-Kendall Trend <sup>2</sup>
<b>Groundwater Monitoring</b>						
MW-01	Chloride	0.47	0.00	0.00	Y	---
	Fluoride	0.96	0.00	-3.14	Y	---
	Sulphate	0.73	-0.17	-0.29	Y	---
	Tot Dissolved Solids	0.92	-1.84	-0.42	Y	---
	DOC	0.98	0.07	2.18	Y	---
	Iron	0.88	0.05	3.23	Y	---
	Manganese	0.99	0.01	1.53	Y	---
	Sodium	0.91	-0.34	-0.93	Y	---
	MW-02	Chloride	0.88	1.50	6.71	Y
Fluoride		0.99	-0.01	-6.26	Y	---
Sulphate		0.78	-4.24	-1.61	Y	---
Tot Dissolved Solids		0.53	0.48	0.05	Y	---
DOC		0.81	-0.08	-1.48	Y	---
Iron		0.97	1.10	13.61	Y	U
Manganese		0.89	-0.03	-6.01	Y	---
Sodium		0.65	-0.51	-0.56	Y	---
MW-03		Chloride	1.00	2.08	5.79	Y
	Fluoride	0.88	0.00	-3.00	Y	---
	Sulphate	0.71	0.71	0.59	Y	---
	Tot Dissolved Solids	0.76	1.70	0.30	Y	---
	DOC	0.56	0.00	0.00	Y	---
	Iron	0.95	0.12	2.49	Y	---
	Manganese	0.78	0.00	0.56	Y	---
	Sodium	0.89	-0.50	-0.96	Y	---
	MW-04	Chloride	0.92	-2.04	-1.40	Y
Fluoride		0.99	-0.01	-4.49	Y	---
Sulphate		0.94	0.76	0.87	Y	---
Tot Dissolved Solids		0.76	-0.97	-0.13	Y	---
DOC		0.57	0.00	0.00	Y	---
Iron		0.88	0.03	34.39	Y	---
Manganese		0.94	0.05	35.01	Y	---
Sodium		0.84	-0.84	-1.48	Y	---
MW-05		Chloride	1.00	2.02	6.75	Y
	Fluoride	1.00	-0.01	-6.21	Y	---
	Sulphate	0.99	3.14	2.28	Y	---
	Tot Dissolved Solids	1.00	7.64	1.35	Y	---
	DOC	0.76	0.07	1.81	Y	---
	Iron	0.91	0.12	3.65	Y	---
	Manganese	1.00	0.03	3.99	Y	---
	Sodium	0.89	-0.19	-0.45	Y	---
	MW-06	Chloride	0.88	-0.43	-7.23	Y
Fluoride		0.99	0.00	-2.92	Y	---
Sulphate		0.94	5.40	1.09	Y	---
Tot Dissolved Solids		0.53	0.00	0.00	Y	---
DOC		0.68	-0.04	-0.61	Y	---
Iron		1.00	0.35	6.44	Y	---
Manganese		1.00	0.06	4.31	Y	---
Sodium		0.86	-3.81	-2.54	Y	---
MW-07		Chloride	0.83	-0.25	-1.93	Y
	Fluoride	0.63	0.00	1.43	Y	---
	Sulphate	0.58	1.36	0.13	Y	---
	Tot Dissolved Solids	0.66	-5.50	-0.28	Y	---
	DOC	0.76	0.01	0.22	Y	---
	Iron	0.96	0.33	2.95	Y	---
	Manganese	0.58	0.00	0.10	Y	---
	Sodium	0.86	-3.53	-1.37	Y	---
	MW-08	Chloride	1.00	-0.26	-13.18	Y
Fluoride		0.86	0.00	-2.82	Y	---
Sulphate		0.65	-2.06	-0.64	Y	---
Tot Dissolved Solids		0.94	-10.75	-1.22	Y	---
DOC		0.47	0.00	0.00	Y	---
Iron		0.71	0.10	1.50	Y	---
Manganese		0.68	0.00	-0.50	Y	---
Sodium		0.97	-2.57	-2.30	Y	---
MW-09		Chloride	0.89	-0.12	-2.13	Y
	Fluoride	0.97	-0.01	-2.53	Y	---
	Sulphate	0.96	2.14	0.66	Y	---
	Tot Dissolved Solids	0.62	3.33	0.33	Y	---
	DOC	0.50	0.00	0.00	Y	---
	Iron	0.98	0.08	4.31	Y	---
	Manganese	0.98	0.01	1.50	Y	---
	Sodium	0.59	1.44	0.63	Y	---
	MW-10	Chloride	0.87	-0.17	-22.81	Y
Fluoride		0.95	0.00	-2.71	Y	---
Sulphate		0.50	0.42	0.20	Y	---
Tot Dissolved Solids		0.80	-4.08	-0.50	Y	---
DOC		0.87	0.07	1.24	Y	---
Iron		0.97	0.07	1.21	Y	---
Manganese		0.89	0.01	0.82	Y	---
Sodium		0.50	0.00	0.00	Y	---
MW-11		Chloride	0.50	0.00	0.00	Y

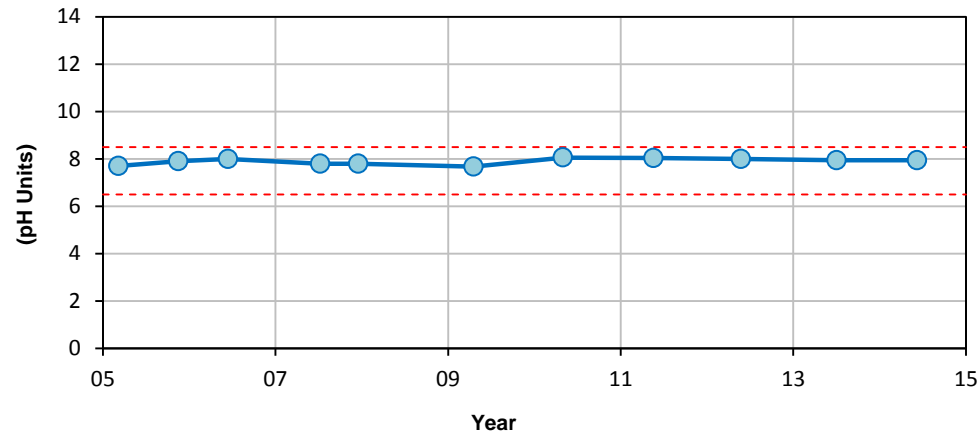


Project No.: 307076-06086-200		Trend Analysis				
Monitoring Station	Parameter	Probability (-)	Slope (mg/L/yr)	Normalized Slope (%/yr)	Meets Trend Assumptions? 3	Mann-Kendall Trend <sup>2</sup>
MW-12	Fluoride	0.76	0.00	-2.23	Y	---
	Sulphate	0.97	2.57	1.27	Y	---
	Tot Dissolved Solids	0.73	-1.82	-0.22	Y	---
	DOC	0.98	-0.26	-3.90	Y	---
	Iron	0.73	0.02	0.23	Y	---
	Manganese	0.86	0.00	0.46	Y	---
	Sodium	0.80	0.54	0.59	Y	---
	Chloride	0.50	0.00	0.00	Y	---
	Fluoride	0.59	0.00	-0.99	Y	---
	Sulphate	0.50	0.03	0.06	Y	---
MW-13	Tot Dissolved Solids	0.86	-3.02	-0.50	Y	---
	DOC	0.83	0.11	1.54	Y	---
	Iron	0.94	0.09	2.38	Y	---
	Manganese	1.00	0.01	1.61	Y	---
	Sodium	0.80	-0.91	-0.86	Y	---
	Chloride	0.74	-0.02	-1.08	Y	---
	Fluoride	0.83	0.00	-2.19	Y	---
	Sulphate	0.53	-0.01	-0.15	Y	---
	Tot Dissolved Solids	0.97	-3.05	-0.67	Y	---
	DOC	0.68	0.02	0.39	Y	---
Iron	0.95	0.03	2.45	Y	---	
Manganese	0.93	0.00	-0.55	Y	---	
Sodium	0.76	-0.39	-0.35	Y	---	

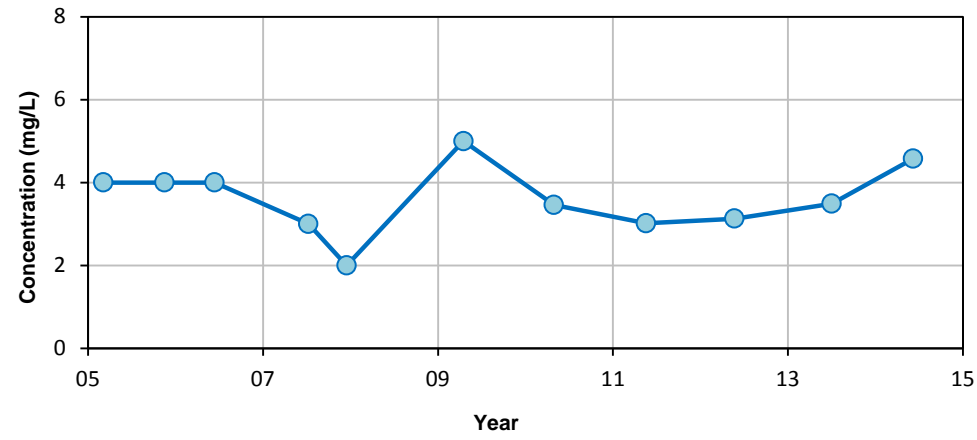
1. Basic analysis performed with the following conditions:
  - Non-detect multiplier of 0.5 applied to <DL sample data
2. Trend Analysis:
  - Statistically significant trend defined as:
    - Mann-Kendall probability is greater than 95%
    - Sen's normalized slope is greater than 10%
    - Absolute slope is greater than parameter specific criteria of:
      - 2 mg/L/yr for Cl, TDS, SO4, Na; 0.5 mg/L/yr for DOC; 0.1 mg/L/yr for F, Fe, Mn
  - Non-detect multiplier of 0.5 applied to <DL sample data
  - U: Denotes statistically significant upward trend
  - D: Denotes statistically significant downward trend
  - "----": Denotes no trend
3. Legend for control limit/trend assumptions:
  - Y: All conditions are met
  - N: Not all conditions are met, specified as follows:
    - No new data: No sample data present for years reported
    - Ins. CL data: There are fewer than 0 valid data points
    - Ins. trend data: There are fewer than 6 valid data points
    - Ins. >DL data: Less than 50% of trend data was above detection limit
    - U Trend: An upward Mann-Kendall trend is present
    - D Trend: A downward Mann-Kendall trend is present
    - Non-Monotonic: Trend is non-monotonic (ie. trend reversal or termination is not present)
    - Damaged: The well is damaged



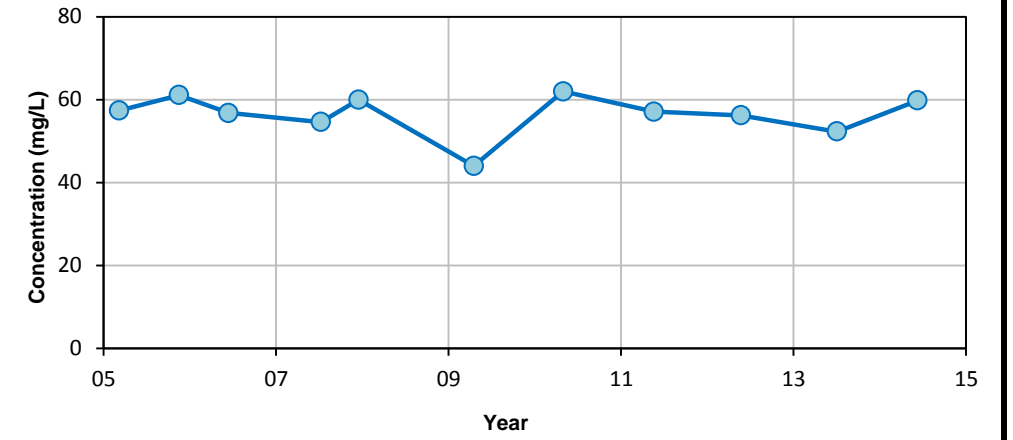
**PH (LABORATORY MEASURED)**



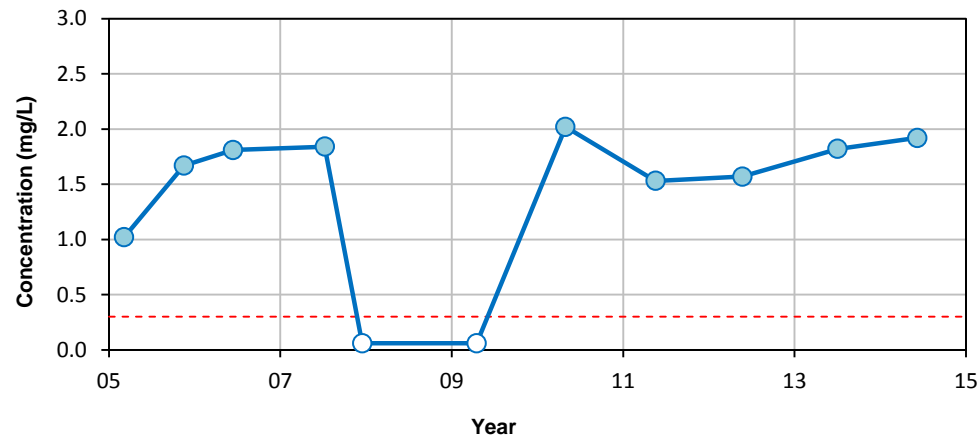
**CHLORIDE**



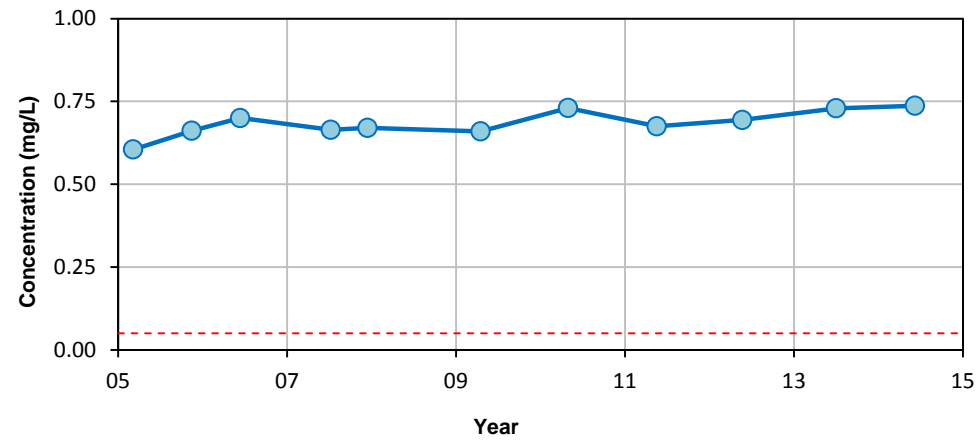
**SULPHATE**



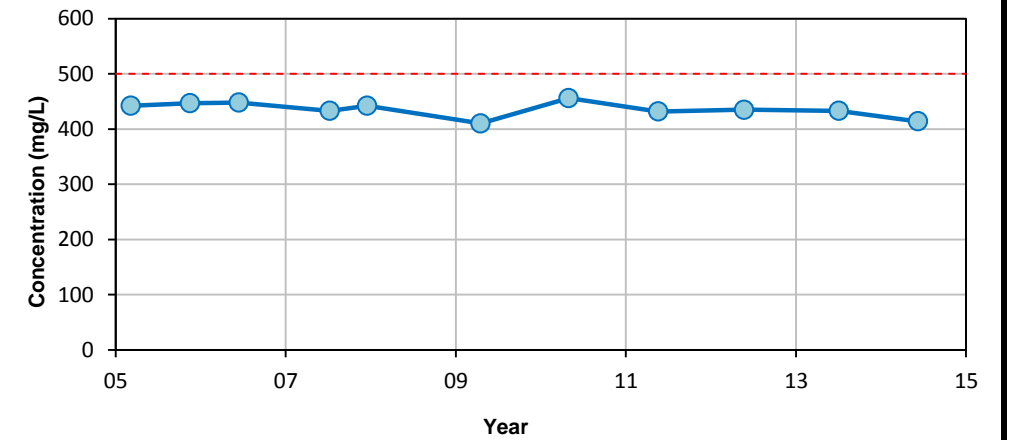
**IRON**



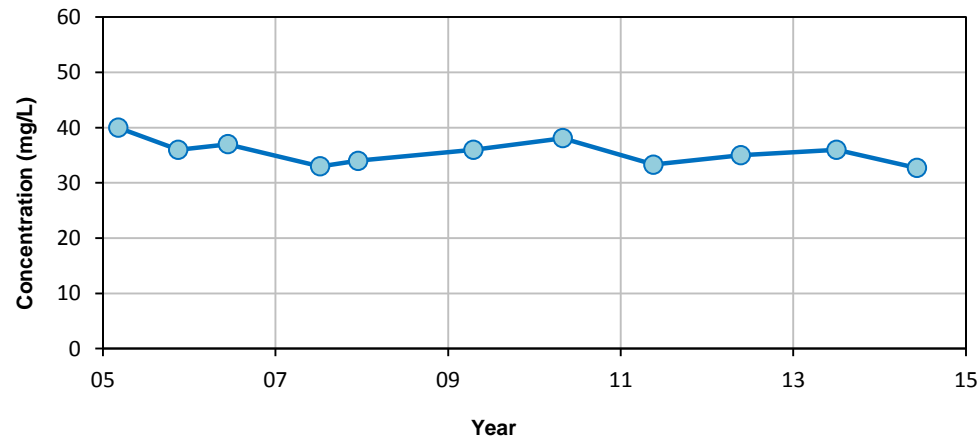
**MANGANESE**



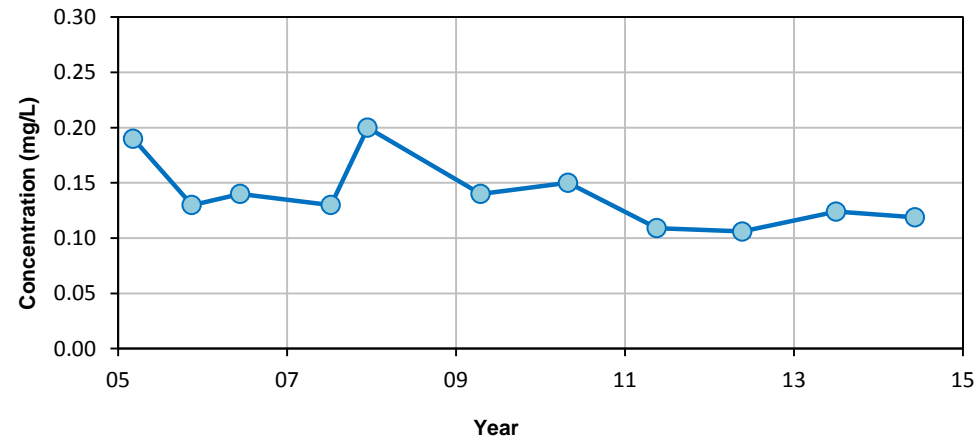
**TOTAL DISSOLVED SOLIDS**



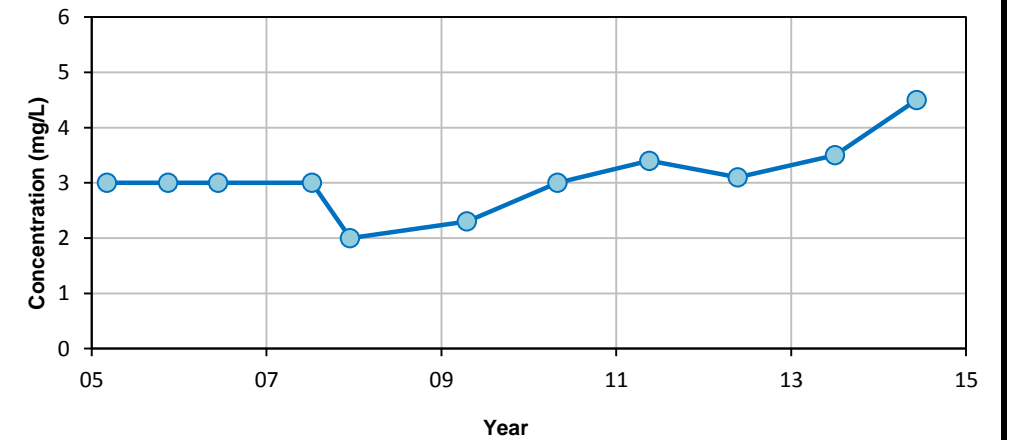
**SODIUM**



**FLUORIDE**



**DISSOLVED ORGANIC CARBON**



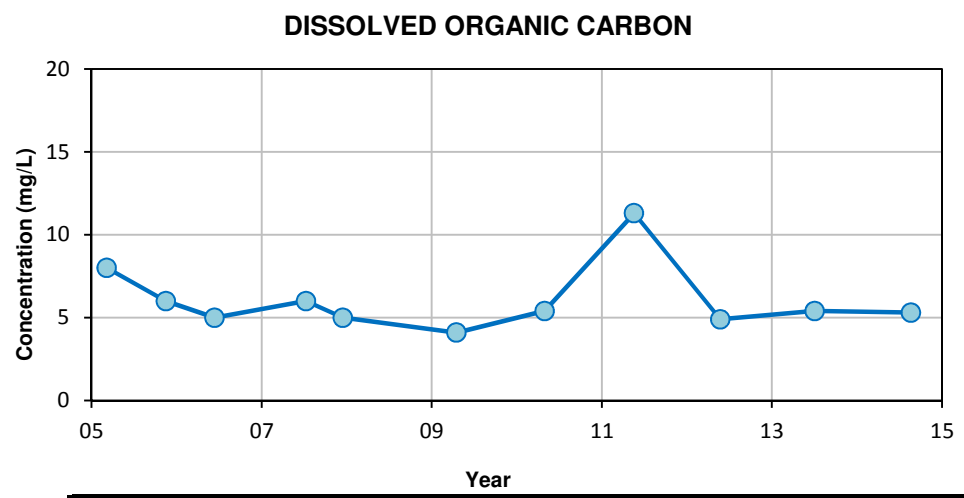
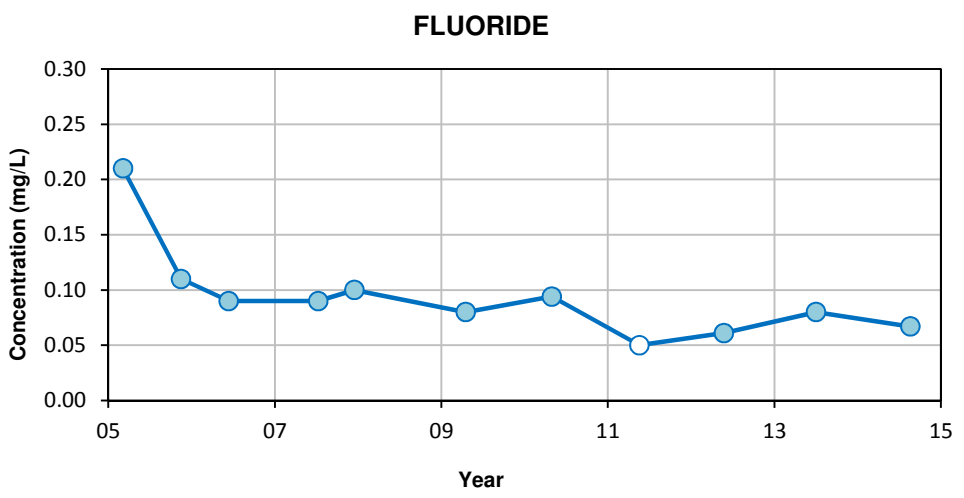
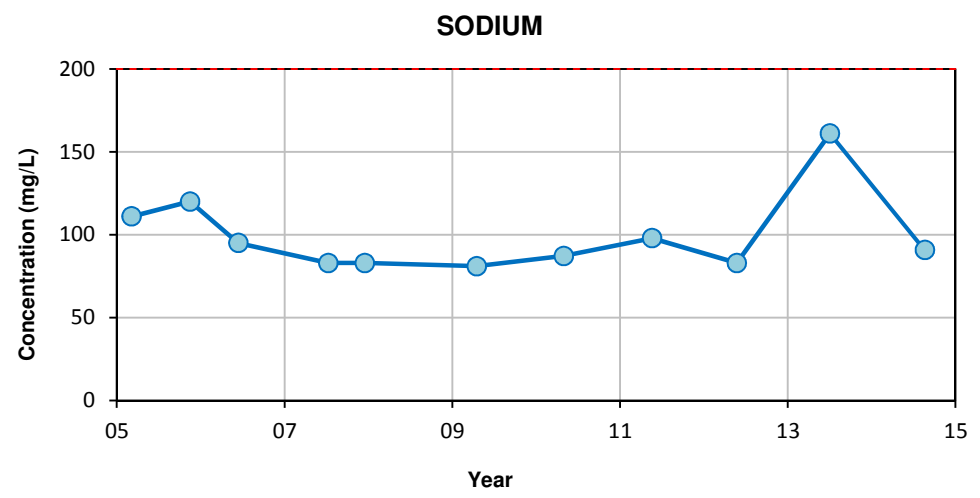
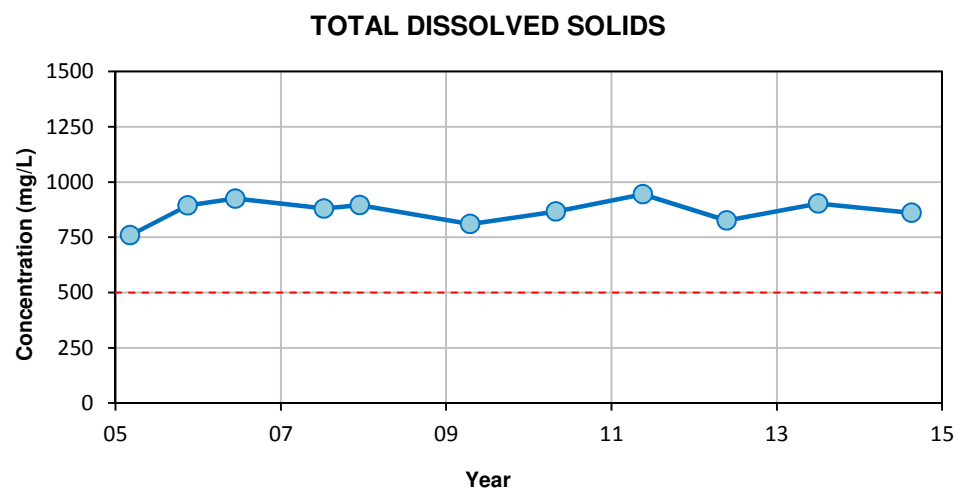
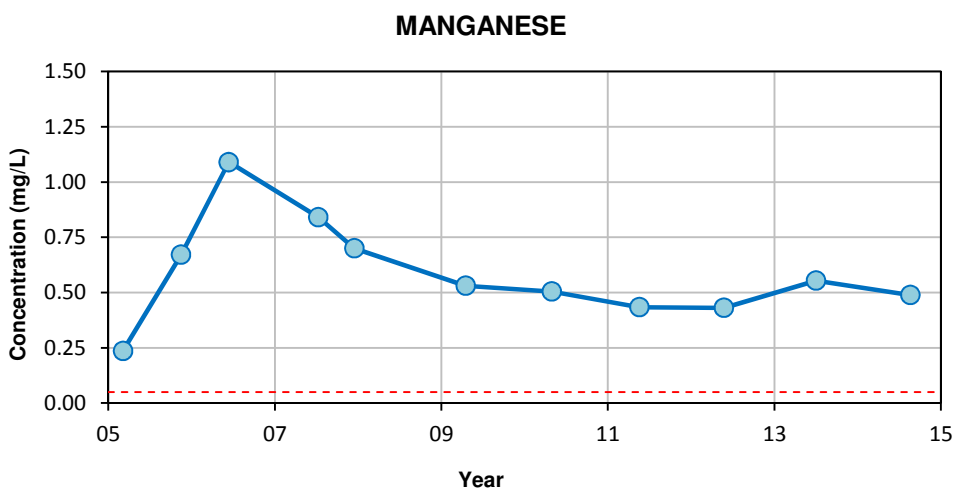
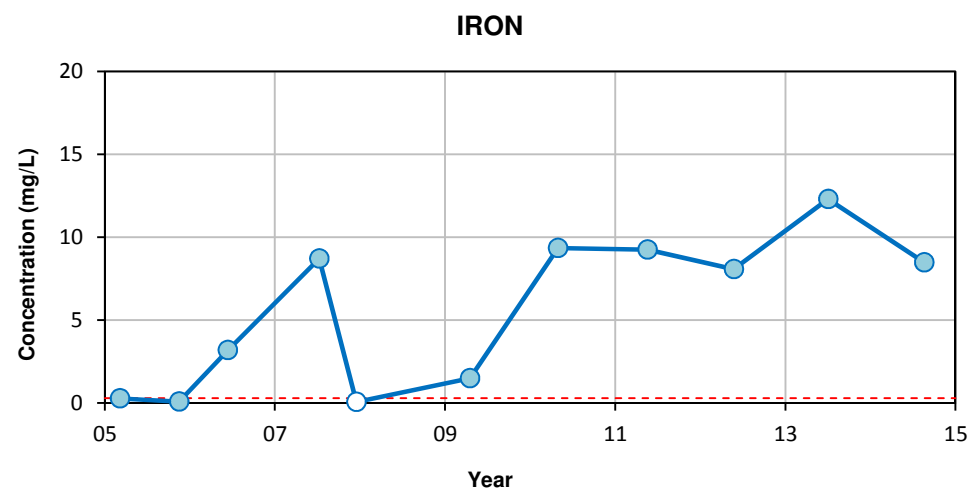
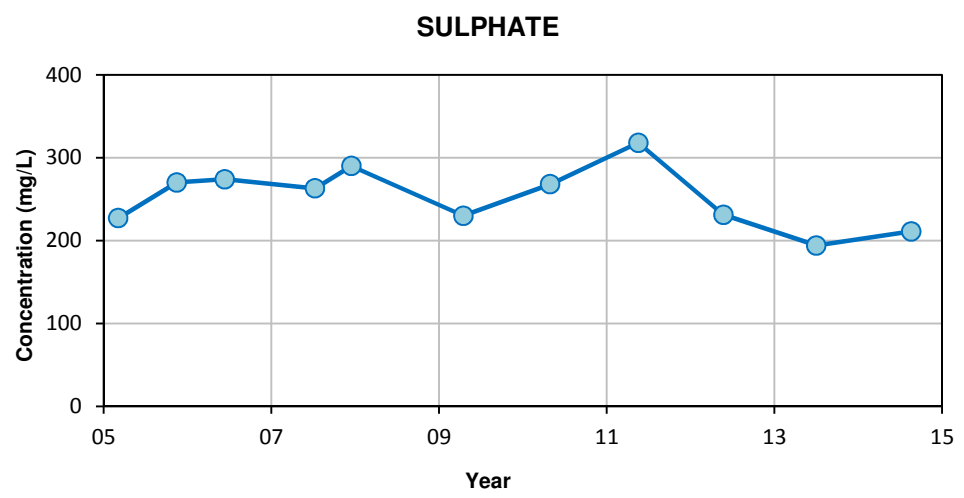
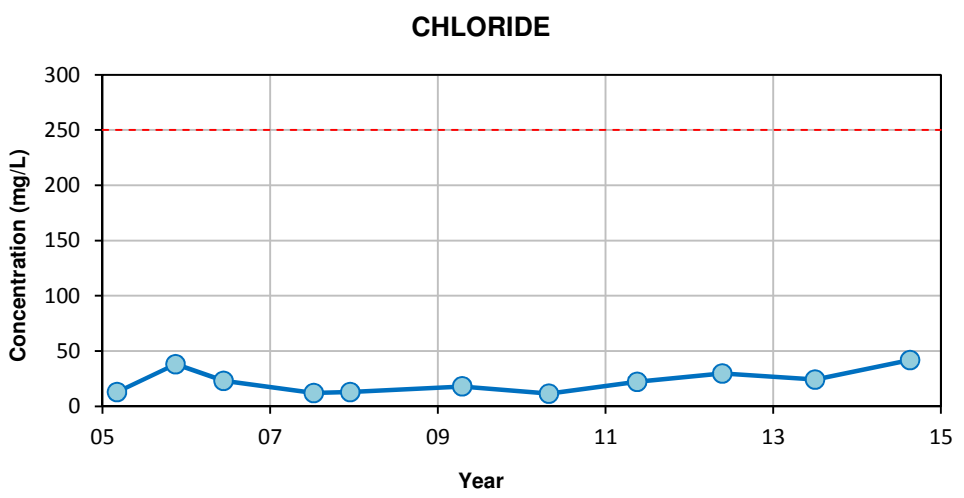
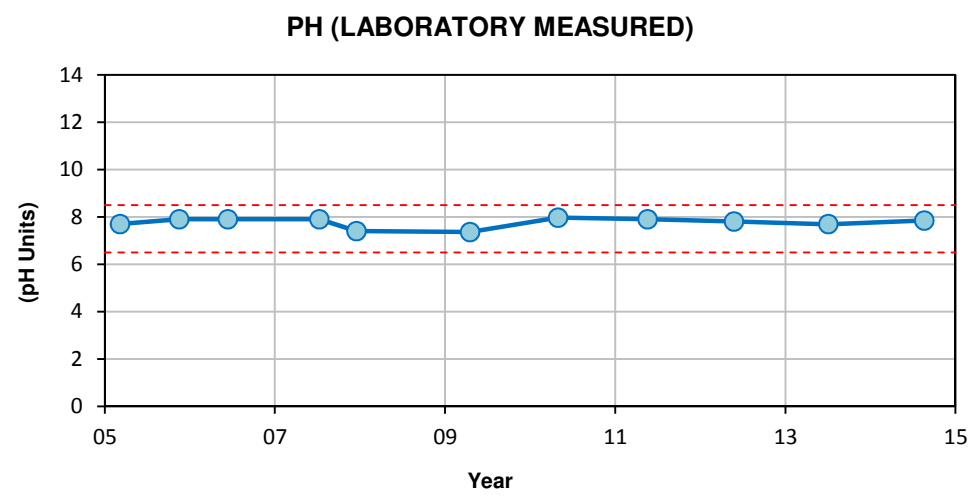
**Notes:**

- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-01</b>			
Date: 06-Aug-14	Drawn by: SG	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
FIG No.		REV	
<b>A5-1</b>		<b>A</b>	
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			



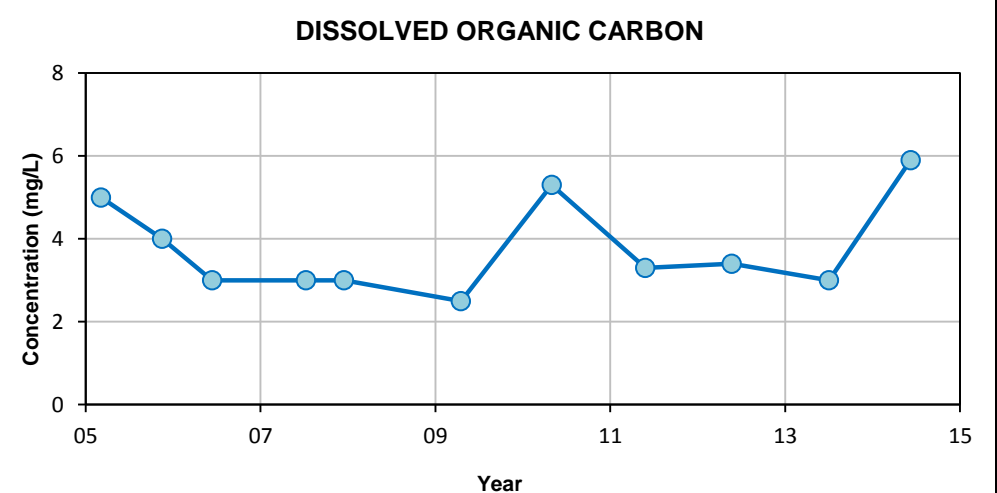
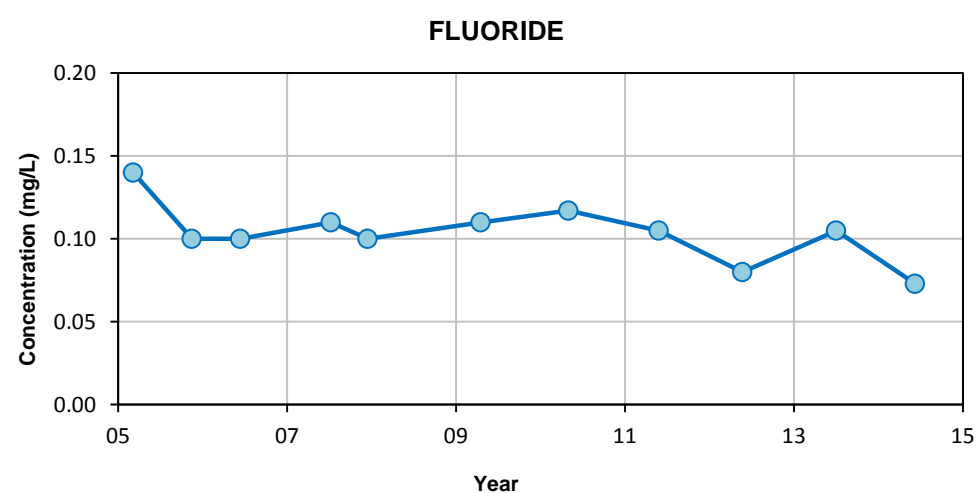
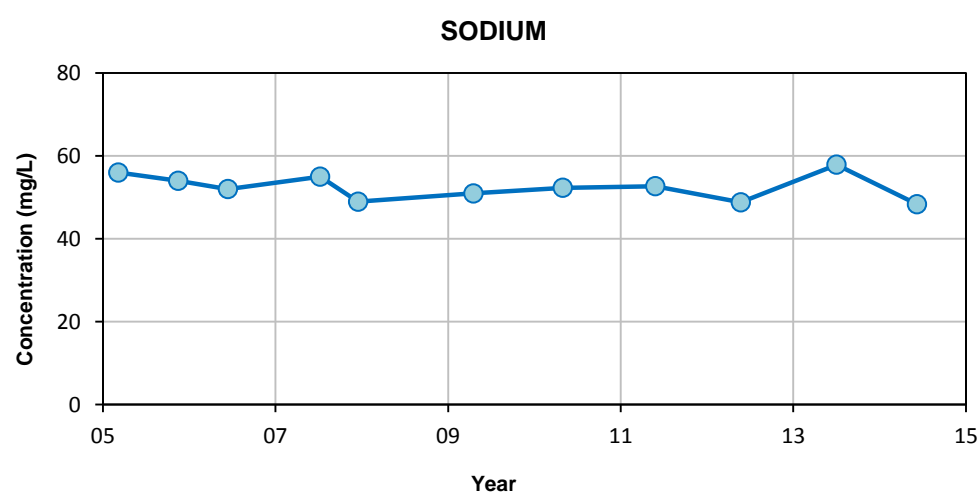
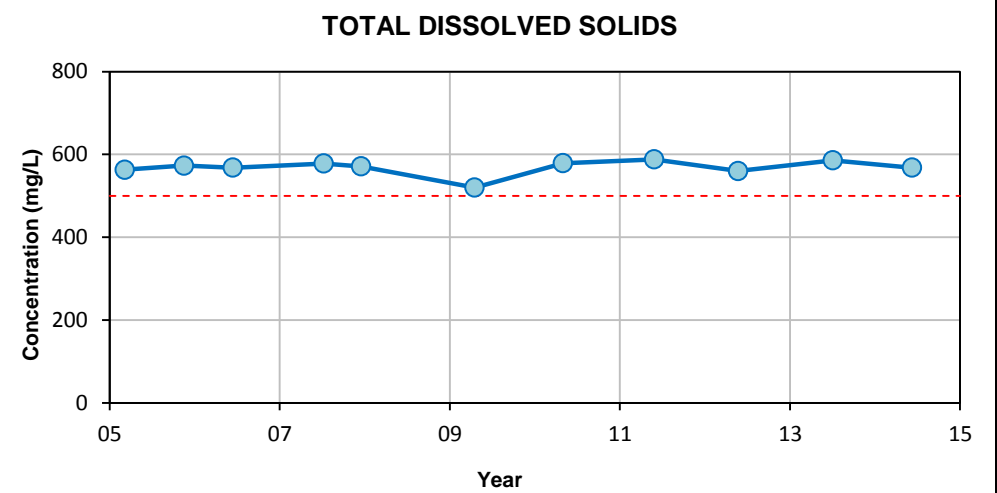
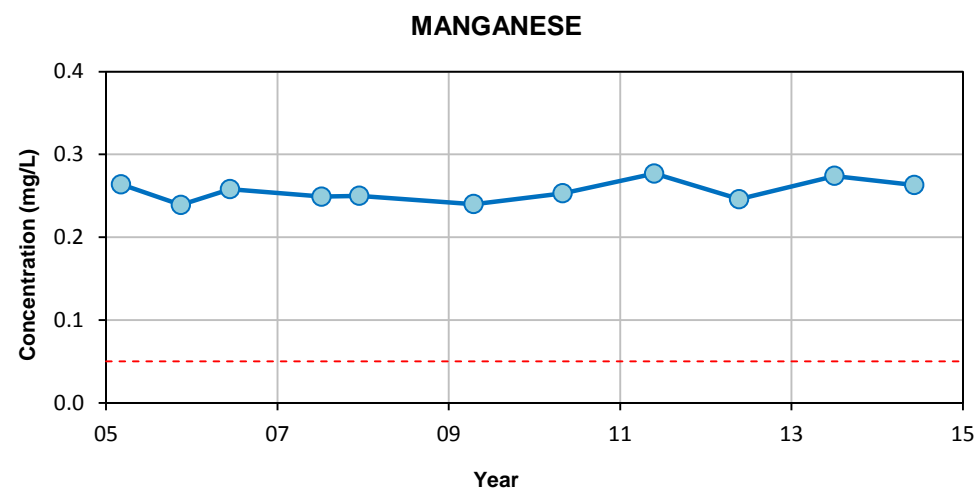
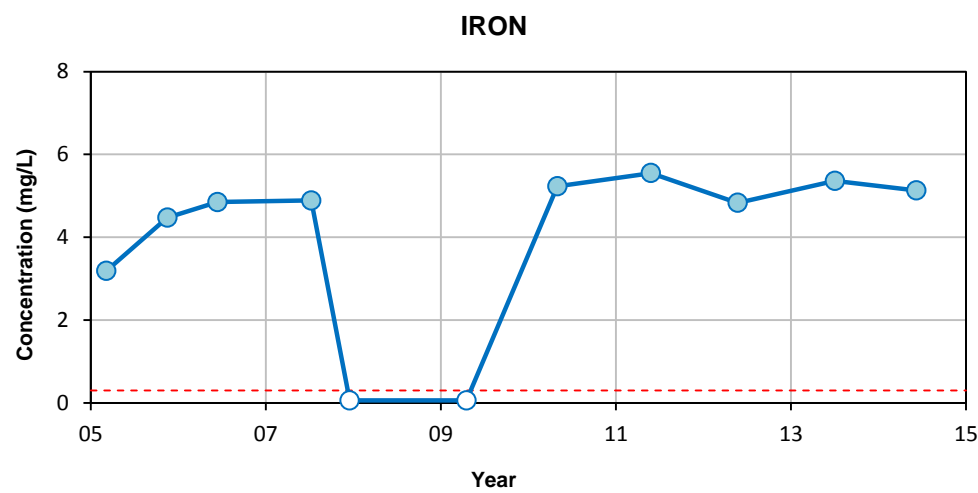
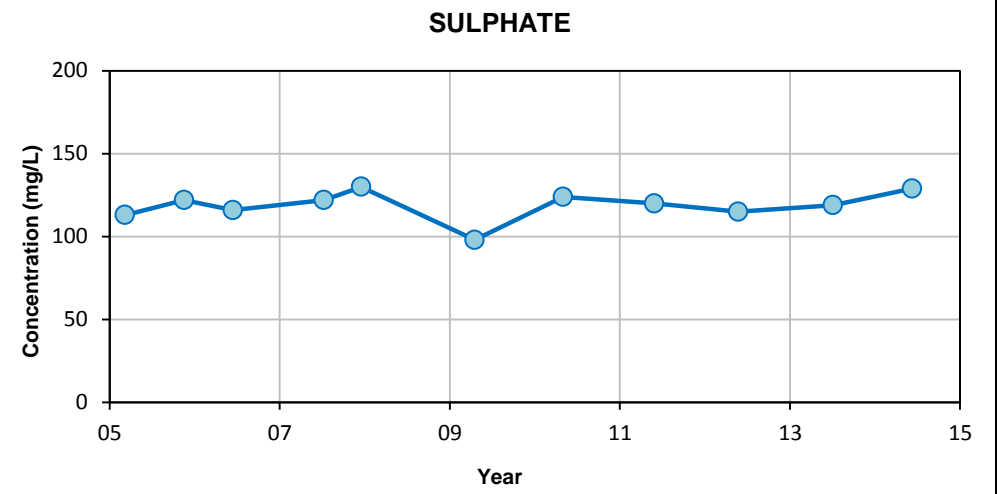
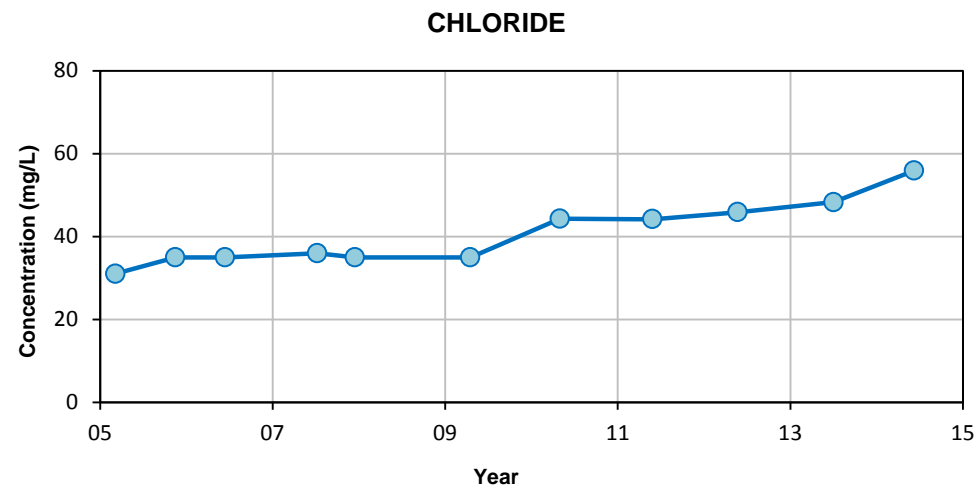
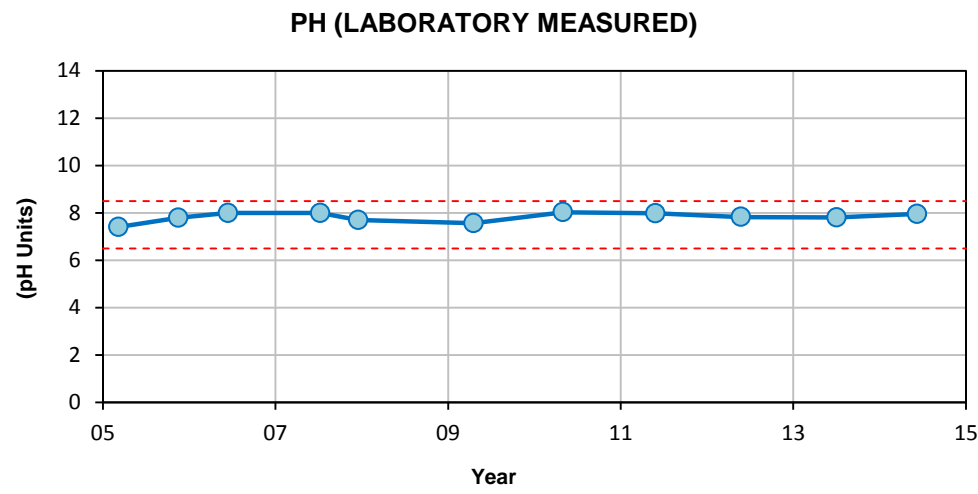
**Notes:**

- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- --- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: N/A
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

- Monitoring well MW-02 was resampled on 28-Aug-2014. The results for the sample collected on 16-June-2014 are considered unreliable due to anomalous chloride concentrations and ion balance. The 16-June-2014 results have been excluded from the charts.

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-02</b>			
Date:	18-Sep-14	Drawn by:	SG
Edited by:		App'd by:	
WorleyParsons Project No.		307076-06086-200	
FIG No.		REV	
A5-2		B	
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			



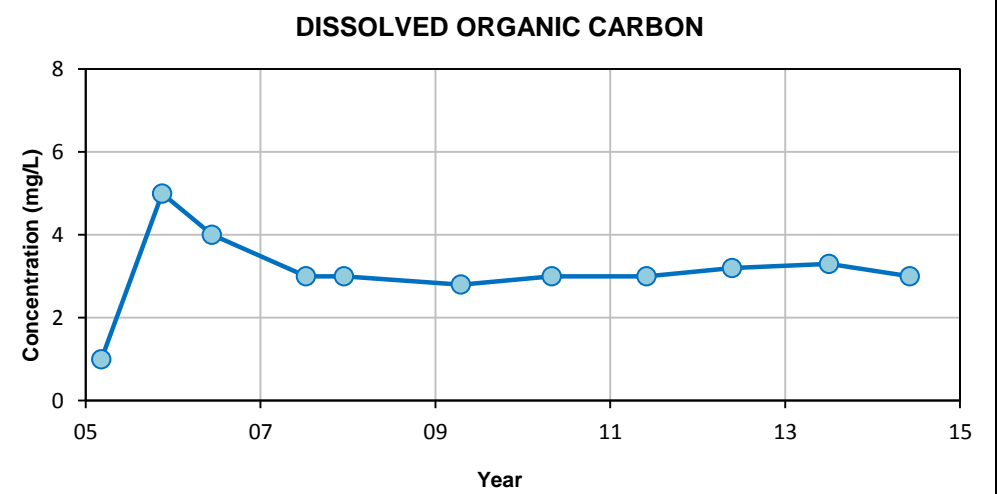
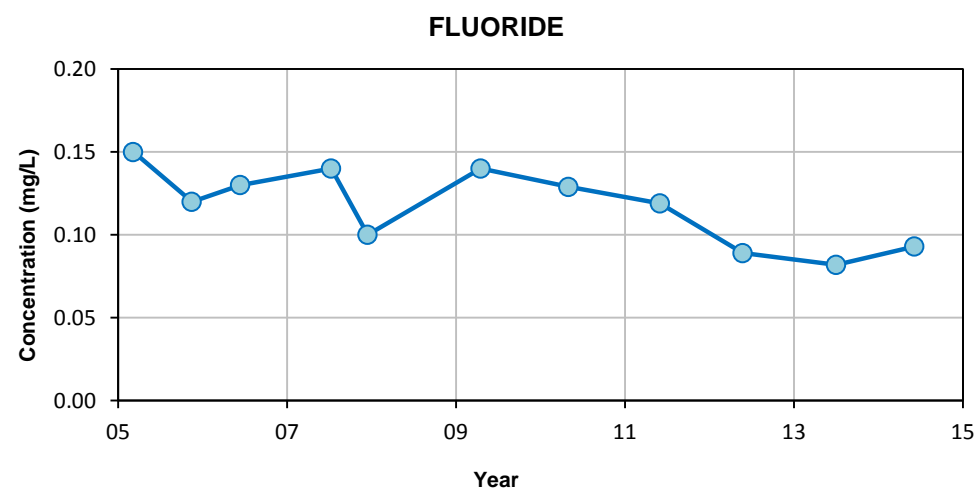
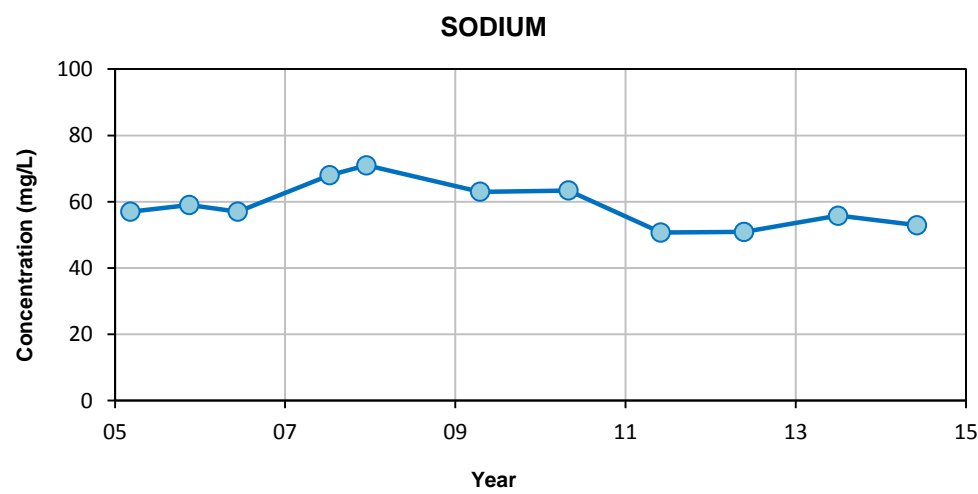
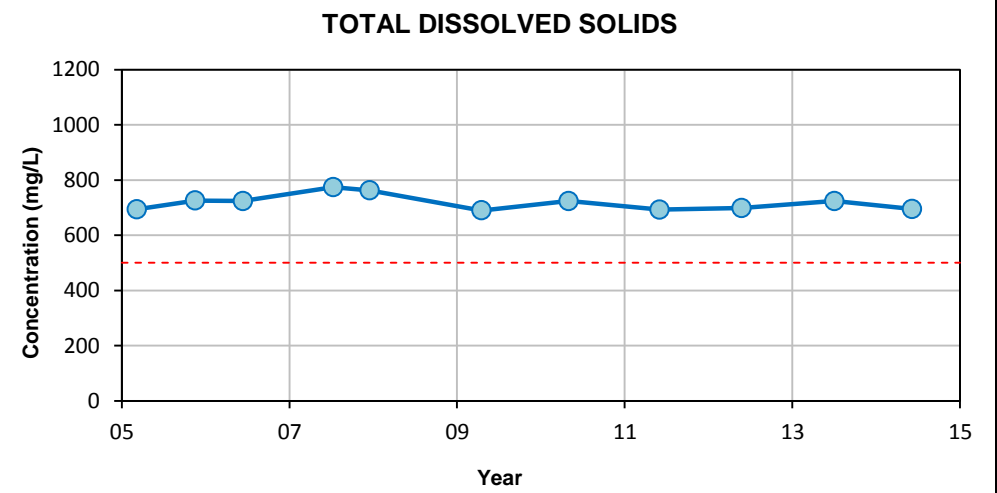
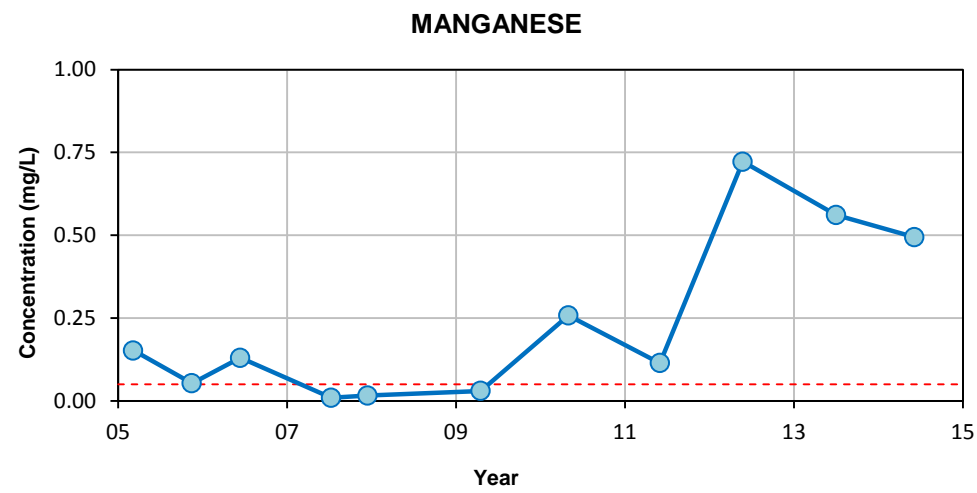
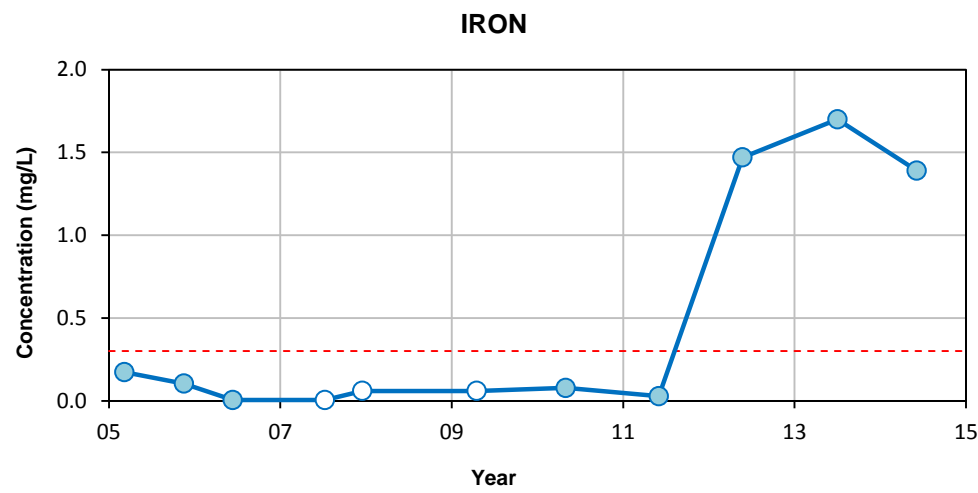
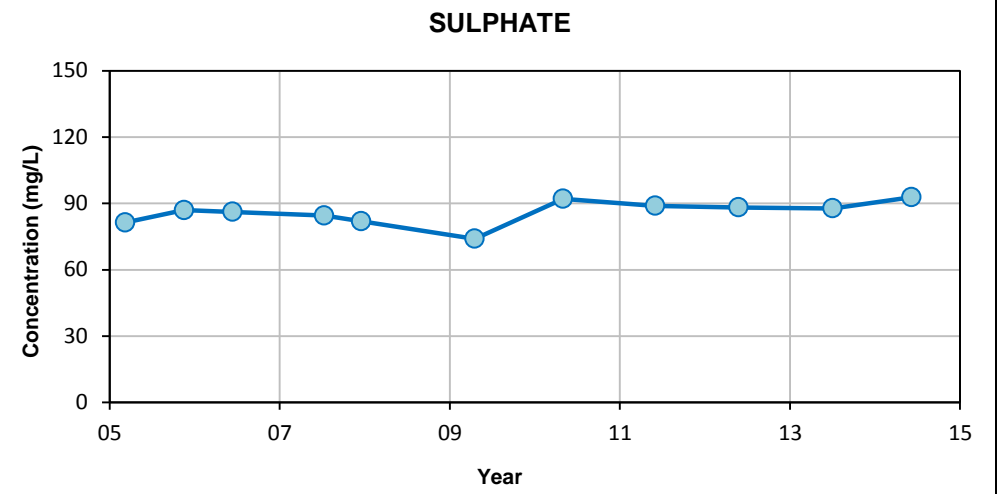
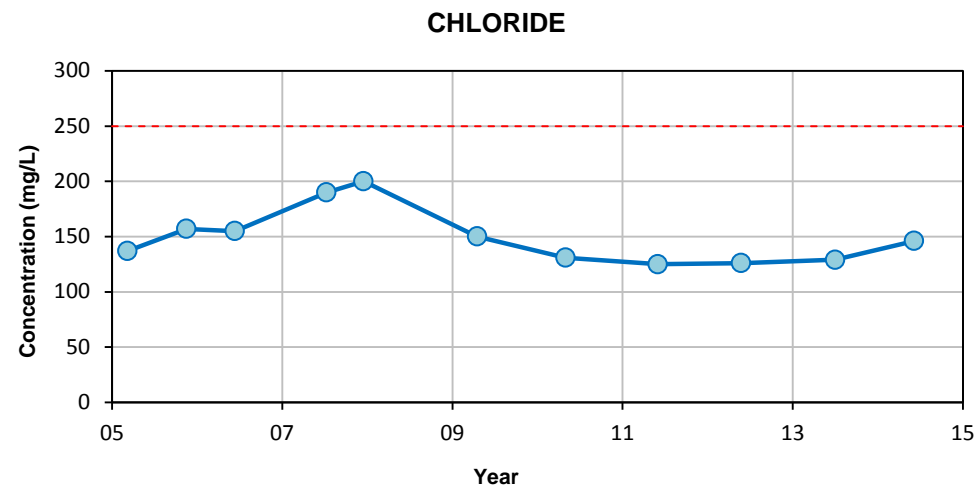
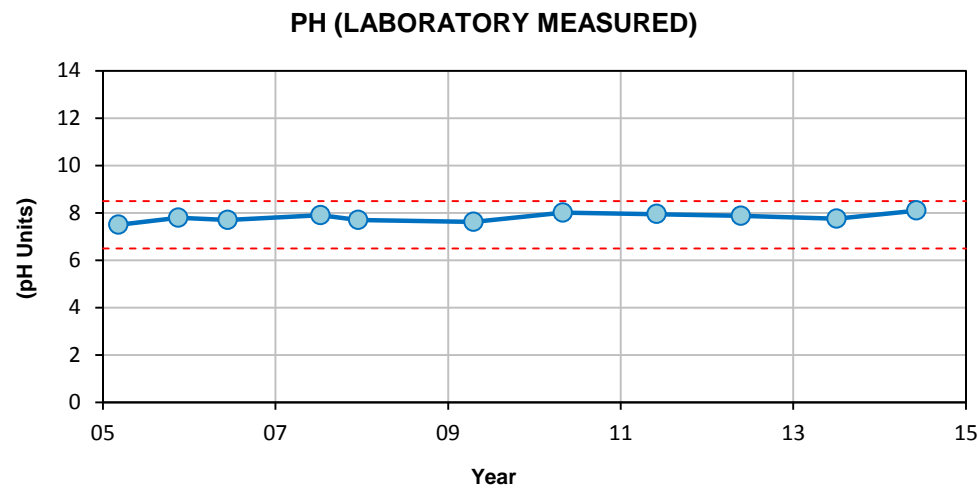


**Notes:**

- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-03</b>			
Date: 06-Aug-14	Drawn by: SG	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
FIG No.		REV	
<b>A5-3</b>		<b>A</b>	
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**Notes:**

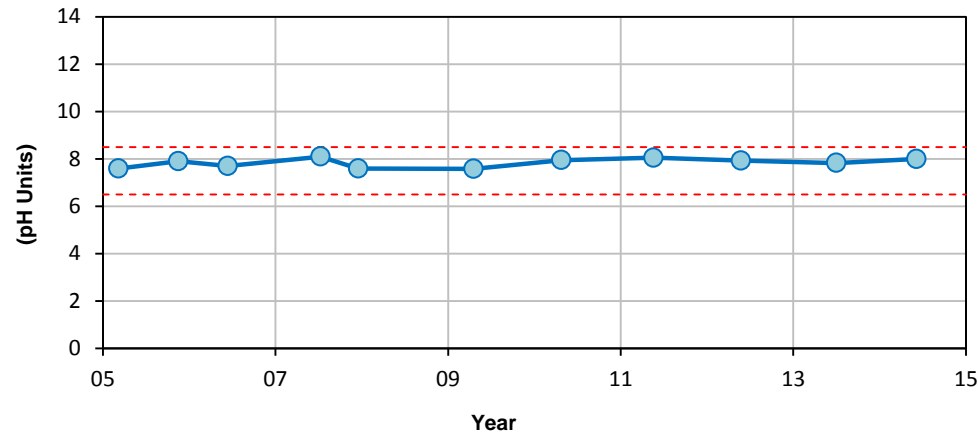
- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A

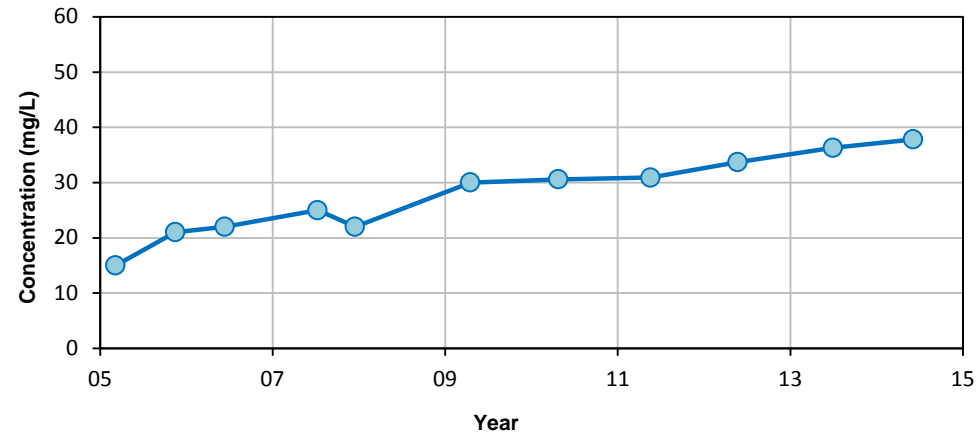
- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-04</b>			
Date: <b>06-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
 		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No.	REV
		<b>A5-4</b>	<b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			

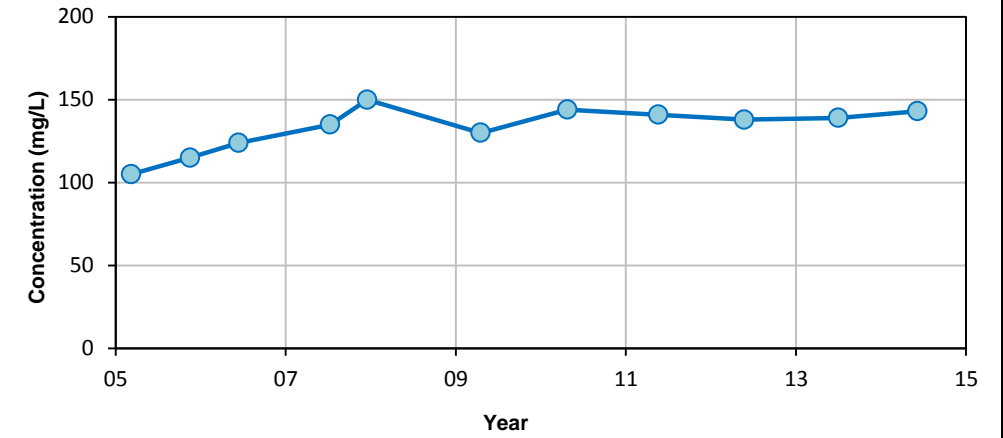
**PH (LABORATORY MEASURED)**



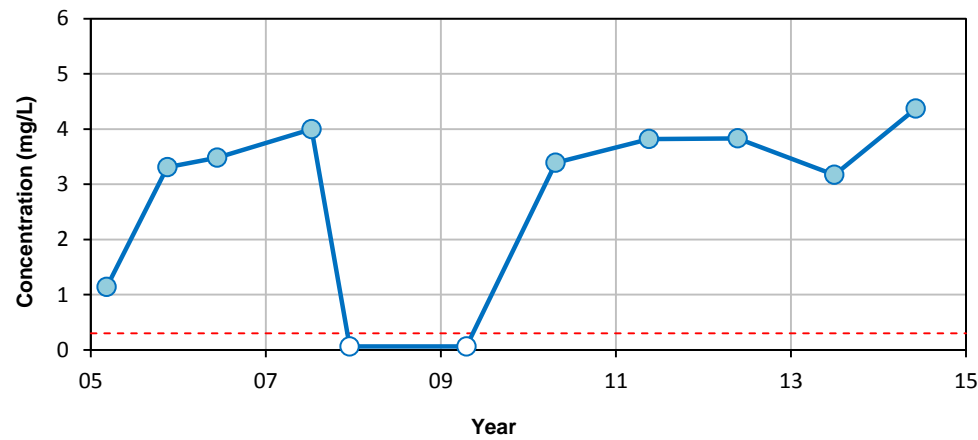
**CHLORIDE**



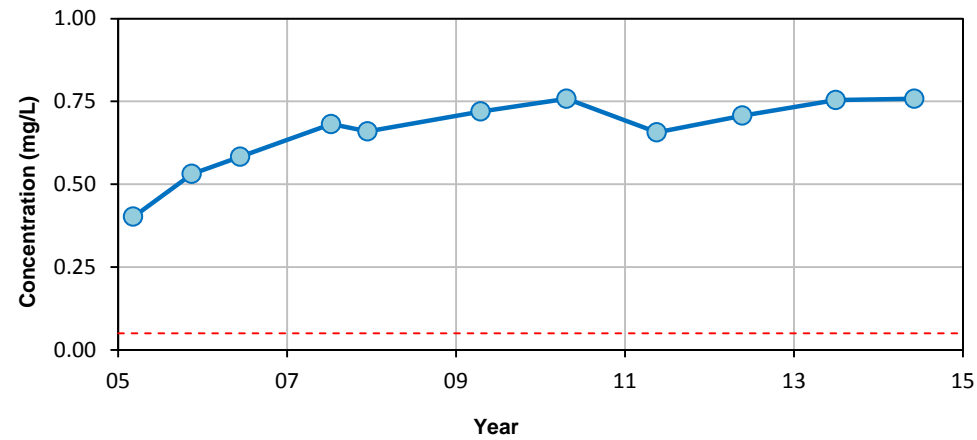
**SULPHATE**



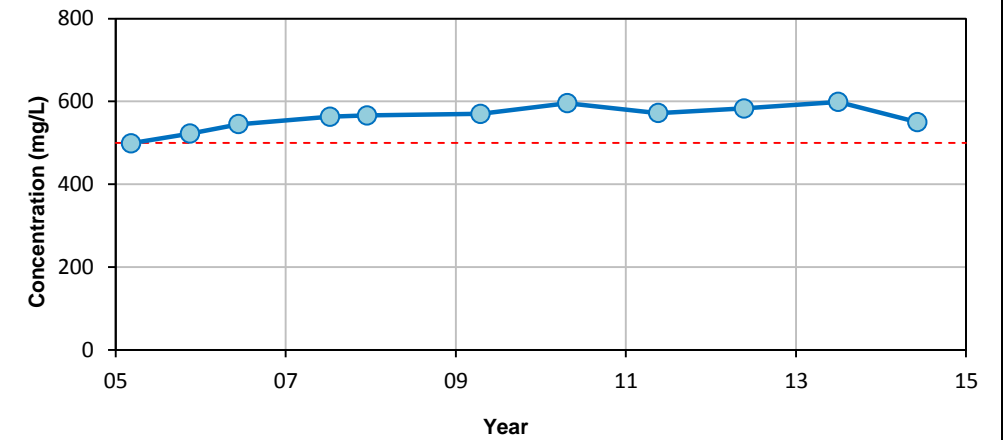
**IRON**



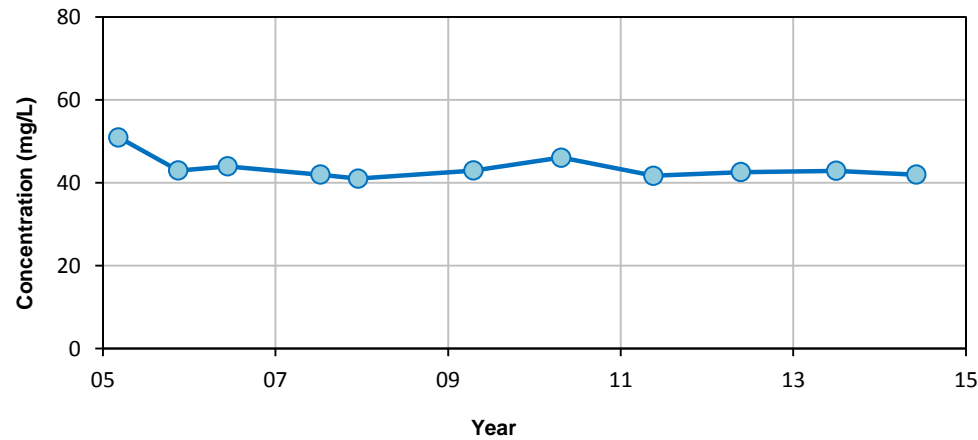
**MANGANESE**



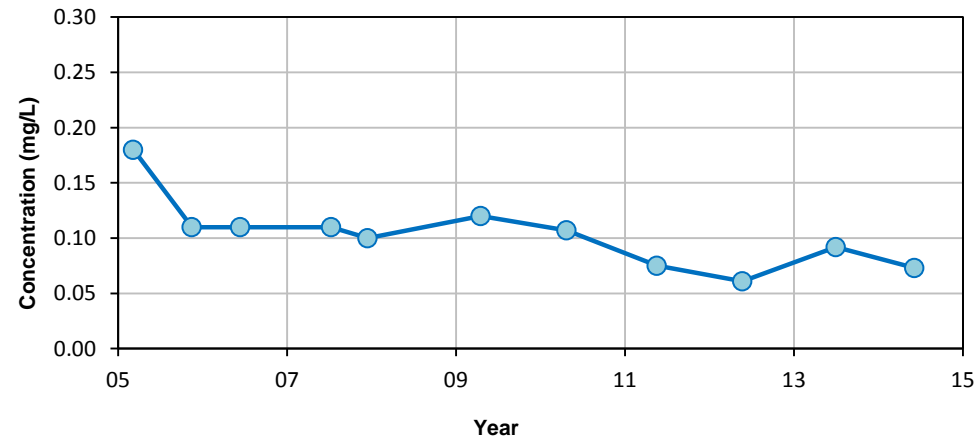
**TOTAL DISSOLVED SOLIDS**



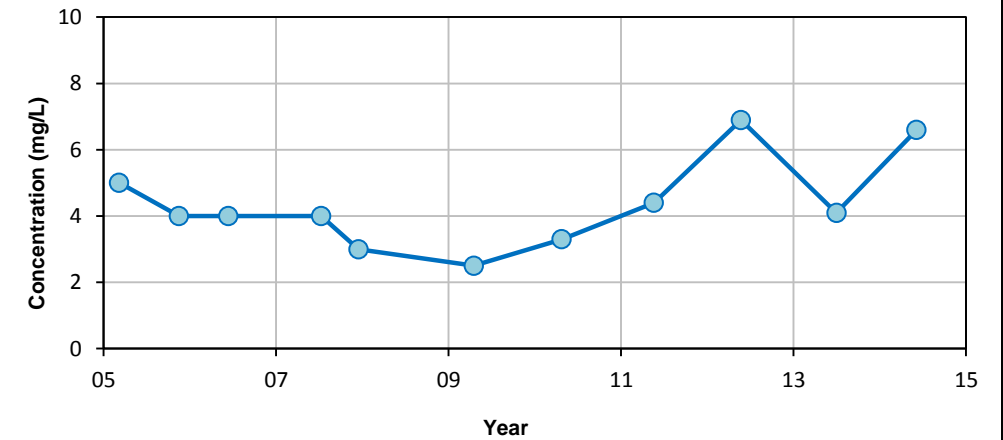
**SODIUM**



**FLUORIDE**



**DISSOLVED ORGANIC CARBON**



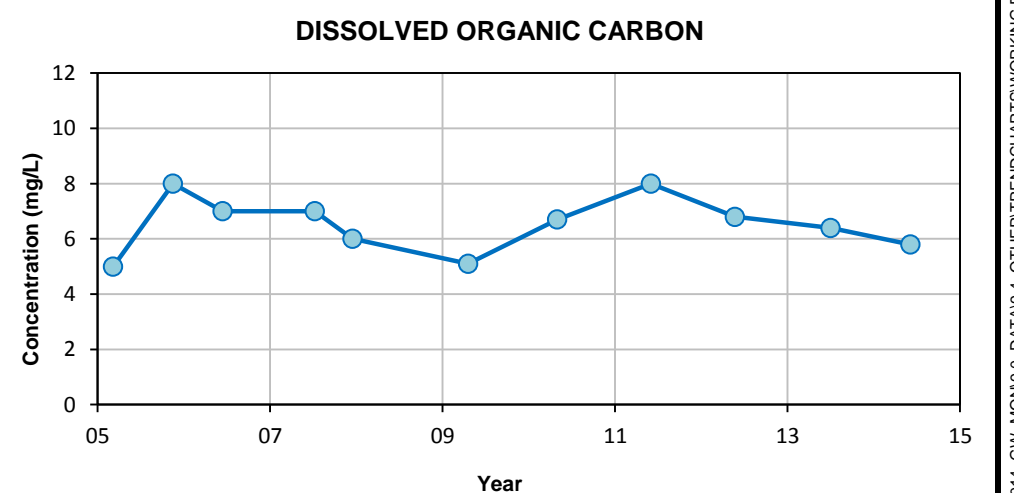
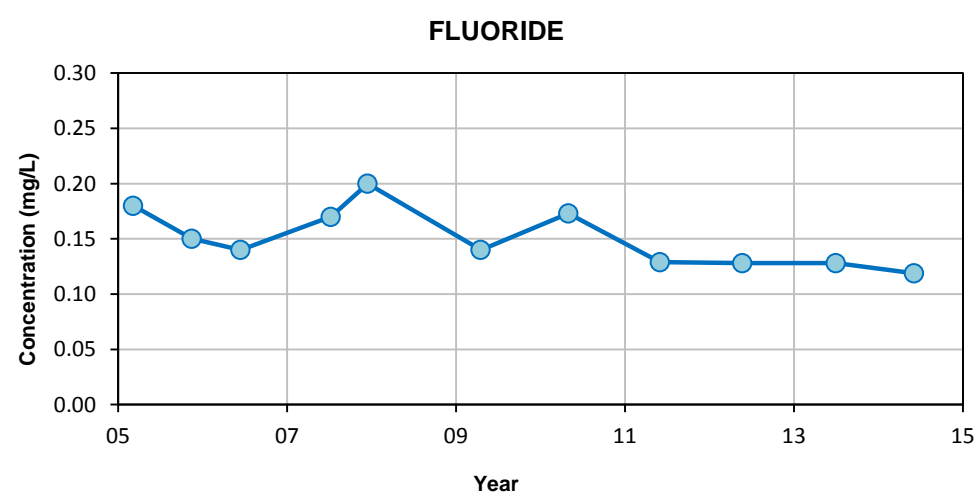
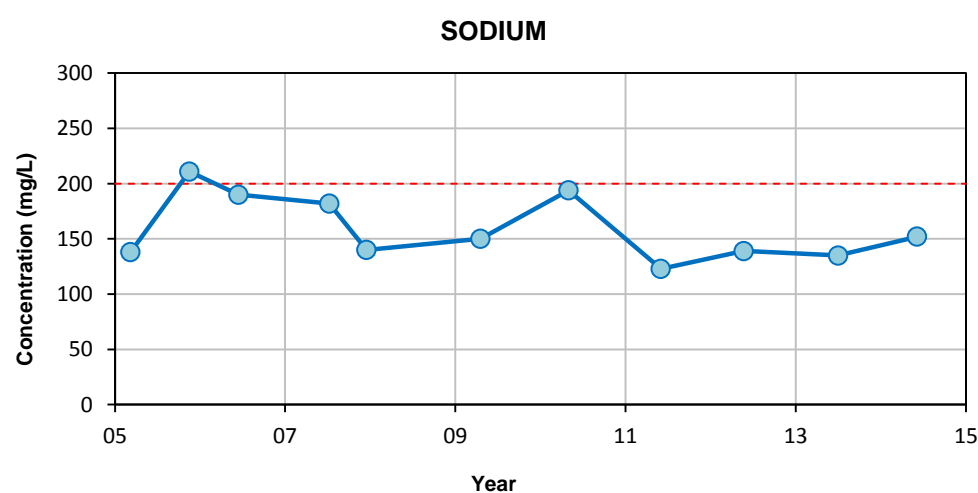
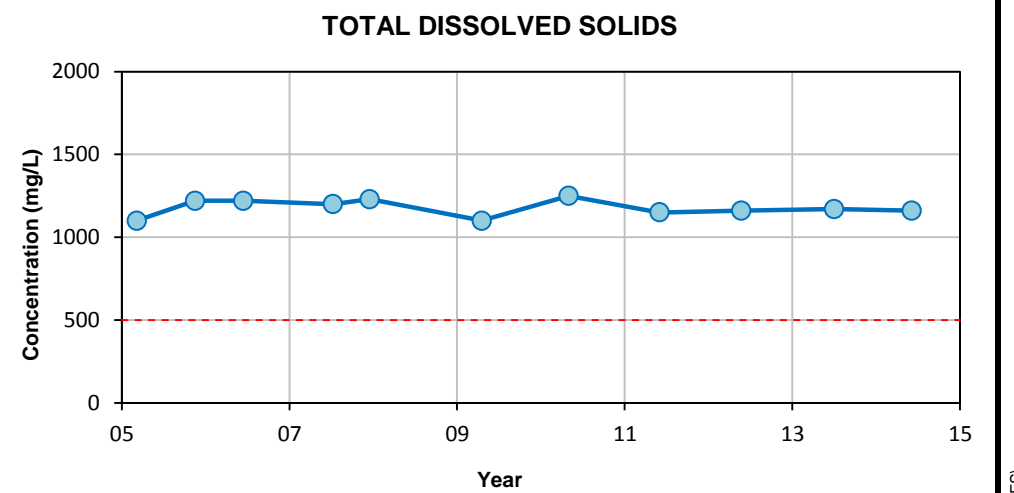
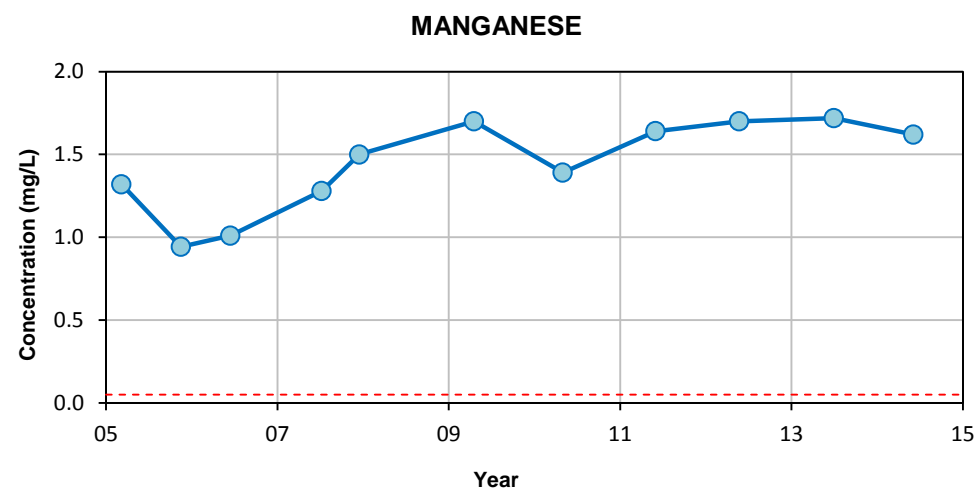
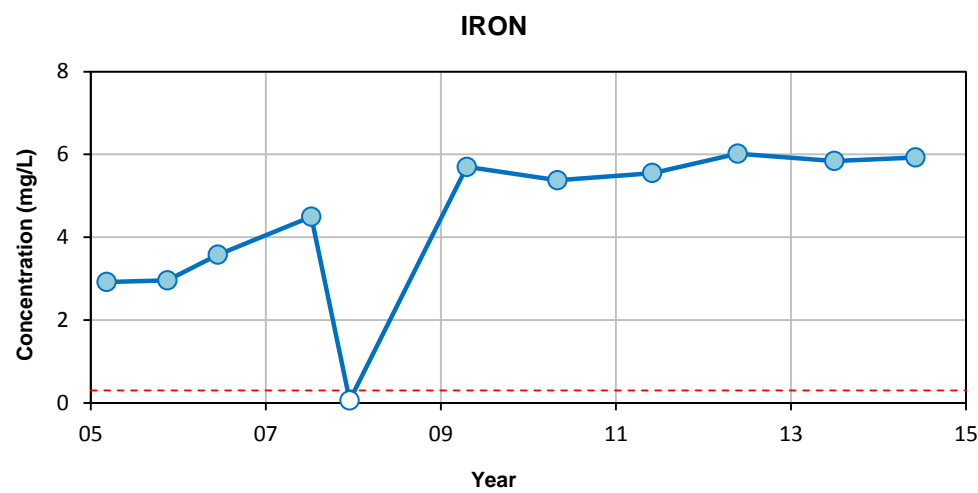
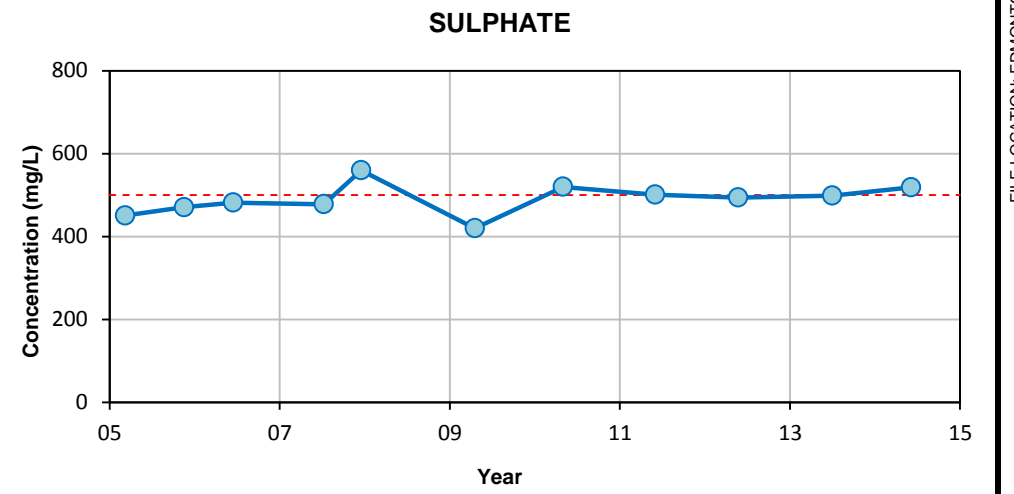
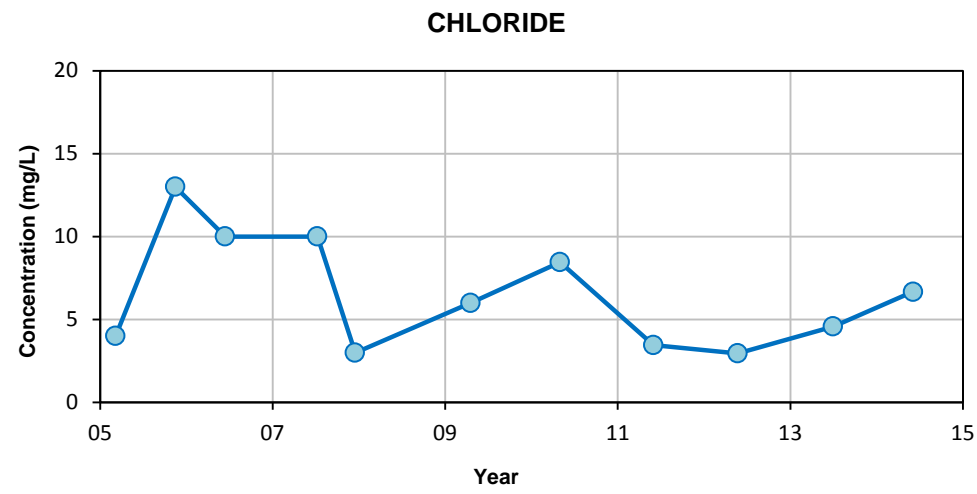
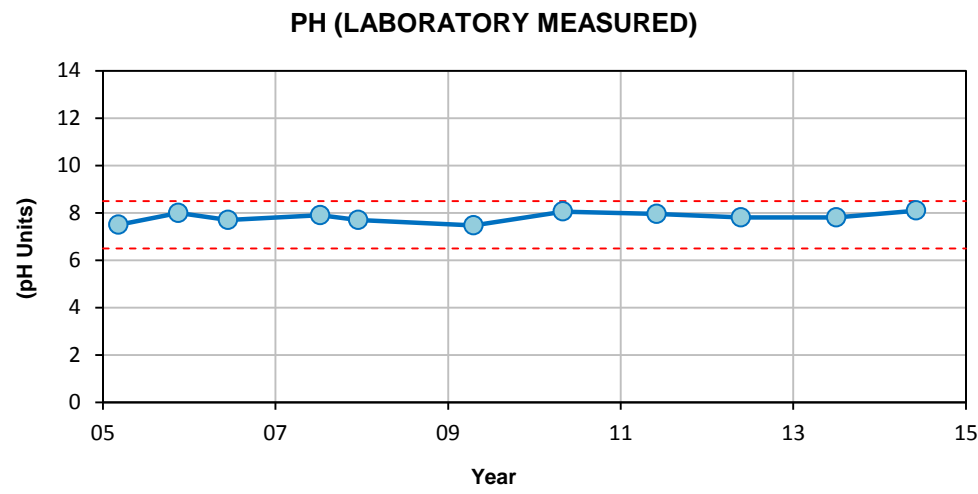
**Notes:**

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  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-05</b>			
Date: <b>06-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No. <b>A5-5</b>	REV <b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			

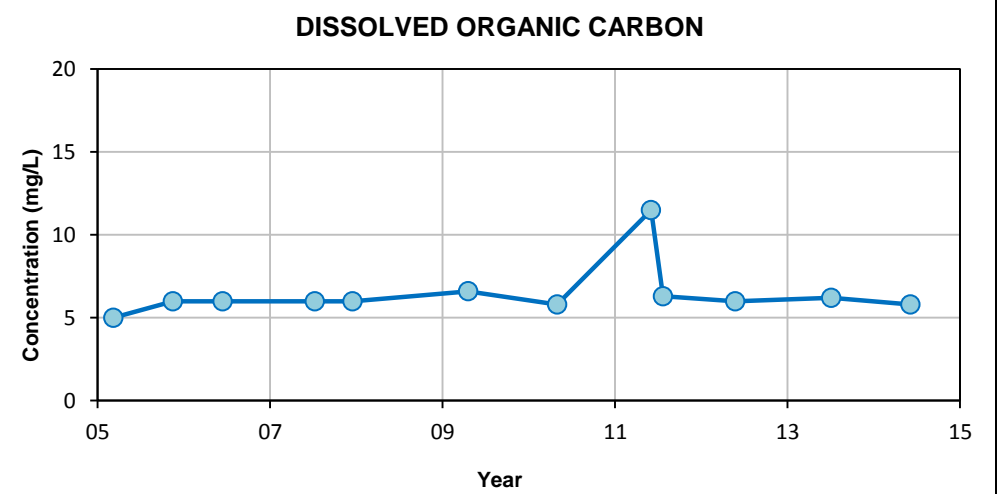
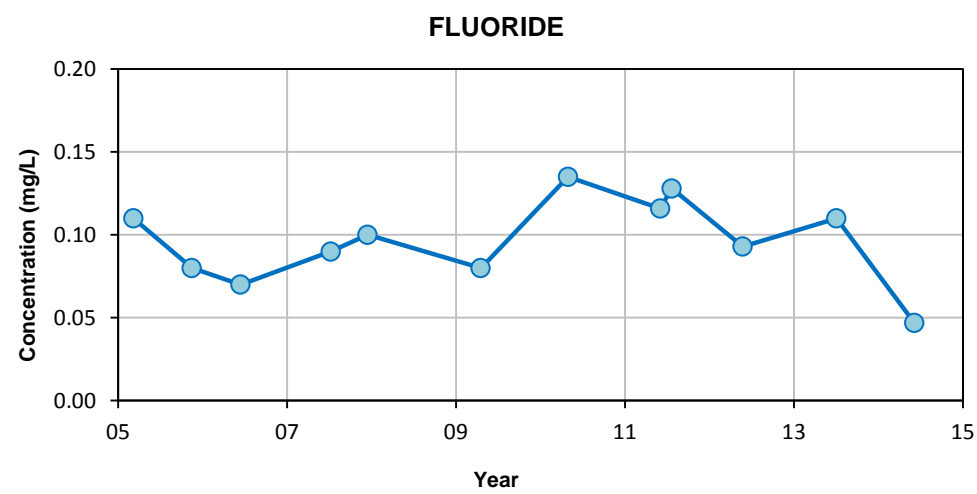
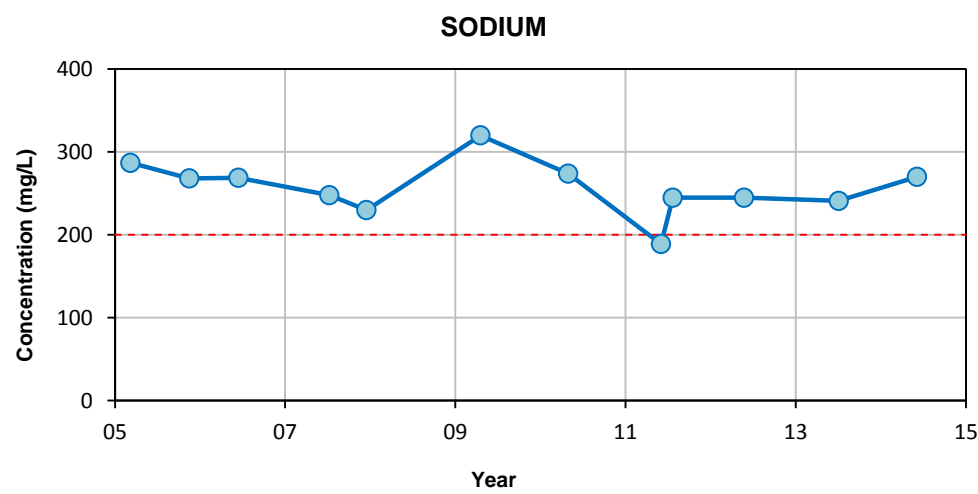
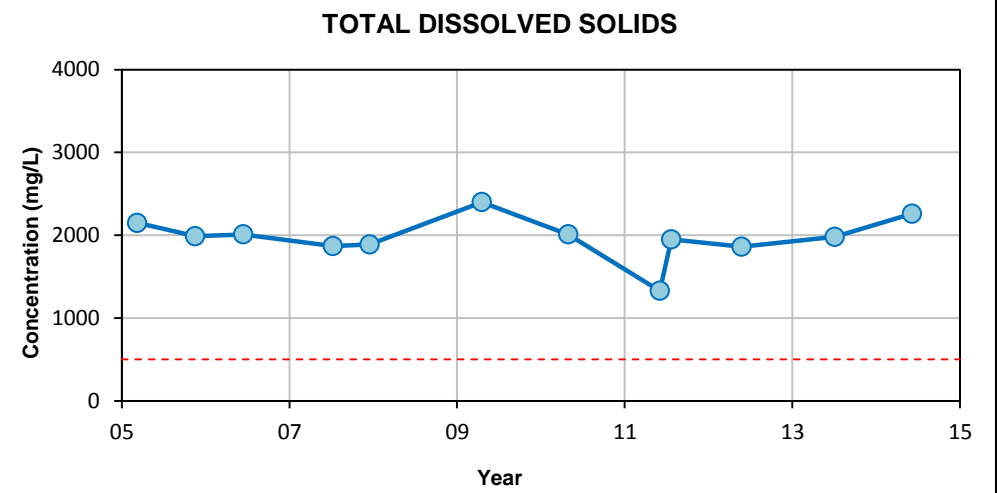
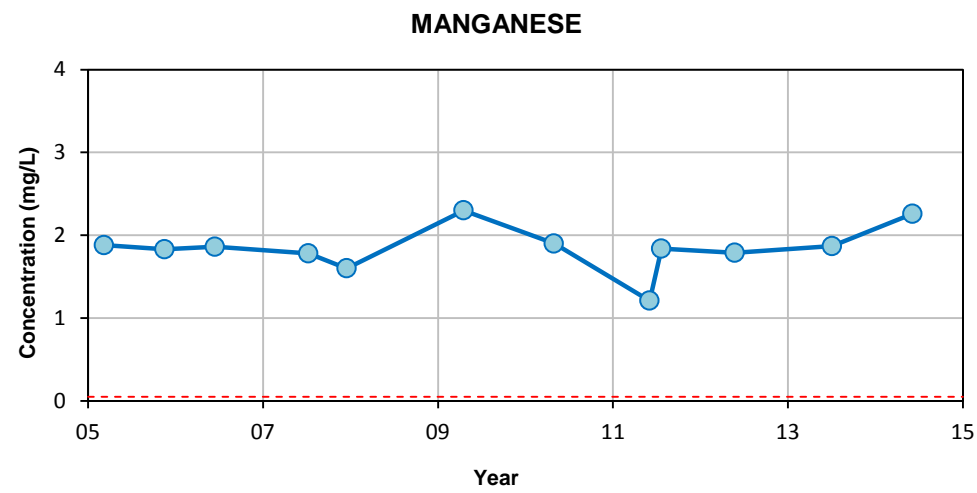
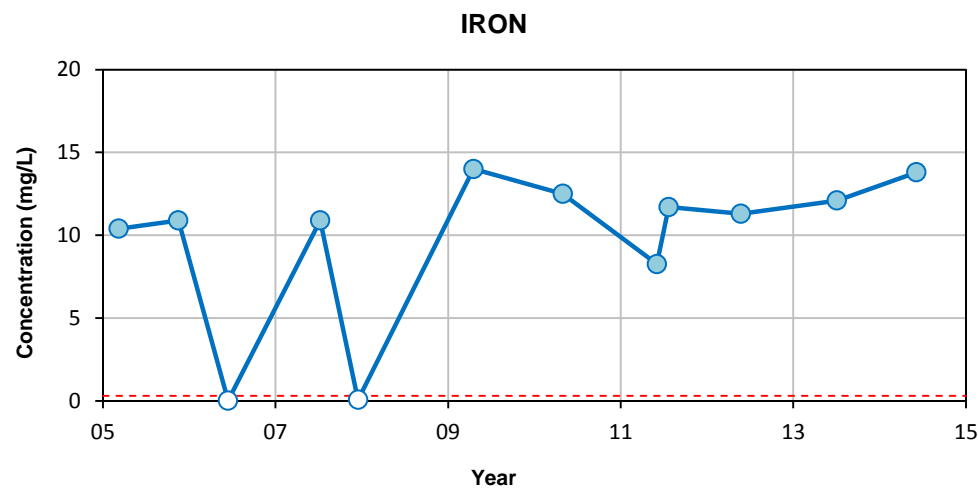
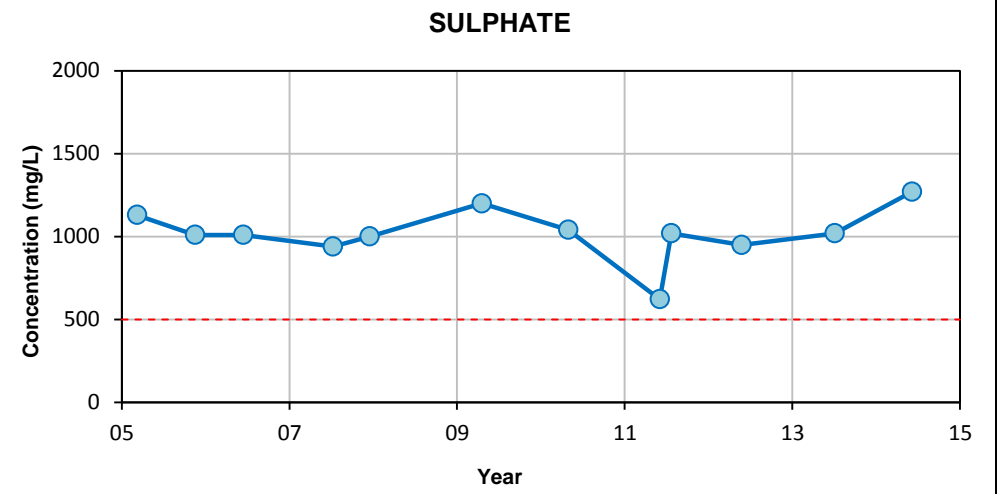
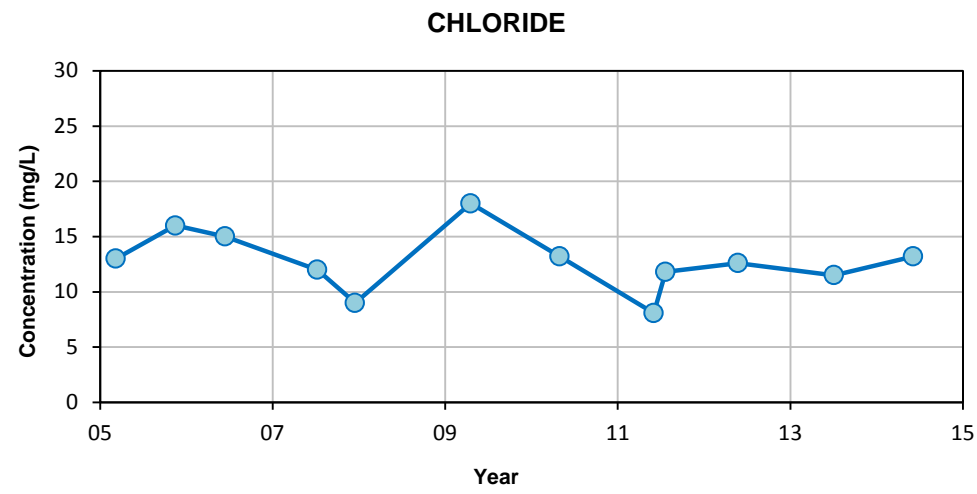
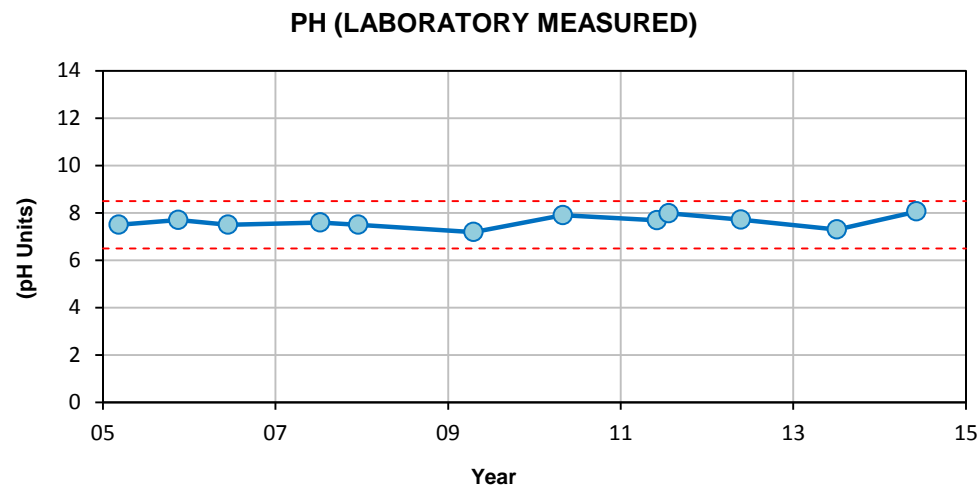


**Notes:**

- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A
- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-06</b>			
Date: <b>06-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No. <b>A5-6</b>	REV <b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			



**Notes:**

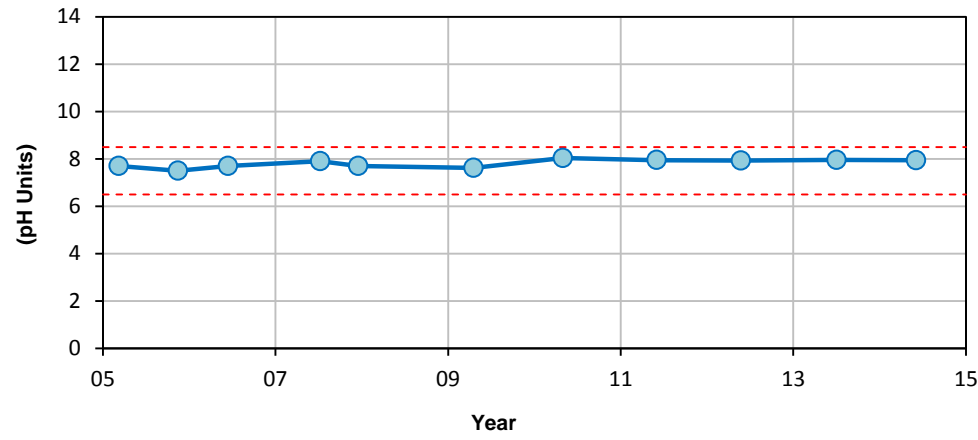
- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

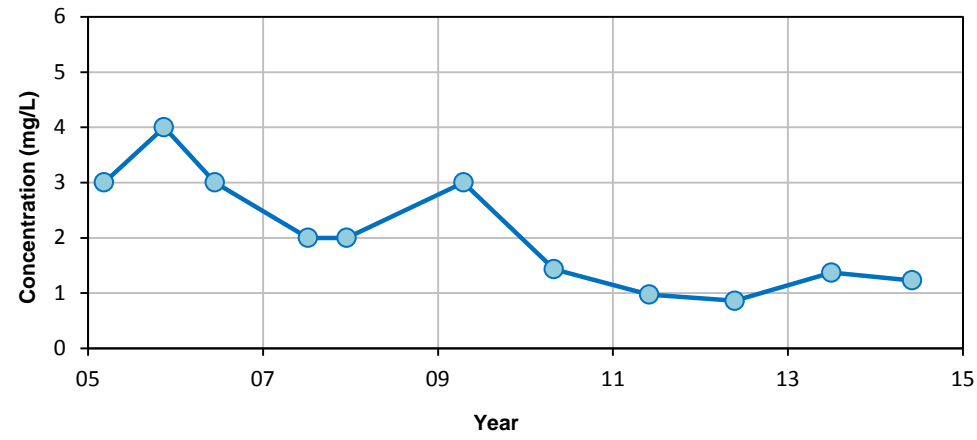
NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-07</b>			
Date: 06-Aug-14	Drawn by: SG	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No. <b>A5-7</b>	REV <b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			



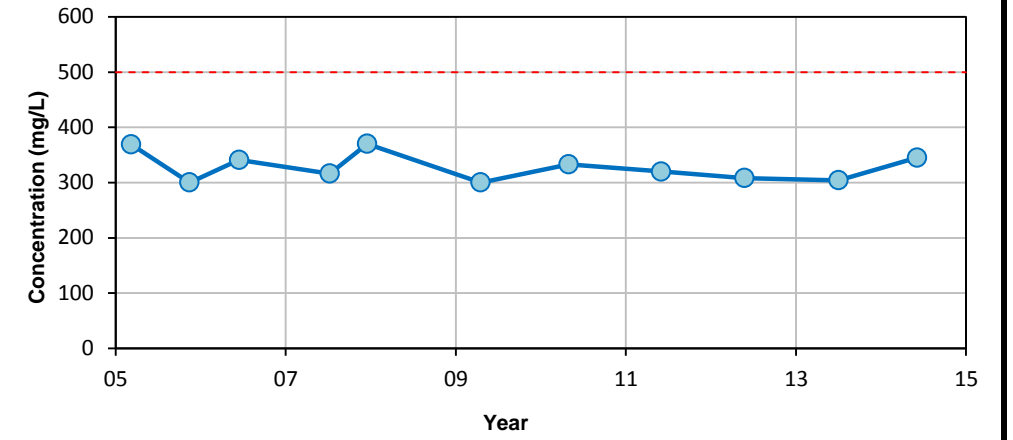
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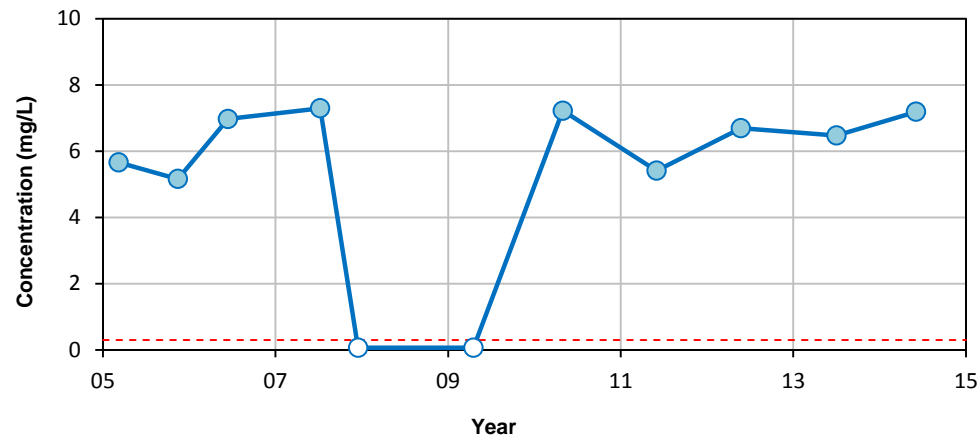
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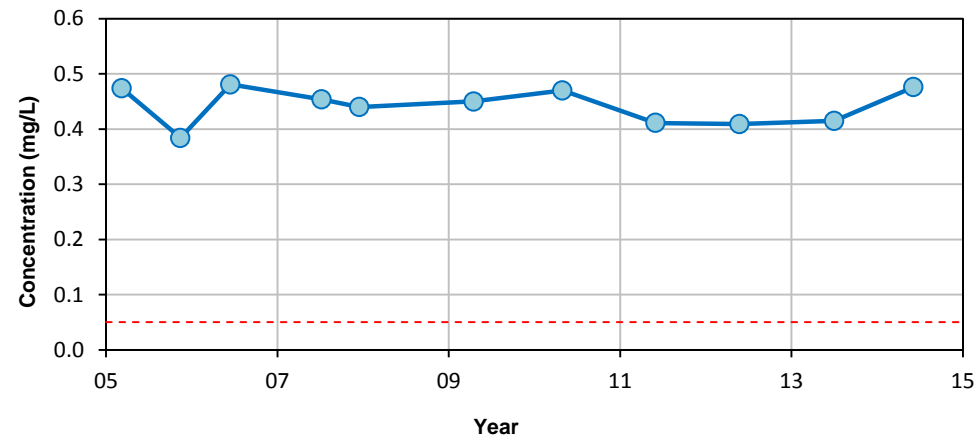
**SULPHATE**



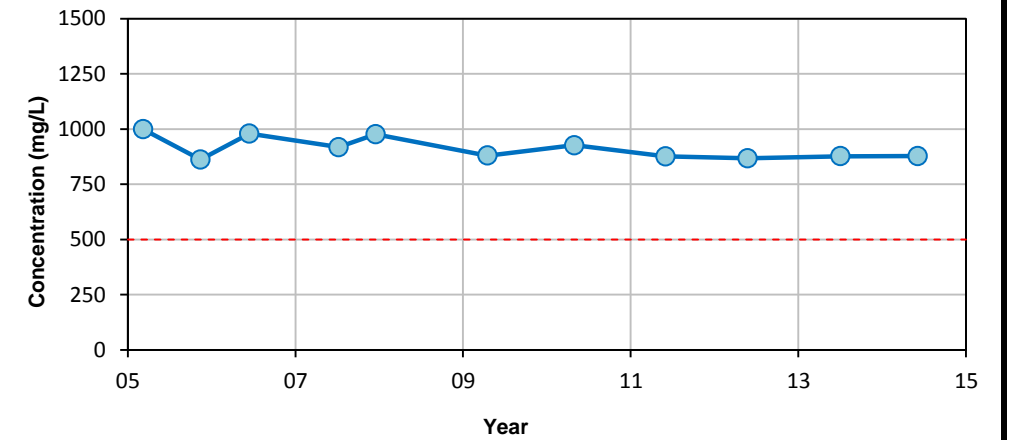
**IRON**



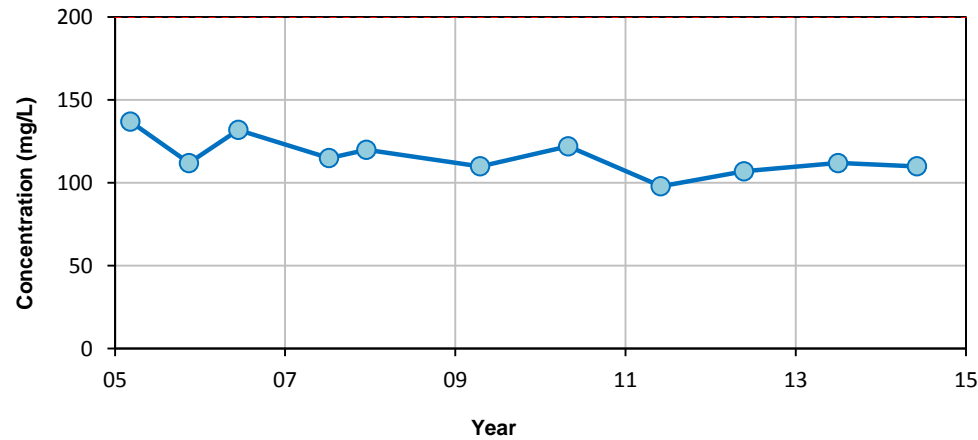
**MANGANESE**



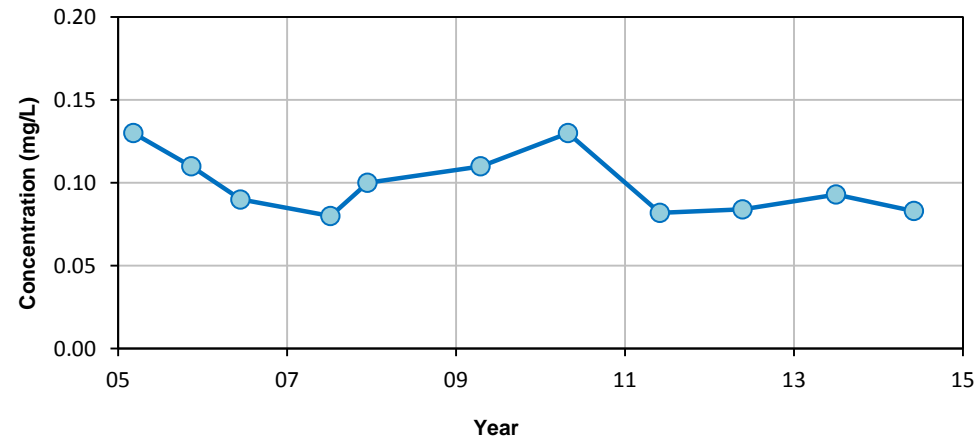
**TOTAL DISSOLVED SOLIDS**



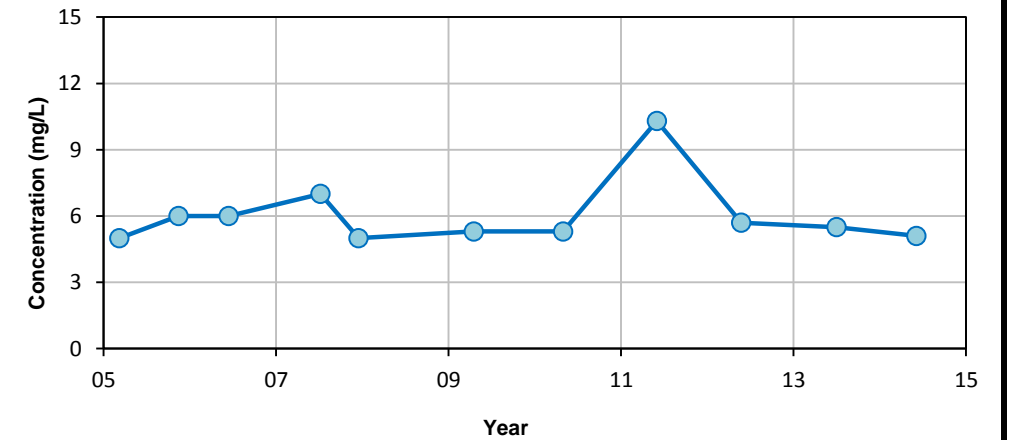
**SODIUM**



**FLUORIDE**



**DISSOLVED ORGANIC CARBON**



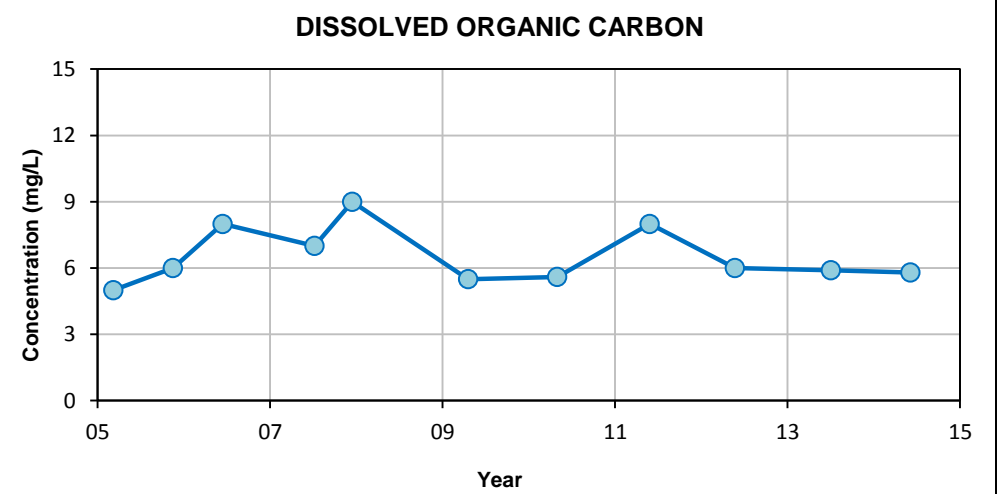
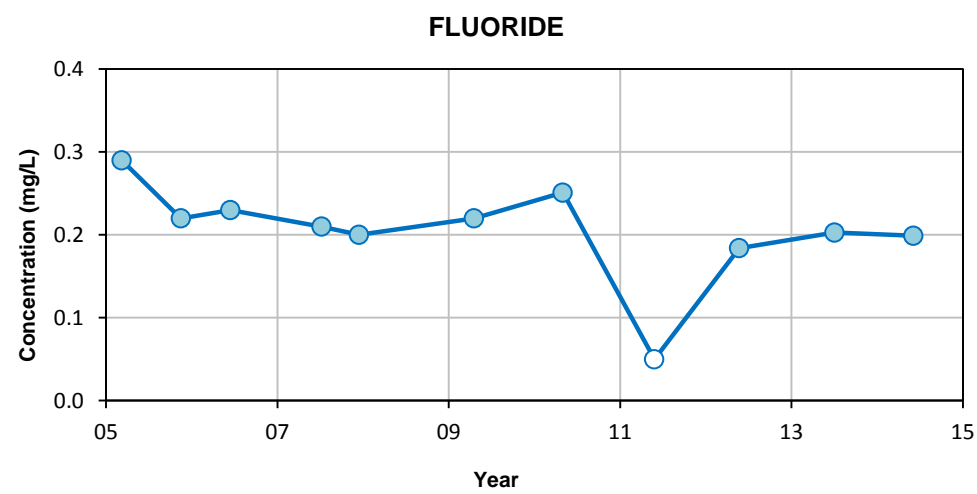
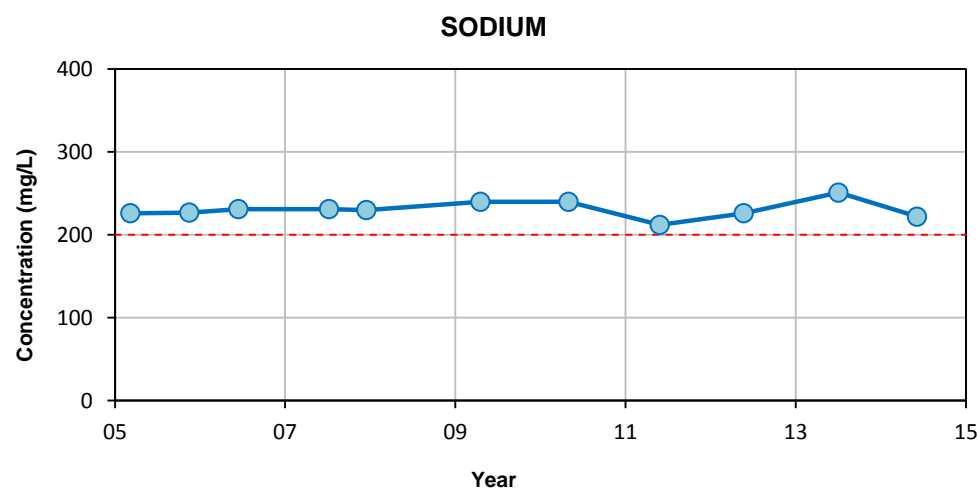
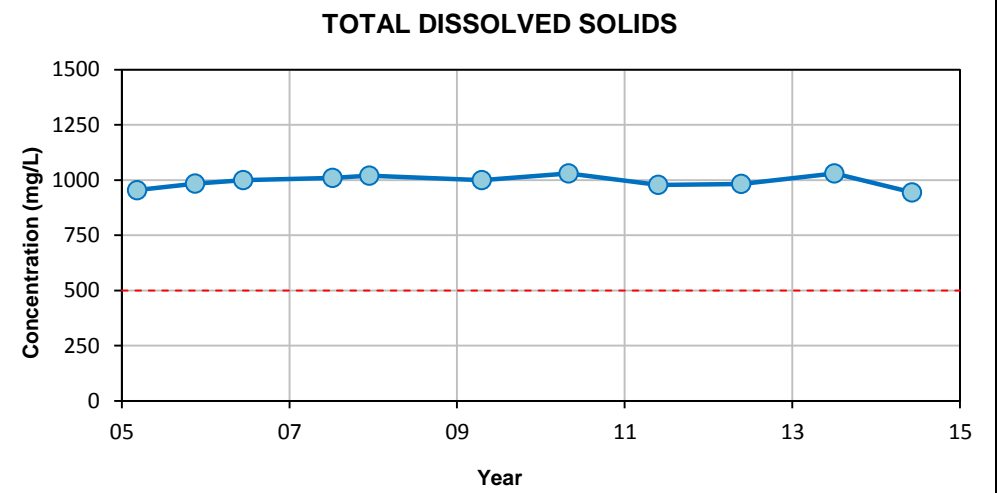
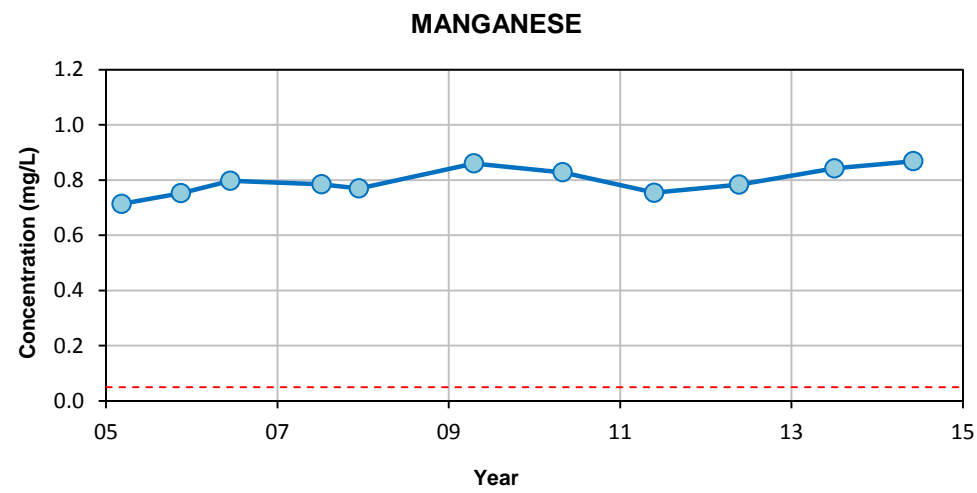
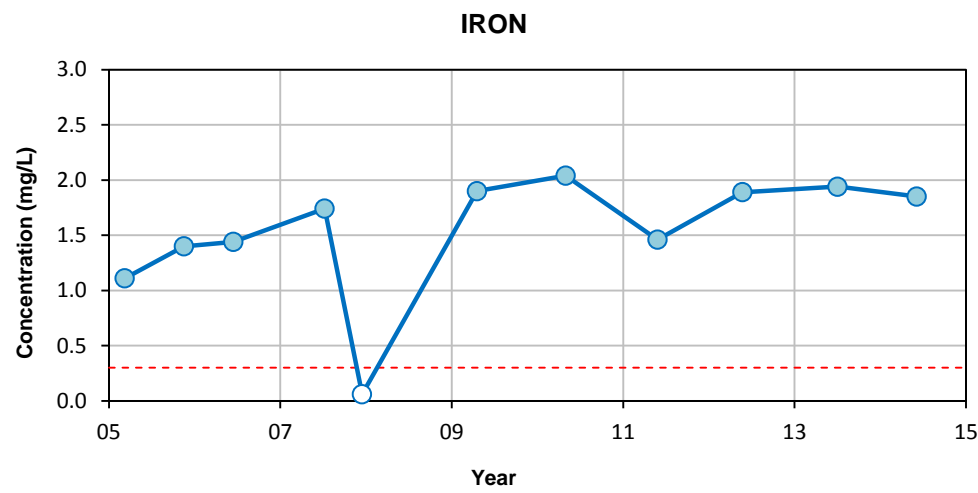
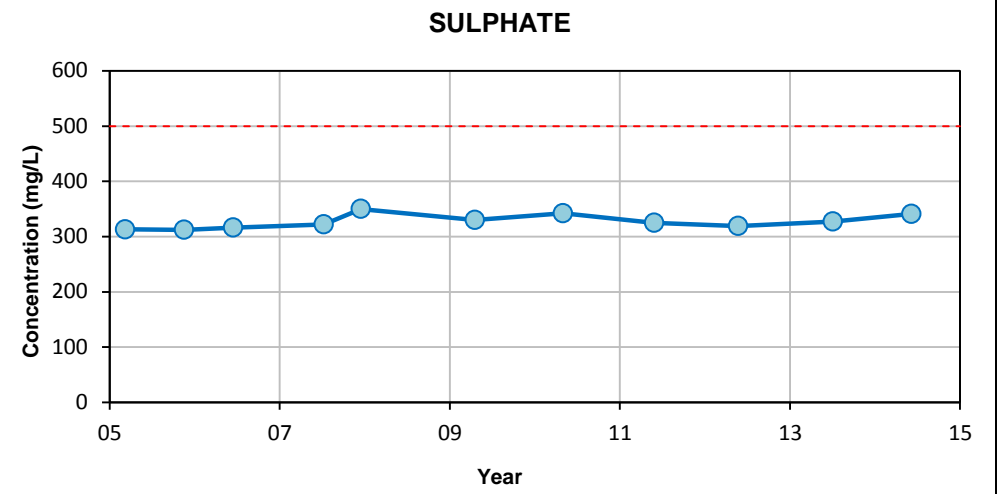
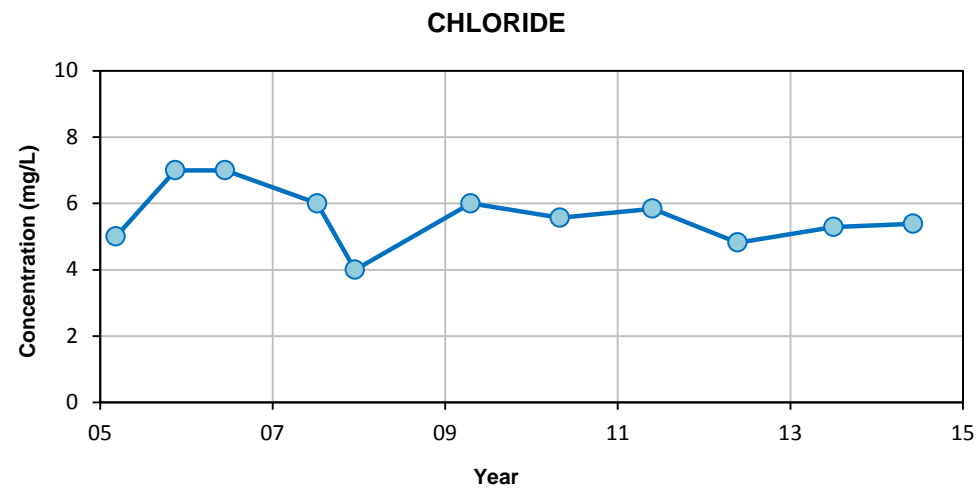
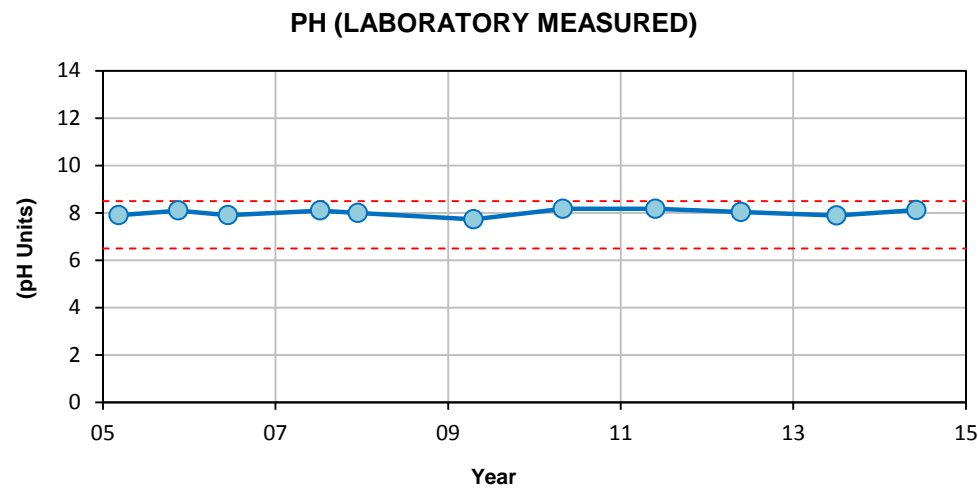
**Notes:**

- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-08</b>			
Date: 06-Aug-14	Drawn by: SG	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No. <b>A5-8</b>	REV <b>A</b>
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**Notes:**

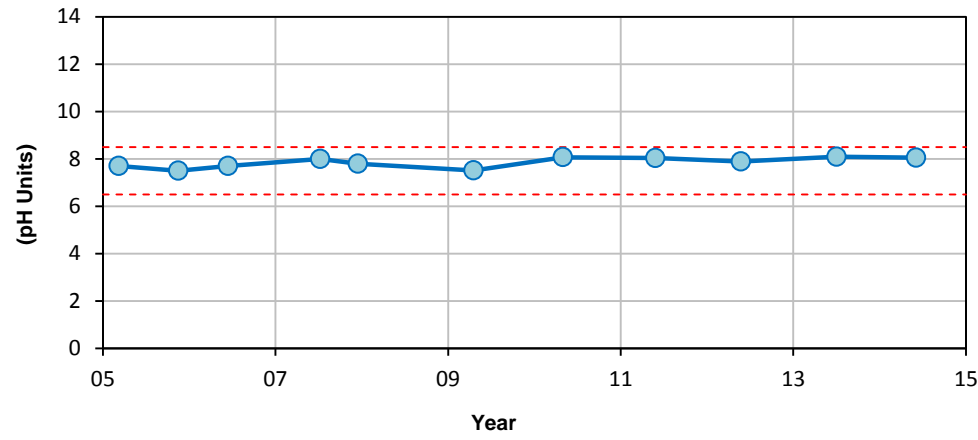
- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A

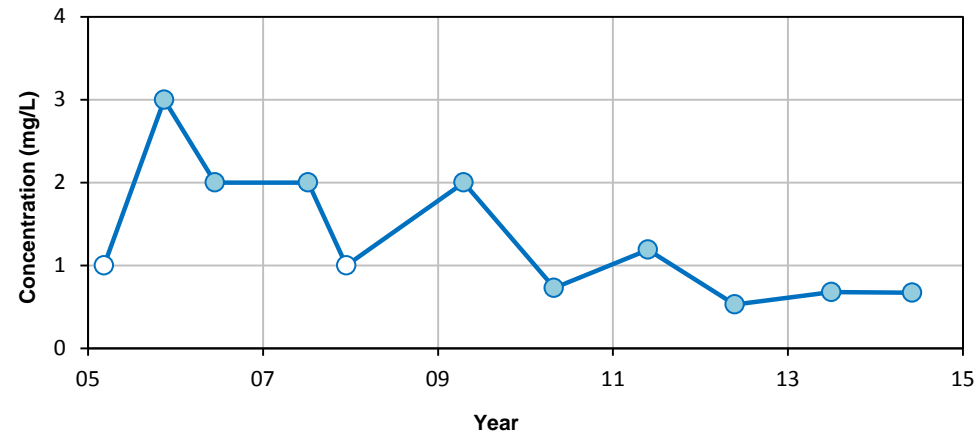
- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-09</b>			
Date: <b>06-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
 		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No. <b>A5-9</b>	REV <b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			

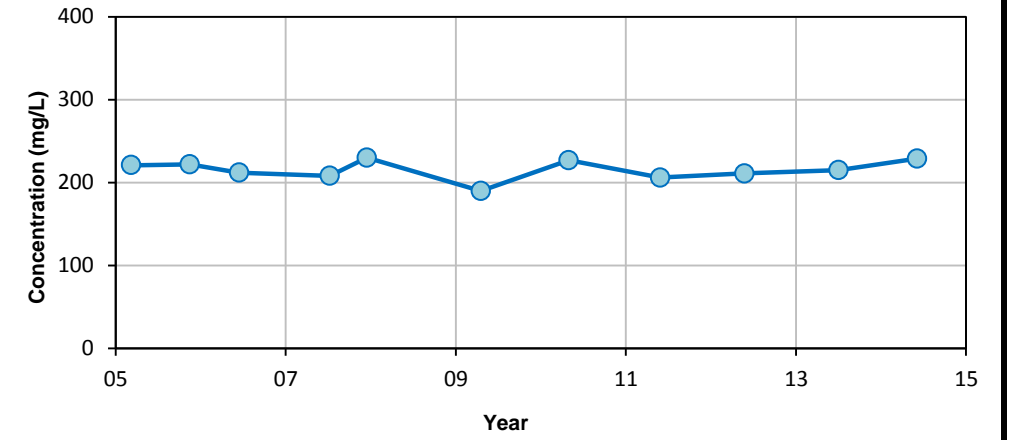
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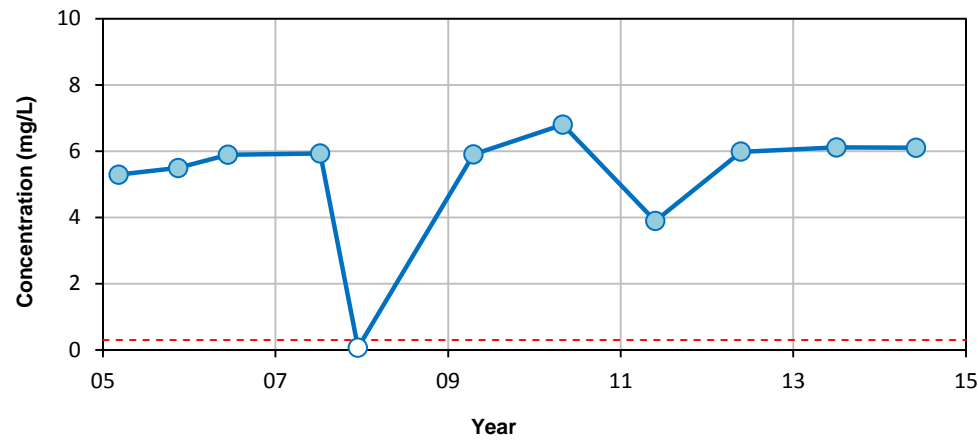
**CHLORIDE**



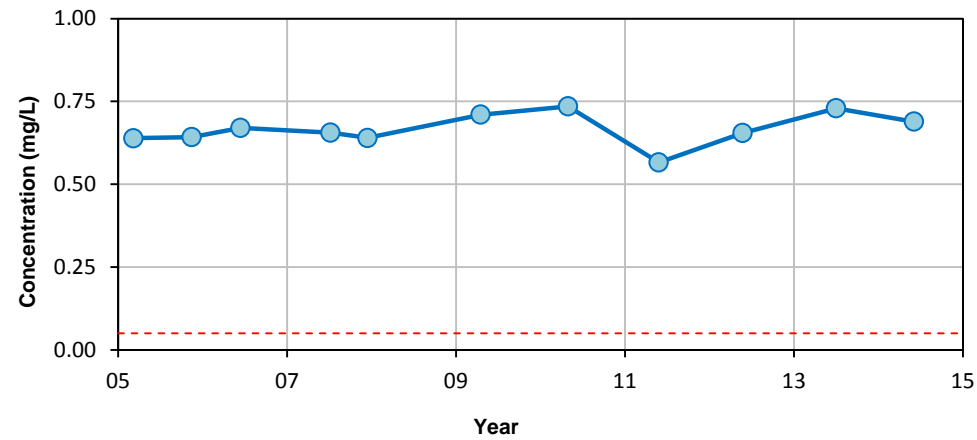
**SULPHATE**



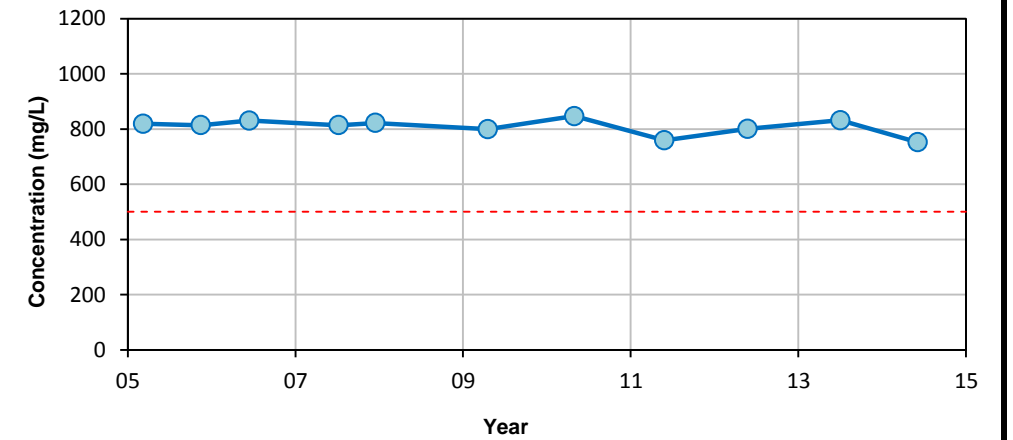
**IRON**



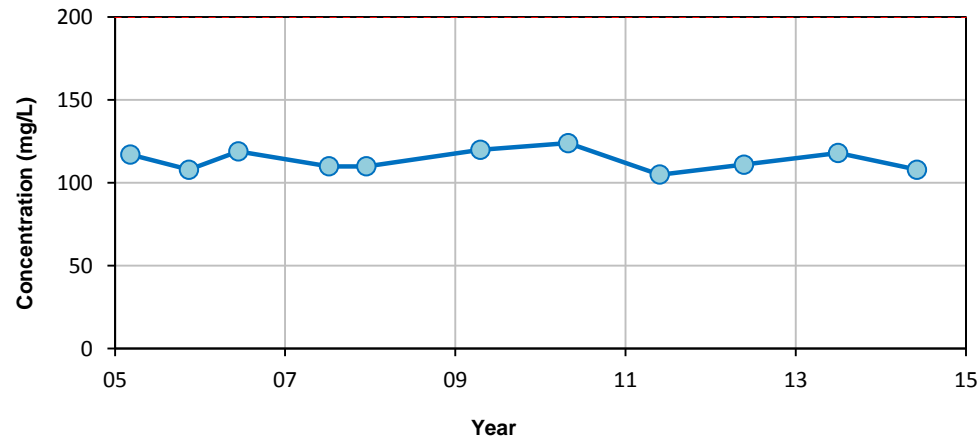
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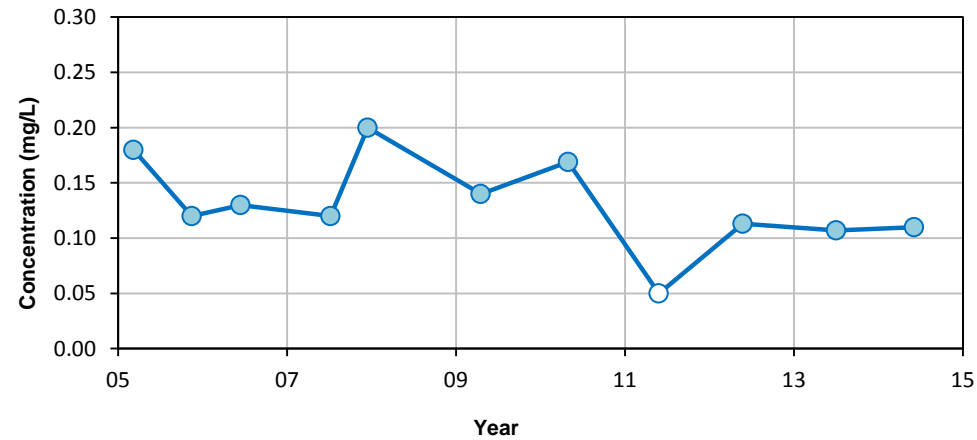
**TOTAL DISSOLVED SOLIDS**



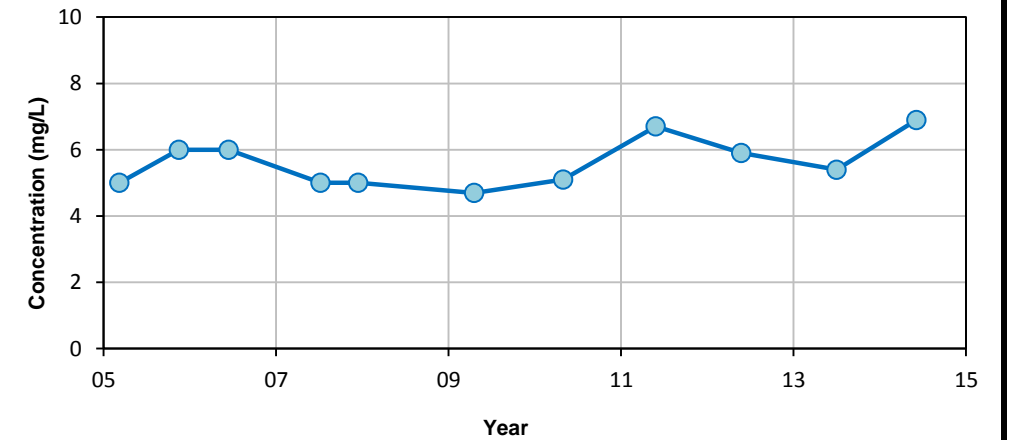
**SODIUM**



**FLUORIDE**



**DISSOLVED ORGANIC CARBON**



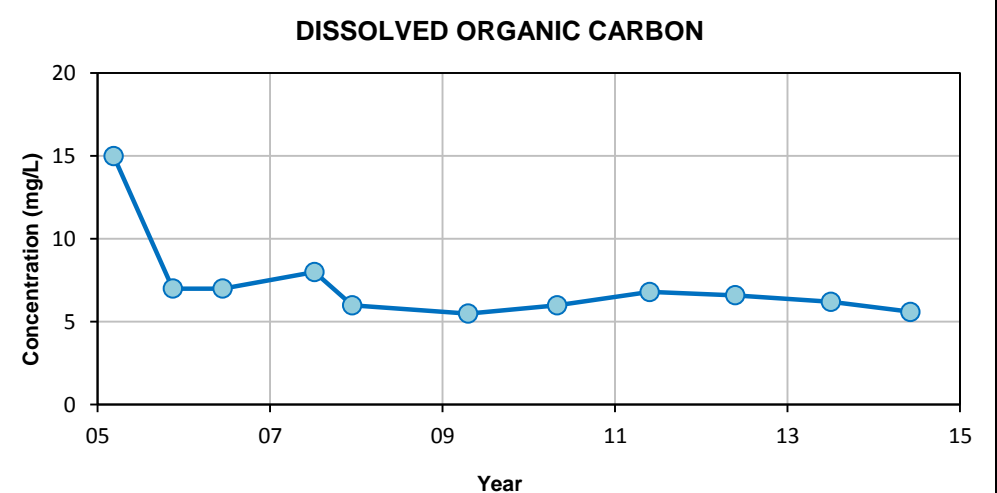
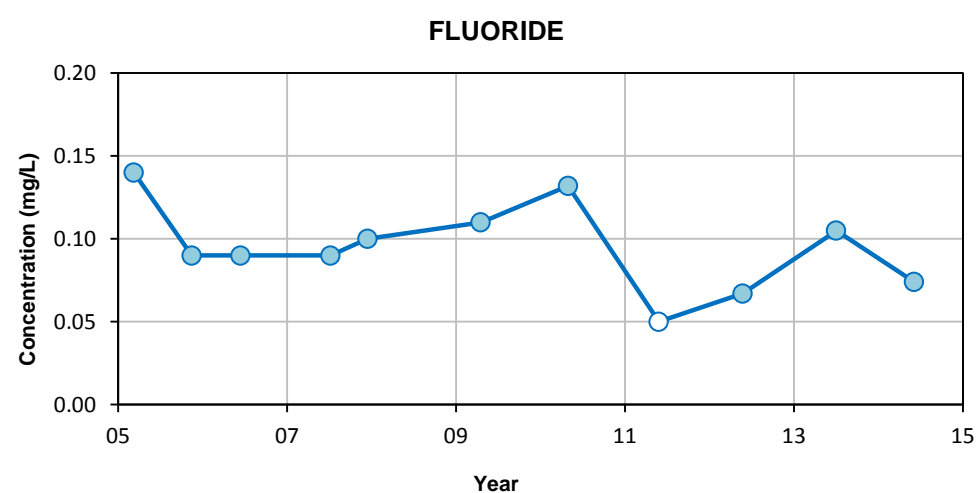
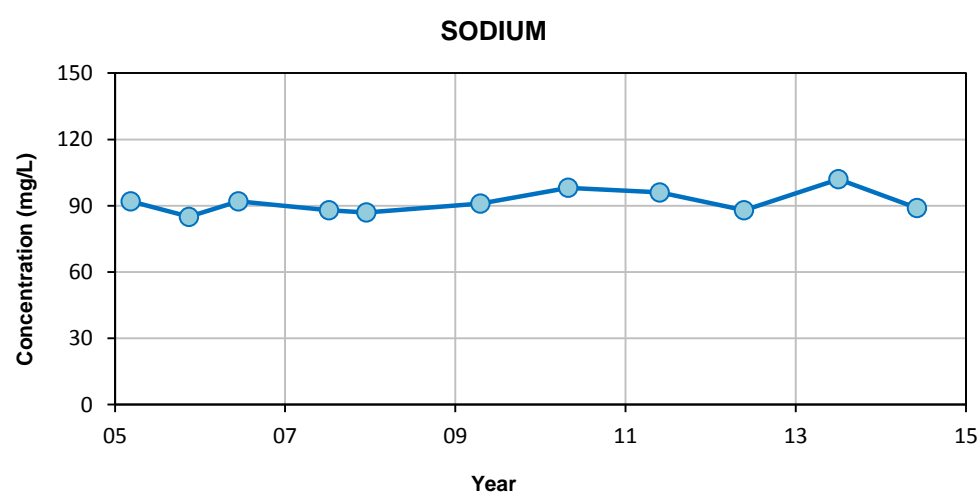
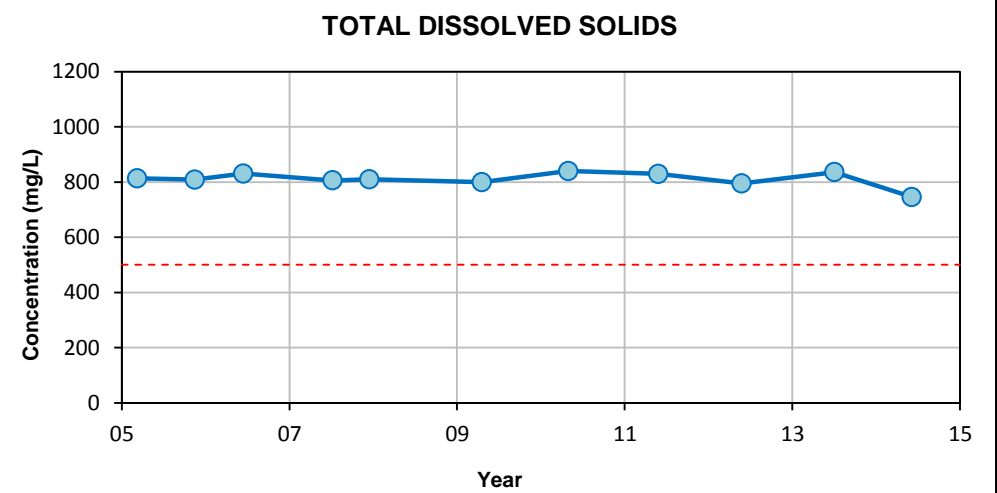
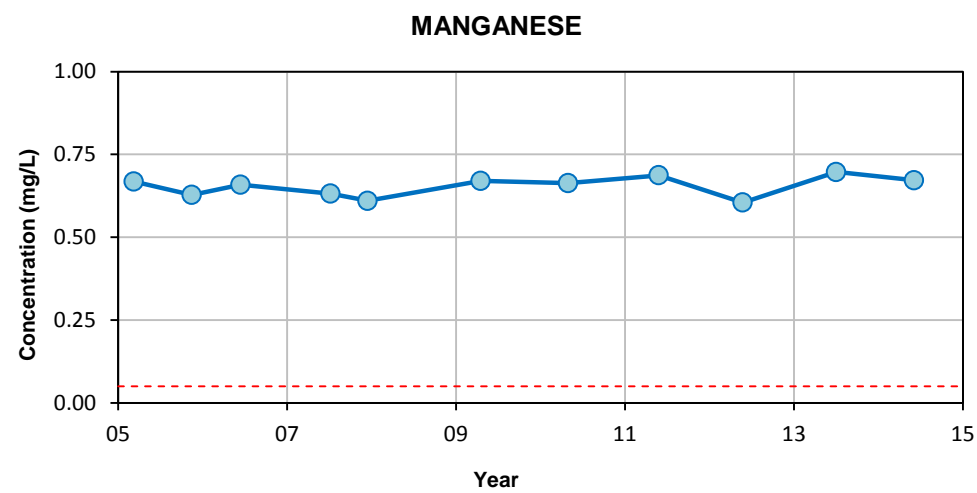
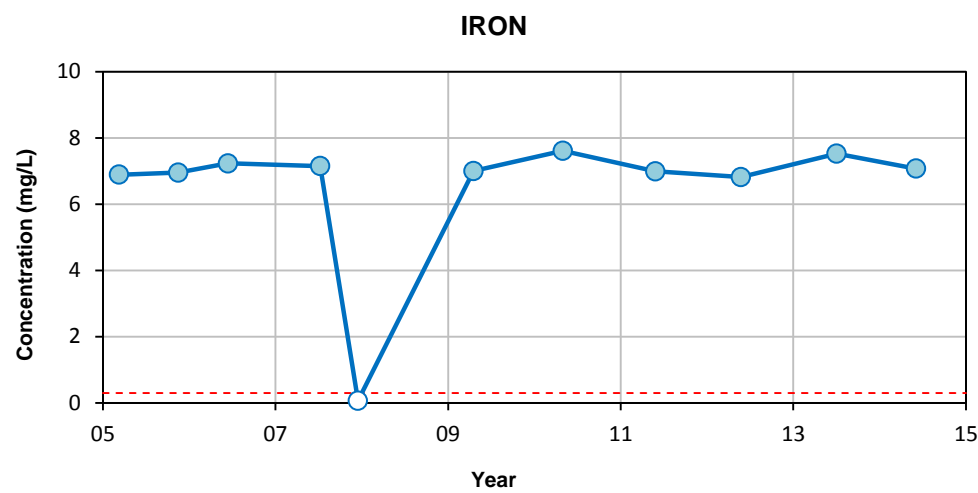
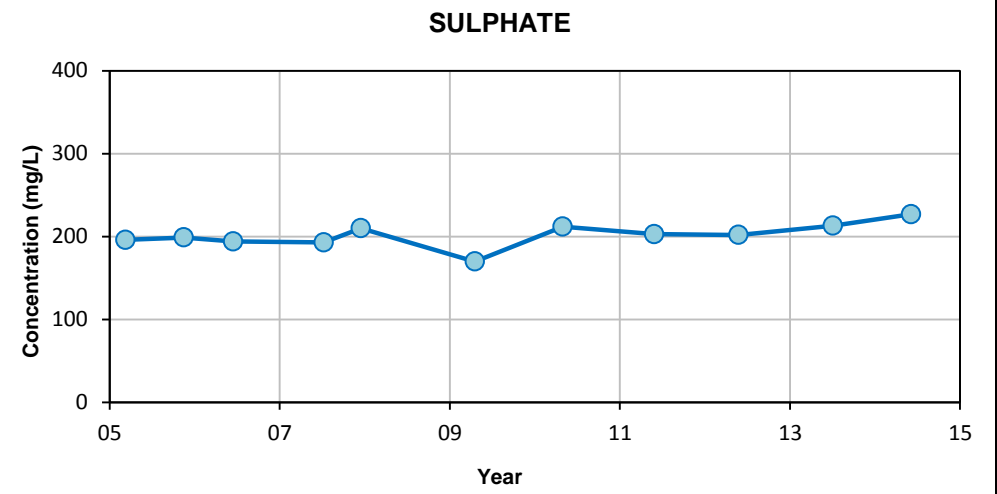
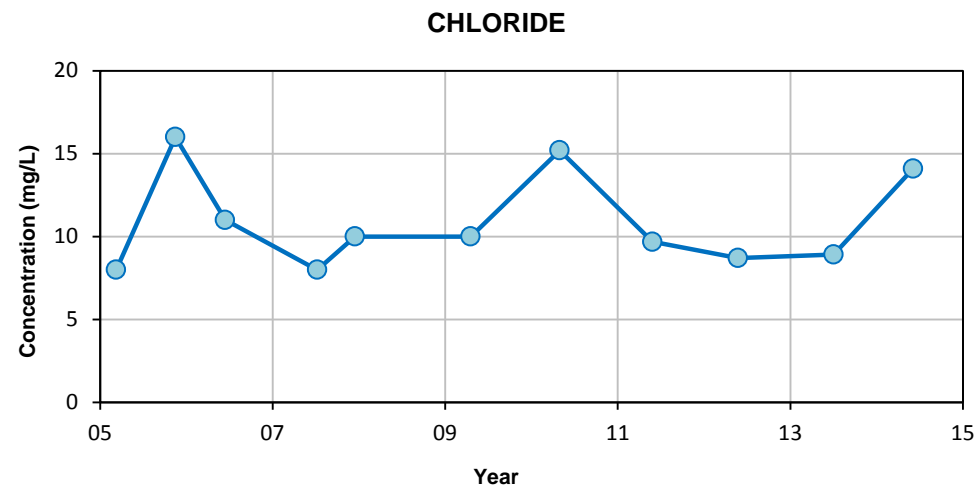
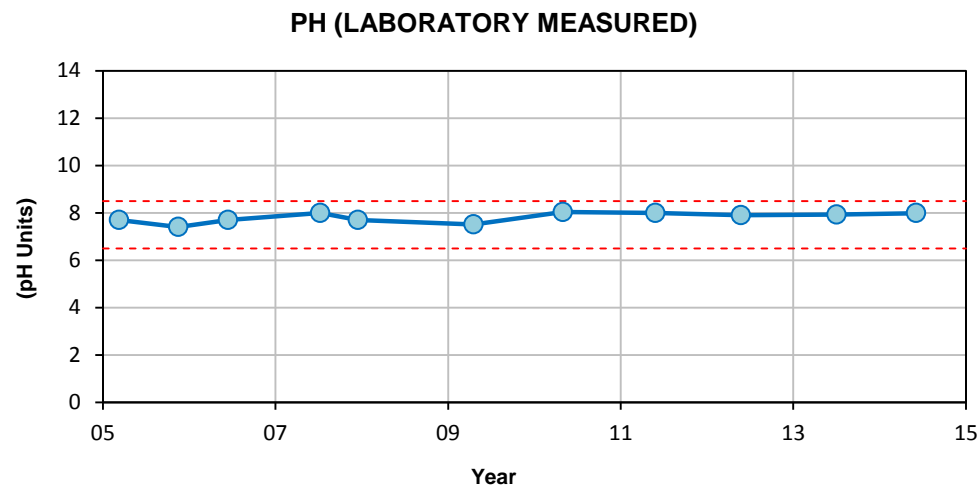
**Notes:**

- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-10</b>			
Date: 06-Aug-14	Drawn by: SG	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
FIG No. <b>A5-10</b>		REV <b>A</b>	
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			

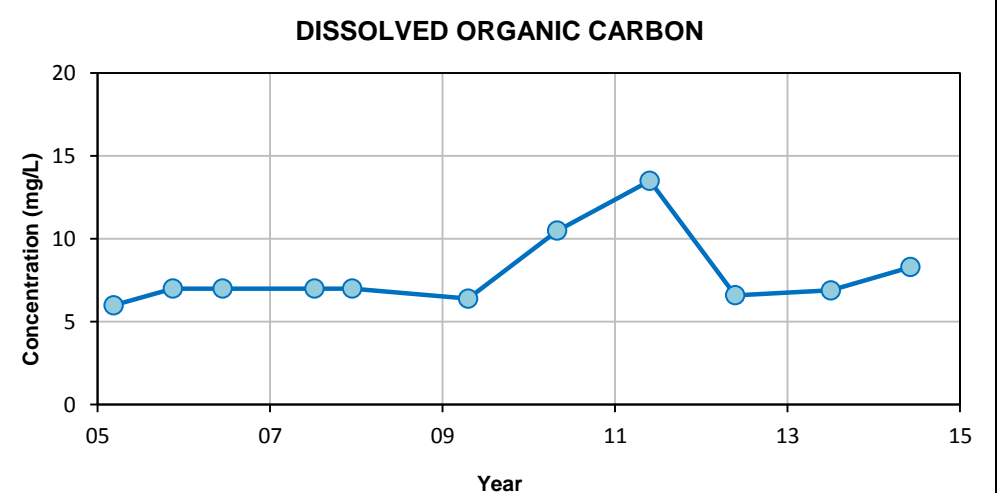
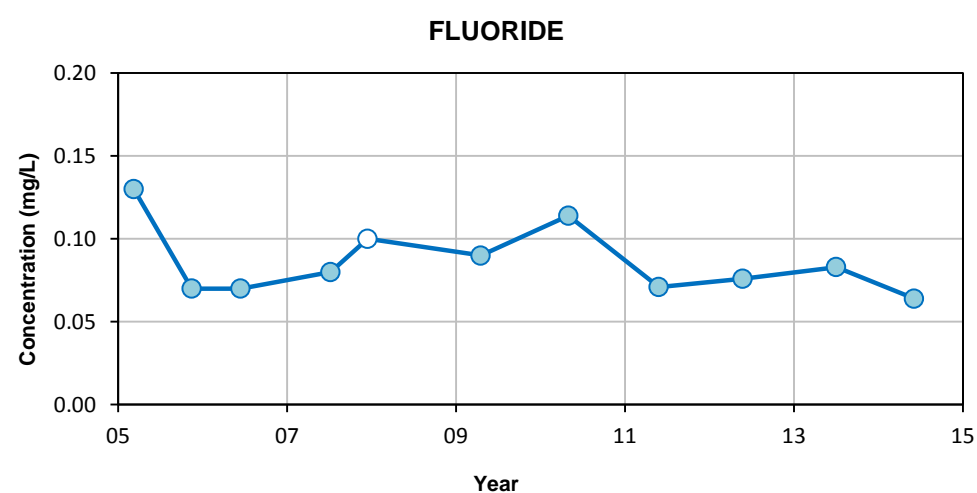
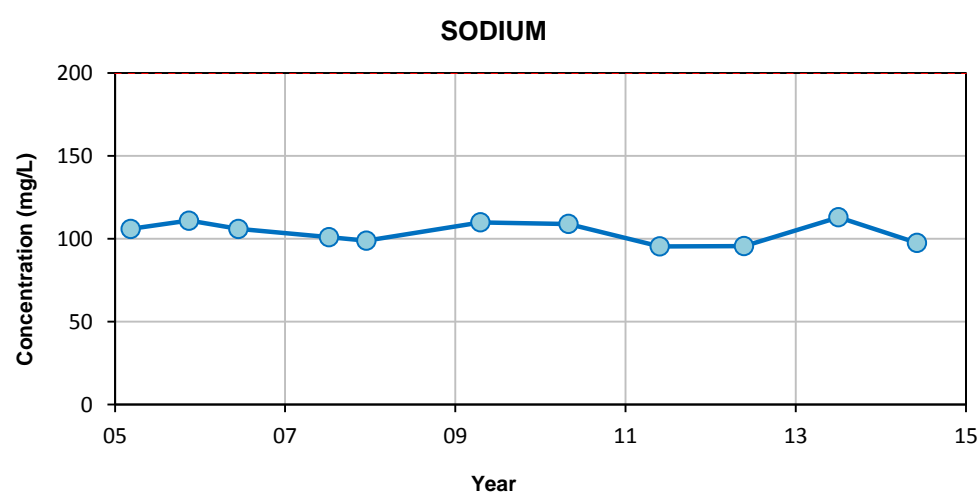
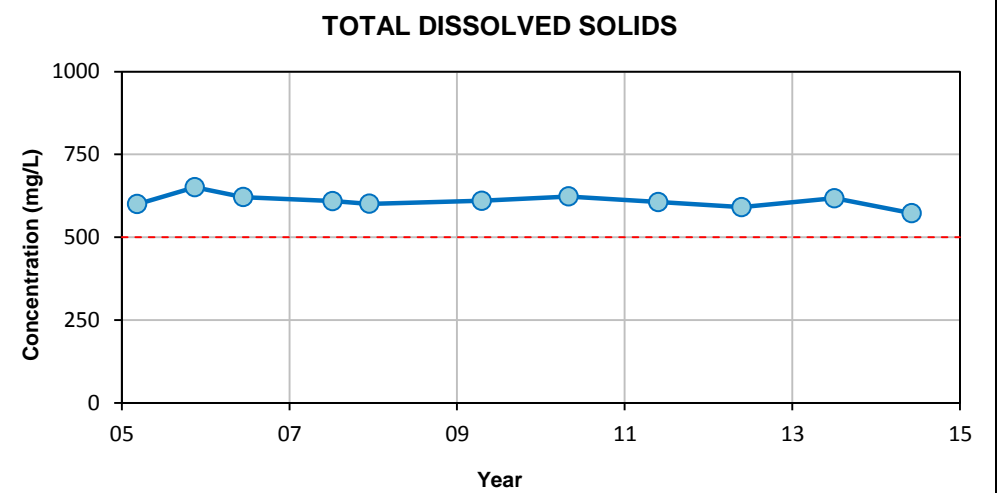
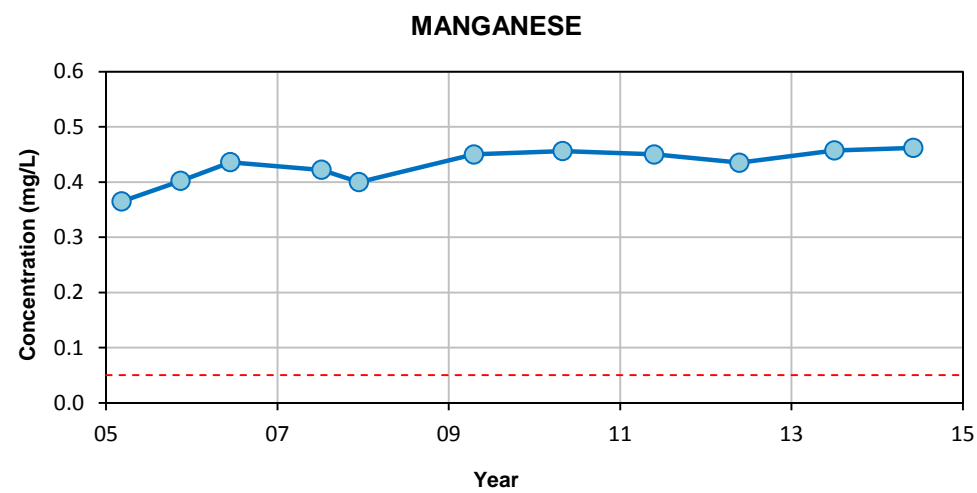
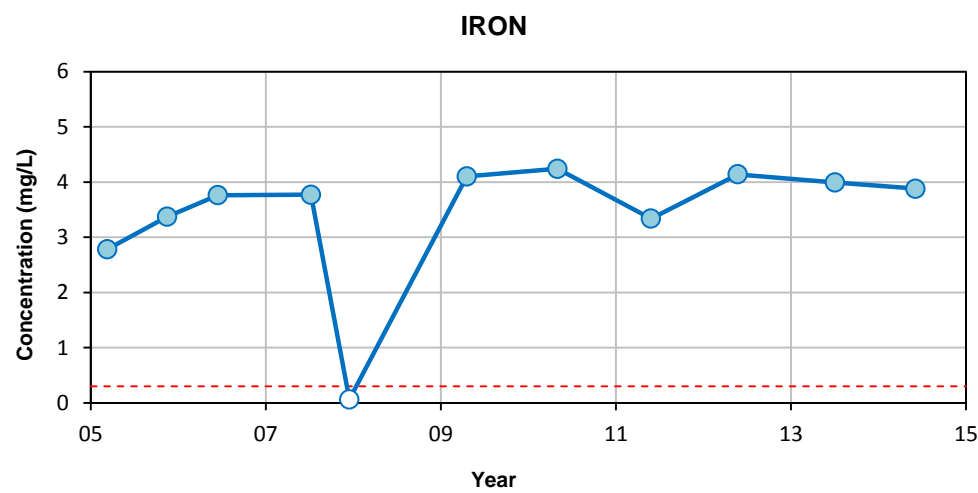
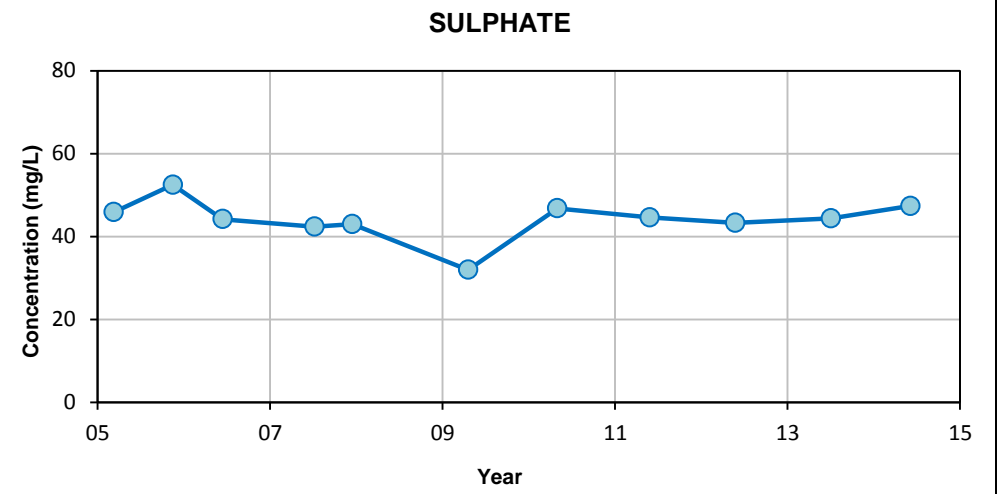
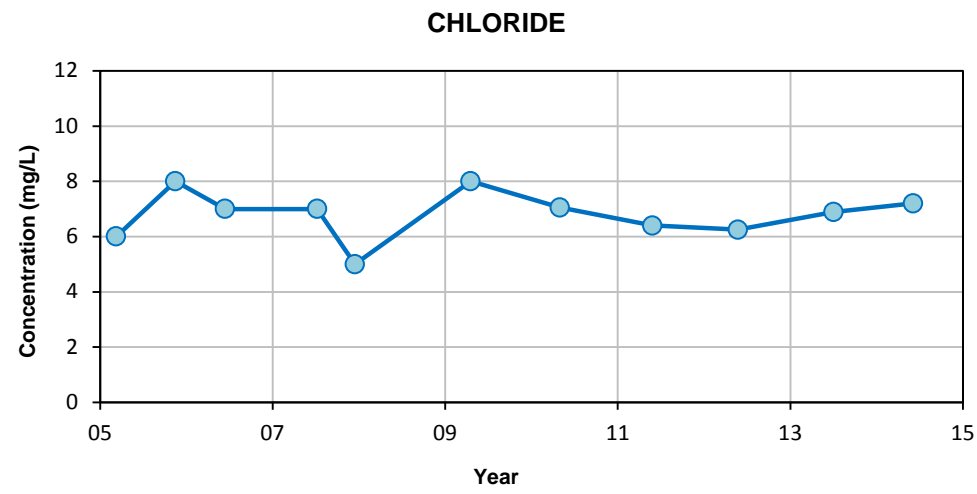
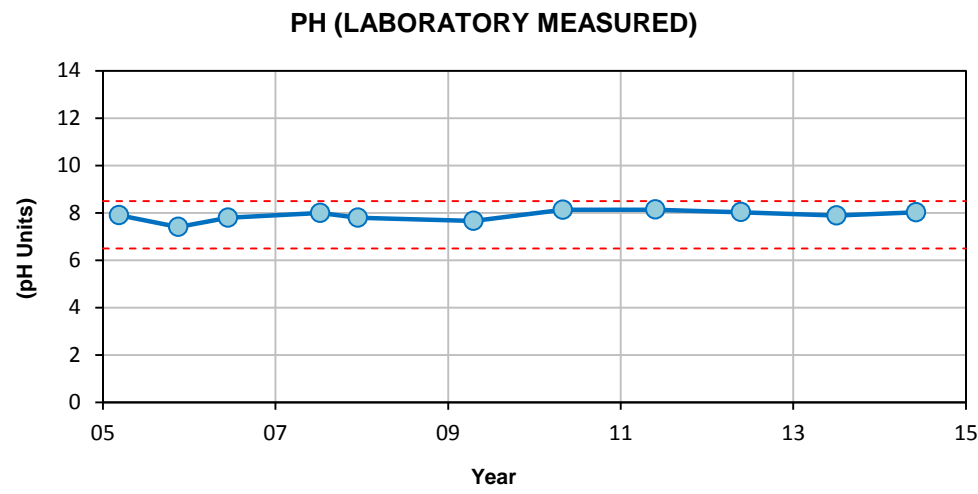


**Notes:**

- Filled symbols denote sample values; unfilled symbols denote values less than detection limit(s)
- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-11</b>			
Date: <b>06-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No. <b>A5-11</b>	REV <b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			





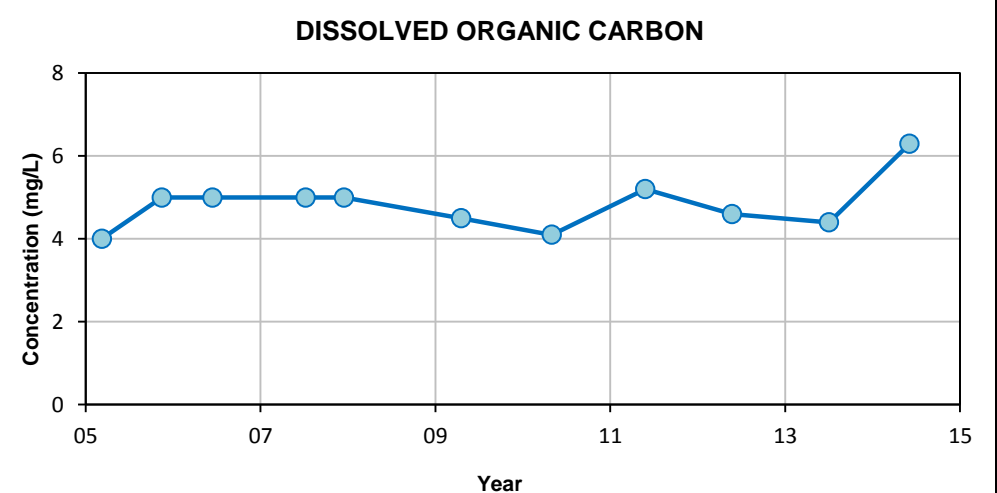
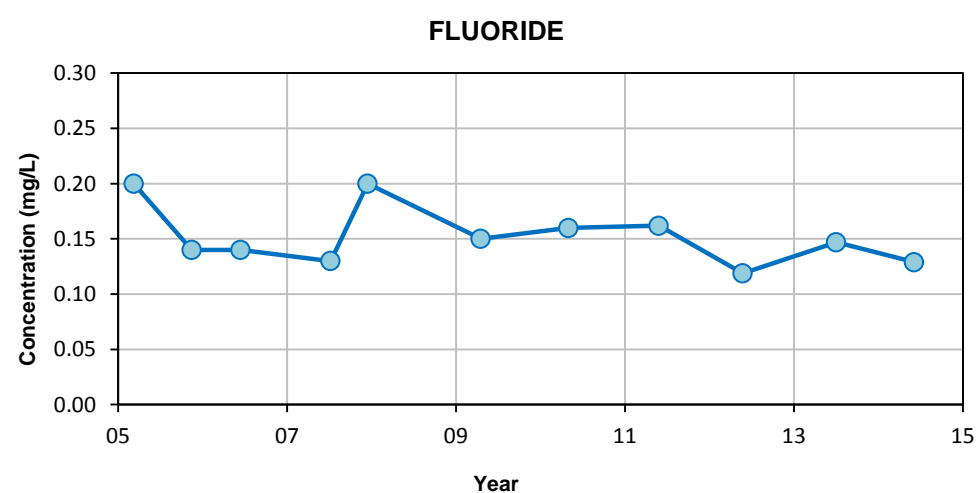
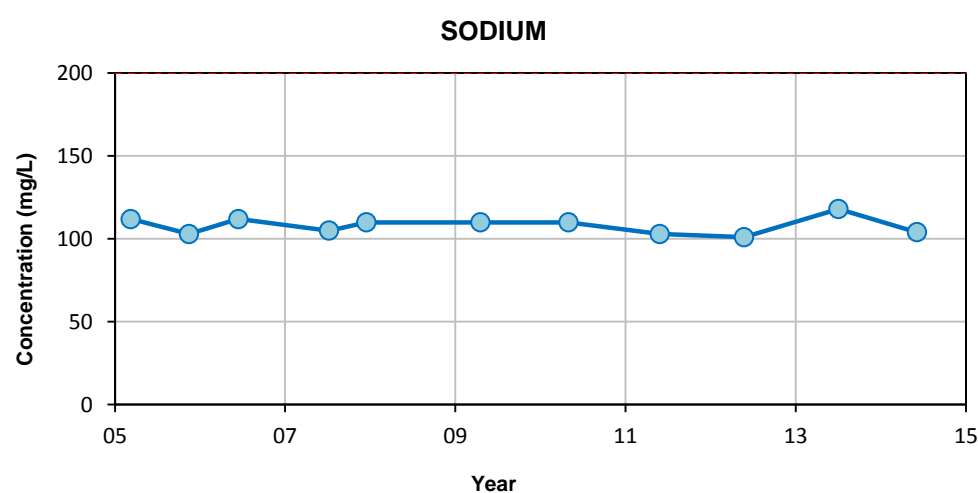
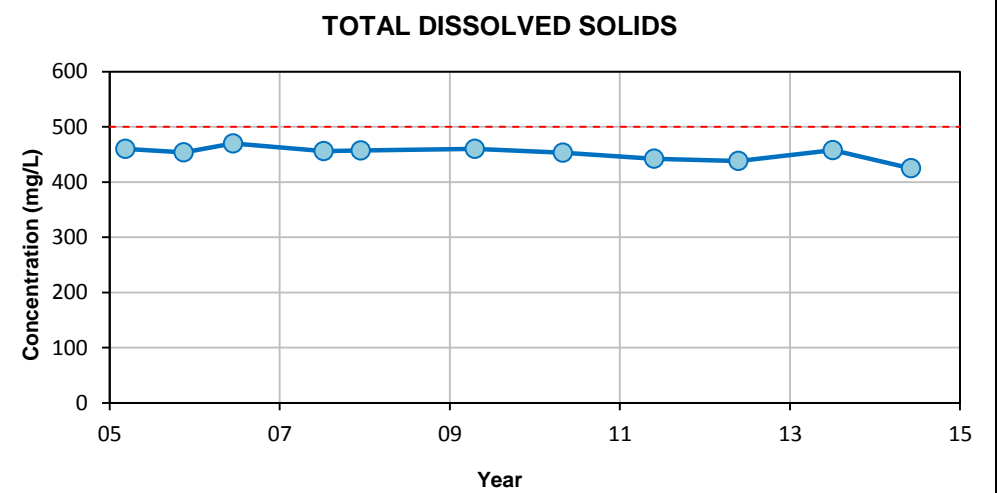
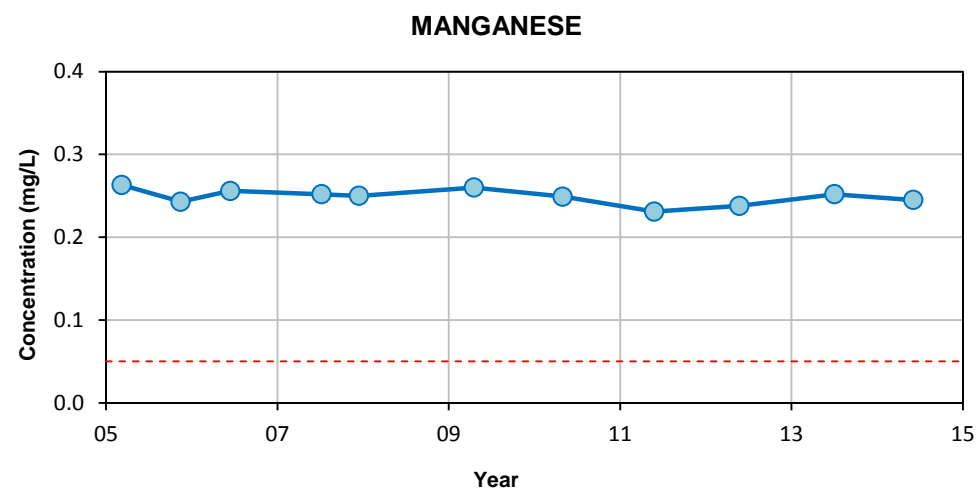
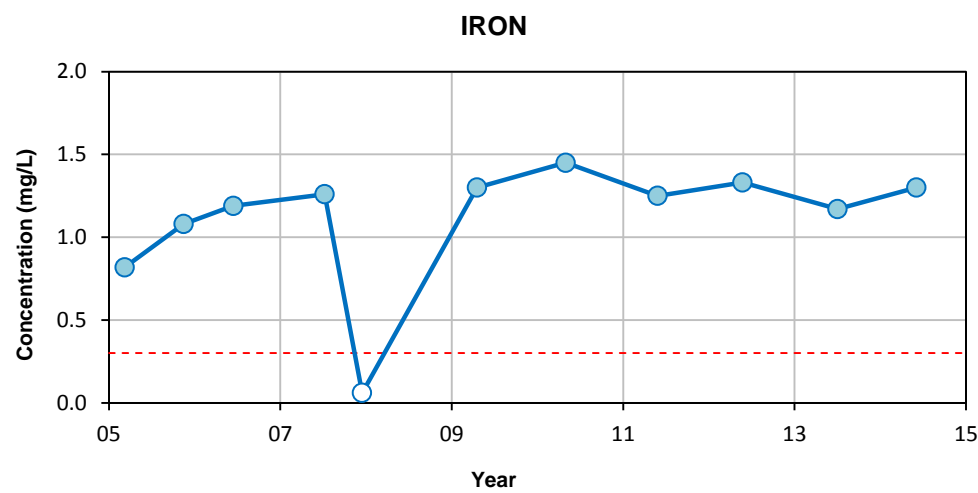
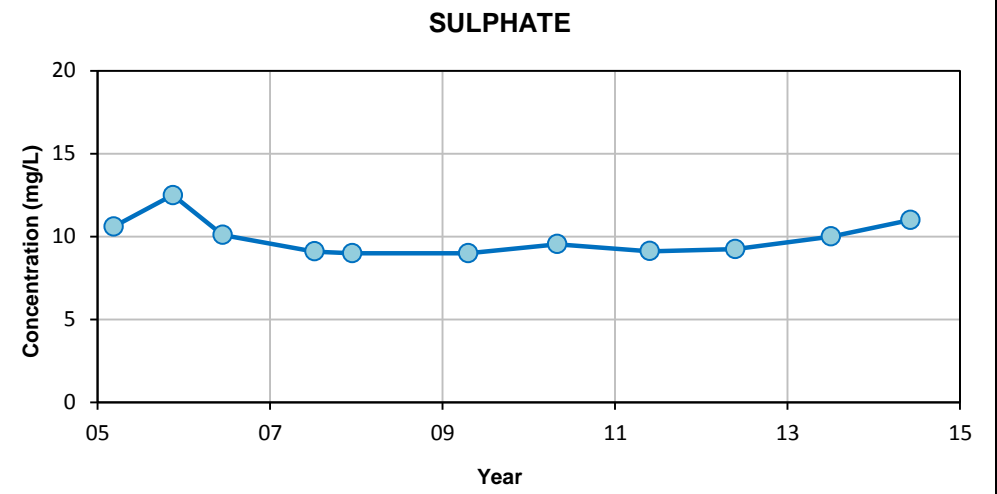
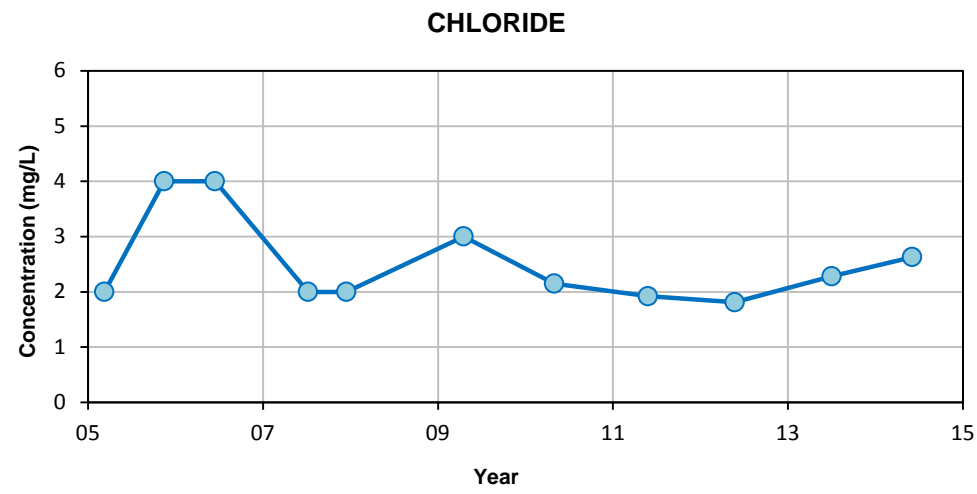
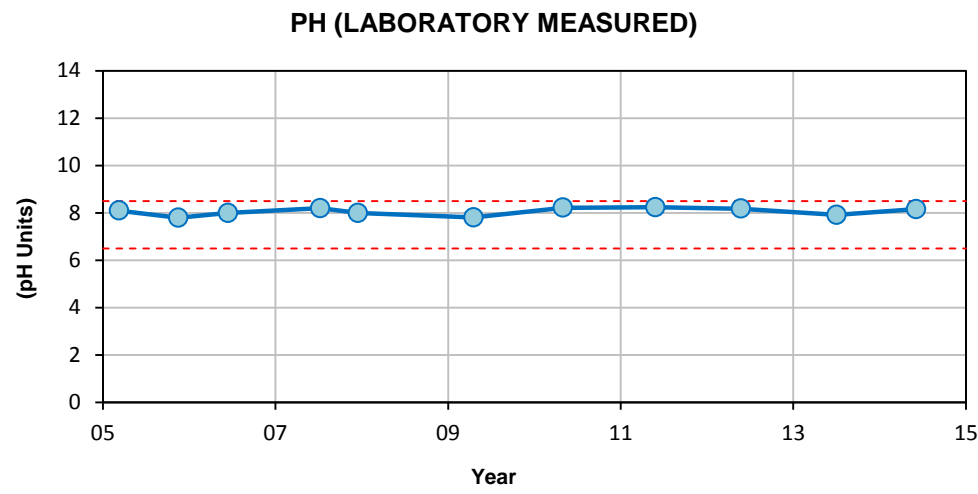
**Notes:**

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- Dashed line indicates data gap of more than two years
- Canadian Drinking Water AO Guidelines 2012 :
  - pH: 6.5-8.5 pH Units
  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-12</b>			
Date: <b>06-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
 		WorleyParsons Project No. <b>307076-06086-200</b>	REV
		FIG No. <b>A5-12</b>	<b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			





**Notes:**

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- Canadian Drinking Water AO Guidelines 2012 :
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  - Iron: 0.3 mg/L
  - Sodium: 200 mg/L

- Chloride: 250 mg/L
- Manganese: 0.05 mg/L
- Fluoride: N/A

- Sulphate: 500 mg/L
- Total Dissolved Solids: 500 mg/L
- Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2014 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS			
<b>HYDROCHEMICAL CONTROL CHARTS</b> <b>MW-13</b>			
Date: <b>06-Aug-14</b>	Drawn by: <b>SG</b>	Edited by:	App'd by:
 		WorleyParsons Project No. <b>307076-06086-200</b>	
		FIG No. <b>A5-13</b>	REV <b>A</b>
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.			



## Appendix 6 Statistical Tables





PROJECT NO.: 307076-06086

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
<b>Groundwater Elevation</b>																	
Depth To Groundwater	(m btoc)	15.55	15.64	15.23	15.23	15.38	15.29	15.70	15.40	15.15	14.41	14.76	14.41	15.7	15.25	0.38	11
Groundwater Surface Elevation	(m asl)	602.49	602.4	602.81	602.81	602.66	602.75	602.34	602.64	602.89	603.63	603.28	602.34	603.63	602.79	0.38	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	749	741	749	720	765	720	765	744.80	16.38	5
pH	(---)	---	---	---	---	---	---	6.95	7.11	6.88	7.21	7.38	6.88	7.38	7.11	0.20	5
Temperature	(°C)	---	---	---	---	---	---	5.6	7.7	7.6	6.8	7.0	5.6	7.7	6.94	0.84	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	94.6	94.8	99.7	95.1	87	84	98.6	91.1	93	96.5	87.2	84	99.7	92.87	5.03	11
Chloride	(mg/L)	4	4	4	3	2	5	3.46	3.02	3.13	3.49	4.58	2	5	3.61	0.83	11
Fluoride	(mg/L)	0.19	0.13	0.14	0.13	0.2	0.14	0.15	0.109	0.106	0.124	0.119	0.106	0.2	0.14	0.03	11
Iron	(mg/L)	1.02	1.67	1.81	1.84	<0.06	<0.06	2.02	1.53	1.57	1.82	1.92	1.02	2.02	1.69	0.30	11
Magnesium	(mg/L)	24.8	26.9	27.3	26.1	23	24	28.4	25.4	23.7	26.2	26.4	23	28.4	25.65	1.65	11
Manganese	(mg/L)	0.605	0.662	0.7	0.664	0.67	0.66	0.73	0.675	0.694	0.729	0.737	0.605	0.737	0.68	0.04	11
Potassium	(mg/L)	3.1	2.3	2.9	2.3	2.2	2.4	---	2.68	2.7	2.71	2.80	2.2	3.1	2.61	0.30	10
Sodium	(mg/L)	40.0	36.0	37.0	33.0	34.0	36.0	38.1	33.3	35.0	36.0	32.7	32.7	40	35.55	2.27	11
Bicarbonate	(mg/L)	444	451	448	445	470	450	453	446	450	438	408	408	470	445.73	14.83	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.020	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.003	<0.050	<0.050	<0.050	<0.050	<0.050	0.003	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.003	<0.071	<0.071	<0.071	<0.071	<0.054	0.003	<0.2	N/A	N/A	11
Sulphate	(mg/L)	57.4	61.1	56.8	54.6	60	44	62	57.1	56.2	52.3	59.8	44	62	56.48	5.03	11
<b>Dissolved Organic Carbon</b>																	
Electrical Conductivity	(µS/cm)	762	760	748	718	770	770	762	768	769	727	677	677	770	748.27	29.54	11
Ion Balance	(%)	100	97.6	103	98.6	87	93	102	94.9	94.7	103	99.4	87	103	97.56	4.87	11
pH	(---)	7.7	7.9	8	7.8	7.8	7.67	8.06	8.04	8	7.94	7.94	7.67	8.06	7.90	0.13	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.003	N/A	N/A	11
Total Dissolved Solids	(mg/L)	442	447	448	433	442	410	456	432	435	445	470	410	470	441.82	15.18	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	364	370	367	365	390	370	371	366	369	359	334	334	390	365.91	13.12	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	338	347	361	345	310	310	363	332	330	349	326	310	363	337.36	17.92	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	0.02	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	<0.001	0.02	N/A	N/A	11
Antimony	(mg/L)	0.0008	0.0005	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0008	N/A	N/A	11
Arsenic	(mg/L)	0.0008	0.0009	0.0009	0.0009	<0.001	0.0008	0.00095	0.00093	0.00088	0.00098	0.00092	0.0008	<0.001	N/A	N/A	11
Barium	(mg/L)	0.199	0.143	0.134	0.127	0.11	---	0.132	0.147	0.12	0.147	0.144	0.11	0.199	0.14	0.02	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	<0.0001	N/A	N/A	4
Boron	(mg/L)	0.053	0.046	0.045	0.054	0.05	---	0.053	<0.050	<0.050	<0.050	<0.050	0.045	0.054	N/A	N/A	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00005	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0009	<0.0004	0.0027	0.0011	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0004	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0017	0.0015	0.0008	0.0009	0.0009	0.0008	0.00088	0.00084	0.00068	0.00075	0.00072	0.00068	0.0017	0.0010	0.0003	11
Copper	(mg/L)	<0.0006	0.0007	<0.0006	<0.0006	<0.0002	0.0005	<0.0010	0.0017	<0.0010	<0.0010	<0.0010	<0.0002	0.0017	N/A	N/A	11
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0004	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	<0.000020	<0.000020	<0.000005	0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0007	0.0013	0.0004	0.0009	0.0008	0.0004	0.00046	0.00039	0.000423	0.00036	0.000281	0.000281	0.0013	0.0006	0.0003	11
Nickel	(mg/L)	0.0004	0.0012	<0.0001	0.003	0.0027	0.0009	0.0025	<0.0020	<0.0020	<0.0020	<0.0020	<0.0001	0.003	N/A	N/A	11
Selenium	(mg/L)	<0.0004	<0.0004	<0.0004	0.0005	<0.001	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	0.579	0.551	0.554	0.558	0.53	---	---	---	---	---	---	0.53	0.579	0.55	0.02	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0013	0.0012	0.001	0.0008	0.001	<0.001	0.00081	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.0013	N/A	N/A	11
Uranium	(mg/L)	0.0026	0.0023	0.0022	0.0022	0.0024	0.0021	0.00209	0.00205	0.00194	0.00223	0.00212	0.00194	0.0026	0.0022	0.0002	11
Vanadium	(mg/L)	0.0003	0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.00010	0.00016	<0.00010	<0.00010	<0.00010	0.0001	<0.001	N/A	N/A	11
Zinc	(mg/L)	0.004	<0.002	0.005	<0.002	<0.003	<0.003	<0.0020	0.0074	0.0034	<0.003	<0.003	<0.002	0.0074	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10						



PROJECT NO.: 307076-06086																	
Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
<b>Groundwater Elevation</b>																	
Depth To Groundwater	(m btoc)	22.5	23.47	22.5	22.45	23.36	22.54	22.82	22.32	22.57	22.24	22.34	22.24	23.47	22.65	0.41	11
Groundwater Surface Elevation	(m asl)	601.93	600.96	601.93	601.98	601.07	601.89	601.61	602.11	601.86	602.19	602.09	600.96	602.19	601.78	0.41	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	974	976	958	966	1003	958	1003	975.40	16.99	5
pH	(--)	---	---	---	---	---	---	7.14	7.08	7.72	7.14	7.35	7.08	7.72	7.29	0.26	5
Temperature	(°C)	---	---	---	---	---	---	6.6	8.9	8.3	8.4	8.2	6.6	8.9	8.08	0.87	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	106	104	109	108	98	92	104	115	102	109	100	92	115	104.27	6.25	11
Chloride	(mg/L)	31	35	35	36	35	35	44.3	44.2	45.9	48.3	55.9	31	55.9	40.51	7.66	11
Fluoride	(mg/L)	0.14	0.1	0.1	0.11	0.1	0.11	0.117	0.105	0.08	0.105	0.073	0.073	0.14	0.10	0.02	11
Iron	(mg/L)	3.19	4.47	4.85	4.89	<0.06	<0.06	5.23	5.55	4.83	5.36	5.13	3.19	5.55	4.83	0.70	11
Magnesium	(mg/L)	36.1	36.4	36.6	37.7	32	32	36.8	40.1	31.8	38.3	36.9	31.8	40.1	35.88	2.77	11
Manganese	(mg/L)	0.264	0.239	0.258	0.249	0.25	0.24	0.253	0.277	0.246	0.274	0.263	0.239	0.277	0.26	0.01	11
Potassium	(mg/L)	3.5	3	3	3	2.7	2.8	---	3.2	3.05	3.2	3.23	2.7	3.5	3.07	0.23	10
Sodium	(mg/L)	56	54	52	55	49	51	52.3	52.7	48.8	57.9	48.4	48.4	57.9	52.46	3.09	11
Bicarbonate	(mg/L)	442	445	439	440	460	430	435	433	434	427	395	395	460	434.55	15.83	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.020	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.009	<0.050	<0.050	<0.050	<0.050	<0.050	0.009	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.009	<0.071	<0.071	<0.071	<0.071	<0.054	0.009	<0.2	N/A	N/A	11
Sulphate	(mg/L)	113	122	116	122	130	98	124	120	115	119	129	98	130	118.91	8.76	11
<b>Dissolved Organic Carbon</b>																	
Electrical Conductivity	(µS/cm)	937	949	943	930	960	950	967	1,000	988	963	933	930	1000	956	22.28	11
Ion Balance	(%)	103	98.1	102	102	0.87	95	96.4	105	91.7	103	95.1	0.87	105	90.20	29.93	11
pH	(--)	7.4	7.8	8	8	7.7	7.57	8.03	7.98	7.83	7.81	7.96	7.4	8.03	7.83	0.20	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.003	N/A	N/A	11
Total Dissolved Solids	(mg/L)	563	573	568	578	571	520	579	588	560	608	612	520	612	574.55	24.72	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	362	365	360	361	380	350	357	355	355	350	324	324	380	356.27	13.54	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	413	410	423	425	370	360	411	452	386	430	402	360	452	407.45	26.90	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.001	<0.01	N/A	N/A	11
Antimony	(mg/L)	0.0007	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0007	N/A	N/A	11
Arsenic	(mg/L)	0.0012	0.0014	0.0013	0.0014	<0.001	0.0013	0.00154	0.00141	0.00132	0.00147	0.00143	<0.001	0.00154	N/A	N/A	11
Barium	(mg/L)	0.0744	0.0418	0.0411	0.0379	0.03	---	0.038	0.0389	0.035	0.0431	0.0428	0.03	0.0744	0.04	0.01	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.00045	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00045	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	0.00009	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	0.00009	N/A	N/A	4
Boron	(mg/L)	0.128	0.119	0.109	0.115	0.11	---	0.116	0.103	0.088	0.098	0.097	0.088	0.128	0.11	0.01	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00005	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0009	<0.0004	0.0029	0.0012	0.002	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0004	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0012	0.0008	0.0008	0.0008	0.0008	0.0006	0.00076	0.00061	0.00062	0.00073	0.0007	0.0006	0.0012	0.0008	0.0002	11
Copper	(mg/L)	<0.0006	0.0008	0.0007	<0.0006	0.0002	0.0007	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0002	<0.0010	N/A	N/A	11
Lead	(mg/L)	<0.0001	<0.0001	<0.0001	0.0005	0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0005	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	0.00009	<0.00005	0.000001	<0.00010	<0.000020	<0.000020	<0.000020	<0.000005	0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0008	0.0015	0.0007	0.0029	0.0012	0.0007	0.00079	0.00056	0.000535	0.000682	0.000496	0.000496	0.0029	0.0010	0.0007	11
Nickel	(mg/L)	<0.0001	0.0003	<0.0001	<0.00001	0.0042	0.001	0.0027	<0.0020	<0.0020	<0.0020	<0.0020	<0.00001	0.0042	N/A	N/A	11
Selenium	(mg/L)	<0.0004	0.0005	0.0005	<0.0002	<0.001	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	0.811	0.828	0.845	0.001	0.82	---	---	---	---	---	---	0.001	0.845	0.66	0.37	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	0.0007	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	0.0007	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	0.882	<0.001	<0.001	---	---	---	---	---	<0.0002	0.882	N/A	N/A	6
Titanium	(mg/L)	0.001	0.0019	0.001	<0.00005	0.002	<0.001	0.00079	<0.00030	<0.00030	<0.00030	<0.00030	<0.00005	0.002	N/A	N/A	11
Uranium	(mg/L)	0.0007	0.0007	0.0007	0.0002	0.0006	0.0006	0.00056	0.00058	0.00051	0.00064	0.00058	0.0002	0.0007	0.0006	0.0001	11
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.001	0.001	<0.001	0.00036	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.001	N/A	N/A	11
Zinc	(mg/L)	0.003	<0.002	0.01	<0.002	<0.003	<0.003	<0.0020	<0.0020	<0.0030	<0.0030	<0.0030	<0.002	0.01	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.25	<0.05	<0.25	N/A	N/A	11

**NOTES:**

1. Electrical conductivity values standardized to 25°C (within the limitations of the equipment).
2. --- Denotes parameter not measured.
3. N/A Denotes that statistics are not available due to limited detected values.
4. Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2012).
5. No parameters exceed Canadian Drinking Water MAC Guidelines (Health Canada 2012).
6. Anomalous iron concentrations from Fall 2007 and Spring 2009 are not included in calculations.



PROJECT NO.: 307076-06086

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
		Groundwater Elevation	(m bloc)	18.59	18.57	18.59	18.55	18.52	18.66	18.87	18.70	18.78	18.54	18.48	18.48	18.87	18.62
Depth To Groundwater	(m bloc)	18.59	18.57	18.59	18.55	18.52	18.66	18.87	18.70	18.78	18.54	18.48	18.48	18.87	18.62	0.12	11
Groundwater Surface Elevation	(m asl)	602.2	602.22	602.2	602.24	602.27	602.13	601.92	602.1	602.01	602.25	602.31	601.92	602.31	602.17	0.12	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1213	1230	1420	1216	1289	1213	1420	1273.60	87.41	5
pH	(--)	---	---	---	---	---	---	7.14	7.12	7.14	7.1	7.27	7.1	7.27	7.15	0.07	5
Temperature	(°C)	---	---	---	---	---	---	8.2	8.1	7.8	8.3	8.0	7.8	8.3	8.08	0.19	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	142	147	147	154	140	140	152	140	141	154	143	140	154	145.45	5.66	11
Chloride	(mg/L)	137	157	155	190	200	150	131	125	126	129	146	125	200	149.64	25.22	11
Fluoride	(mg/L)	0.15	0.12	0.13	0.14	0.1	0.14	0.129	0.119	0.089	0.082	0.093	0.082	0.15	0.12	0.02	11
Iron	(mg/L)	0.173	0.104	0.005	<0.005	<0.06	<0.06	0.078	0.028	1.47	1.7	1.39	0.005	1.7	0.62	0.75	11
Magnesium	(mg/L)	37.7	40	42.7	43.6	35	37	44	41.3	38.1	44	40.8	35	44	40.38	3.10	11
Manganese	(mg/L)	0.152	0.053	0.13	0.009	0.016	0.03	0.258	0.114	0.722	0.561	0.494	0.009	0.722	0.23	0.25	11
Potassium	(mg/L)	9.9	9.5	10.2	10.4	10	9.4	---	8.78	8.93	10.8	9.68	8.78	10.8	9.76	0.63	10
Sodium	(mg/L)	57	59	57	68	71	63	63.4	50.7	50.9	55.8	52.9	50.7	71	58.97	6.71	11
Bicarbonate	(mg/L)	458	449	455	449	460	450	470	482	500	493	426	426	500	462.91	21.70	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.020	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	0.8	1.2	0.5	0.5	0.6	0.4	0.09	0.264	<0.050	<0.050	<0.050	<0.050	1.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.8	1.2	0.5	0.5	0.6	0.4	0.09	0.264	<0.071	<0.071	<0.054	<0.054	1.2	N/A	N/A	11
Sulphate	(mg/L)	81.4	87	86.2	84.5	82	74	92.1	88.9	88.2	87.8	92.8	74	92.8	85.90	5.33	11
Dissolved Organic Carbon	(mg/L)	1	5	4	3	3	2.8	3	3	3.2	3.3	3.0	1	5	3.12	0.95	11
Electrical Conductivity	(µS/cm)	1200	1280	1280	1360	1400	1200	1220	1280	1280	1230	1190	1190	1400	1265	67.43	11
Ion Balance	(%)	98.5	98.2	99.4	99.9	9.9	99	107	96.3	92.8	103	100	0.9	107	90.45	29.91	11
pH	(--)	7.5	7.8	7.7	7.9	7.7	7.62	8.01	7.95	7.88	7.76	8.10	7.5	8.1	7.81	0.18	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.002	N/A	N/A	11
Total Dissolved Solids	(mg/L)	694	726	724	774	763	690	724	693	699	761	808	690	808	732.36	39.14	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	375	368	373	368	380	370	385	395	409	404	350	350	409	379.73	17.40	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	510	532	543	564	500	500	561	520	509	566	525	500	566	530.00	25.20	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0135	<0.0050	<0.0050	<0.001	0.0135	N/A	N/A	11
Antimony	(mg/L)	0.0009	0.0007	0.0008	<0.0004	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0009	N/A	N/A	11
Arsenic	(mg/L)	0.0011	0.0006	0.0006	0.0008	<0.001	<0.0002	0.00117	<0.00040	0.00054	0.00065	0.00053	<0.0002	0.00117	N/A	N/A	11
Barium	(mg/L)	0.0737	0.0809	0.764	0.085	0.08	---	0.0843	0.0832	0.0954	0.103	0.109	0.0737	0.764	0.16	0.21	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	0.00007	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	0.00007	N/A	N/A	4
Boron	(mg/L)	0.101	0.093	0.092	0.1	0.09	---	0.098	0.09	0.086	0.091	0.069	0.069	0.101	0.09	0.01	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000024	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000024	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0018	0.0007	0.0017	0.0047	0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0007	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0007	0.0049	<0.0001	0.0001	<0.0003	<0.0003	0.00054	0.00015	0.00088	0.00058	0.00035	<0.0001	0.0049	N/A	N/A	11
Copper	(mg/L)	0.0008	0.0012	0.0009	<0.0006	0.0006	0.0009	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0006	0.0012	N/A	N/A	11
Lead	(mg/L)	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0002	N/A	N/A	11
Mercury	(mg/L)	<0.0001	0.0002	<0.0001	0.0002	<0.00005	0.000003	<0.00010	<0.00020	<0.00020	<0.00020	<0.000050	0.000003	0.0002	N/A	N/A	11
Molybdenum	(mg/L)	0.0005	0.003	0.0005	0.0005	0.0006	0.0004	0.00038	0.00038	0.000398	0.000359	0.000297	0.000297	0.003	0.0007	0.0008	11
Nickel	(mg/L)	<0.0001	0.014	0.0007	0.0042	0.0052	0.0021	0.0047	<0.0020	0.0024	<0.0020	<0.0020	<0.0001	0.014	N/A	N/A	11
Selenium	(mg/L)	0.0006	0.0009	0.001	0.0006	<0.001	<0.0002	0.00106	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.00106	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	0.561	0.616	0.585	0.59	0.61	---	---	---	---	---	---	0.561	0.616	0.59	0.02	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.0005	0.00024	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0007	0.0004	0.0003	0.0004	0.002	<0.001	0.00046	<0.00030	<0.00030	<0.00030	<0.00030	0.0003	0.002	N/A	N/A	11
Uranium	(mg/L)	0.0029	0.0025	0.0028	0.0027	0.0023	0.0029	0.00284	0.00333	0.00396	0.00392	0.00390	0.0023	0.00396	0.0031	0.0006	11
Vanadium	(mg/L)	<0.0001	<0.0001	0.0022	0.0009	<0.001	<0.001	0.00072	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0022	N/A	N/A	11
Zinc	(mg/L)	0.004	0.029	0.005	0.005	<0.003	<0.003	<0.0020	<0.0020	<0.0030	<0.0030	<0.0030	<0.0020	0.029	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	0.00117	0.00117	<0.00050	<0.0004	0.00117	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	0.00286	0.00286	<0.00071	<0.0005	0.00286	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.25	<0.05	<0.25	N/A	N/A	



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Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
		Groundwater Elevation	(m bloc)	25.32	26.77	25.7	25.52	25.34	25.61	25.92	25.58	25.71	25.06	25.26	25.06	26.77	25.62
Depth To Groundwater	(m asl)	599.57	598.12	599.19	599.37	599.55	599.28	598.97	599.31	599.18	599.83	599.63	598.12	599.83	599.27	0.45	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	985	1,070	982	987	1004	982	1070	1005.60	37.00	5
pH	(--)	---	---	---	---	---	---	7.08	7.06	7.28	7.34	7.41	7.06	7.41	7.23	0.16	5
Temperature	(°C)	---	---	---	---	---	---	7.6	8.3	9.7	7.1	7.6	7.1	9.7	8.06	1.01	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	96.2	98.6	107	110	100	120	120	105	112	118	117	96.2	120	109.44	8.76	11
Chloride	(mg/L)	15	21	22	25	22	30	30.6	30.9	33.7	36.3	37.8	15	37.8	27.66	7.17	11
Fluoride	(mg/L)	0.18	0.11	0.11	0.11	0.1	0.12	0.107	0.075	0.061	0.092	0.073	0.061	0.18	0.10	0.03	11
Iron	(mg/L)	1.14	3.31	3.48	4	<0.06	<0.06	3.39	3.82	3.83	3.17	4.37	1.14	4.37	3.39	0.92	11
Magnesium	(mg/L)	27.5	30.1	33.5	34.3	30	34	36.7	32.7	31.3	33.5	34.8	27.5	36.7	32.58	2.62	11
Manganese	(mg/L)	0.402	0.531	0.583	0.682	0.66	0.72	0.758	0.657	0.707	0.754	0.758	0.402	0.758	0.66	0.11	11
Potassium	(mg/L)	6.1	6.9	7.6	7.3	7.4	7.6	---	7.29	8	8.61	8.31	6.1	8.61	7.51	0.71	10
Sodium	(mg/L)	51	43	44	42	41	43	46.1	41.7	42.6	42.9	42.0	41	51	43.57	2.81	11
Bicarbonate	(mg/L)	403	422	421	426	440	420	428	433	442	448	341	341	448	420.36	29.10	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.007	<0.050	<0.050	<0.050	<0.050	<0.050	0.007	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.007	<0.071	<0.071	<0.071	<0.071	<0.071	0.007	<0.2	N/A	N/A	11
Sulphate	(mg/L)	105	115	124	135	150	130	144	141	138	139	143	105	150	133.09	13.55	11
Dissolved Organic Carbon	(mg/L)	5	4	4	4	3	2.5	3.3	4.4	6.9	4.1	6.6	2.5	6.9	4.35	1.37	11
Electrical Conductivity	(µS/cm)	831	881	902	931	930	960	969	990	1000	998	853	831	1000	931	58.69	11
Ion Balance	(%)	103	95.4	101	98.5	0.88	100	103	91.1	92.3	95.3	111	0.88	111	90.13	30.13	11
pH	(--)	7.6	7.9	7.7	8.1	7.6	7.58	7.95	8.05	7.93	7.83	8.00	7.58	8.1	7.84	0.19	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	0.002	<0.001	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.003	N/A	N/A	11
Total Dissolved Solids	(mg/L)	499	522	545	563	566	570	596	572	583	614	635	499	635	569.55	38.78	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	330	346	345	349	360	350	351	355	362	367	279	279	367	344.91	23.99	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	353	370	405	416	380	430	451	397	409	433	435	353	451	407.18	30.21	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.001	<0.01	N/A	N/A	11
Antimony	(mg/L)	0.0008	0.0005	0.0007	0.0005	<0.0002	<0.0002	0.00052	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0008	N/A	N/A	11
Arsenic	(mg/L)	0.0035	0.0081	0.0051	0.0018	0.001	0.0014	0.0017	0.00159	0.00107	0.00136	0.00173	0.001	0.0081	0.0026	0.0022	11
Barium	(mg/L)	0.0618	0.0564	0.454	0.0455	0.04	---	0.0478	0.0552	0.0455	0.0547	0.0486	0.04	0.454	0.09	0.13	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	0.00006	N/A	N/A	4
Boron	(mg/L)	0.14	0.116	0.081	0.052	0.06	---	0.064	0.052	<0.050	0.05	<0.050	<0.050	0.14	N/A	N/A	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000005	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0009	<0.0004	0.0016	0.0005	0.003	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0004	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0008	0.001	0.0007	0.0008	0.0007	0.0007	0.00082	0.00075	0.00067	0.00082	0.00081	0.00067	0.001	0.0008	0.0001	11
Copper	(mg/L)	<0.0006	0.0007	0.0006	0.0009	<0.0002	0.0008	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0002	<0.0010	N/A	N/A	11
Lead	(mg/L)	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0002	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	<0.000020	<0.000020	<0.0000050	0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0022	0.0029	0.0013	0.0006	0.0005	0.0006	0.00063	0.00042	0.000321	0.000414	0.000415	0.000321	0.0029	0.0009	0.0009	11
Nickel	(mg/L)	<0.0001	0.0022	0.0002	0.0034	0.0029	0.0014	0.0039	<0.0020	<0.0020	<0.0020	<0.0020	<0.0001	0.0039	N/A	N/A	11
Selenium	(mg/L)	0.0004	0.0004	<0.0004	0.0005	<0.001	<0.0002	0.00086	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	0.71	0.667	0.659	0.684	0.63	---	---	---	---	---	---	0.63	0.71	0.67	0.03	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0008	0.0009	0.0005	0.0006	0.002	<0.001	0.00088	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.002	N/A	N/A	11
Uranium	(mg/L)	0.0014	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.00066	0.00063	0.0006	0.00071	0.0006	0.0014	0.0008	0.0002	11
Vanadium	(mg/L)	0.0002	0.0001	0.0008	<0.0001	0.001	<0.001	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	0.001	N/A	N/A	11
Zinc	(mg/L)	0.003	<0.002	0.004	0.005	<0.003	<0.003	0.0025	<0.0020	<0.0030	0.0049	<0.0030	<0.002	0.005	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.25	<0.05	<0.25	N/A	N/A	11

**NOTES:**

1. Electrical conductivity values standardized to 25°C (within the limitations of the equipment).
2. --- Denotes parameter not measured.
3. N/A







PROJECT NO.: 307076-06086

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																	
Depth To Groundwater	(m bloc)	27.74	27.74	27.58	27.72	27.57	27.63	27.83	27.72	27.69	27.63	27.55	27.55	27.83	27.67	0.09	11
Groundwater Surface Elevation	(m asl)	598.7	598.7	598.86	598.72	598.87	598.81	598.61	598.72	598.75	598.81	598.89	598.61	598.89	598.77	0.09	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,359	1,378	1363	1198	1387	1198	1387	1337.00	78.52	5
pH	(--)	---	---	---	---	---	---	7.09	7.41	7.31	7.34	7.41	7.09	7.41	7.31	0.13	5
Temperature	(°C)	---	---	---	---	---	---	5.4	9.0	7.3	6.9	7.3	5.4	9	7.18	1.28	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	147	133	161	150	130	150	146	136	135	149	144	130	161	143.73	9.27	11
Chloride	(mg/L)	3	4	3	2	2	3	1.43	0.97	0.86	1.37	1.23	0.86	4	2.08	1.03	11
Fluoride	(mg/L)	0.13	0.11	0.09	0.08	0.1	0.11	0.13	0.082	0.084	0.093	0.083	0.08	0.13	0.10	0.02	11
Iron	(mg/L)	5.66	5.16	6.97	7.29	<0.06	<0.06	7.22	5.41	6.69	6.47	7.19	5.16	7.29	6.45	0.83	11
Magnesium	(mg/L)	45	37.4	44.2	42.9	36	40	43.2	38.3	35	40.4	38.5	35	45	40.08	3.38	11
Manganese	(mg/L)	0.474	0.384	0.481	0.454	0.44	0.45	0.47	0.411	0.409	0.415	0.476	0.384	0.481	0.44	0.03	11
Potassium	(mg/L)	6	5.2	6.1	5	5.4	5.6	---	5.12	5.69	6.47	5.95	5	6.47	5.65	0.48	10
Sodium	(mg/L)	137	112	132	115	120	110	122	98	107	112	110	98	137	115.91	11.22	11
Bicarbonate	(mg/L)	593	549	594	583	630	560	558	565	560	535	474	474	630	563.73	39.61	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.020	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.007	<0.050	<0.050	<0.050	<0.050	<0.050	0.007	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.007	<0.071	<0.071	<0.071	<0.071	<0.054	0.007	<0.2	N/A	N/A	11
Sulphate	(mg/L)	369	300	341	316	370	300	333	320	308	304	345	300	370	327.82	25.84	11
Dissolved Organic Carbon	(mg/L)	5	6	6	7	5	5.3	5.3	10.3	5.7	5.5	5.1	5	10.3	6.02	1.54	11
Electrical Conductivity	(µS/cm)	1470	1310	1240	1390	1400	1400	1360	1400	1360	1290	1260	1240	1470	1353	70.01	11
Ion Balance	(%)	98.8	95.9	104	100	0.84	100	101	89.8	92.3	104	102	0.84	104	89.88	29.87	11
pH	(--)	7.7	7.5	7.7	7.9	7.7	7.62	8.04	7.95	7.93	7.96	7.94	7.5	8.04	7.81	0.17	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.001	0.002	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.001	0.002	N/A	N/A	11
Total Dissolved Solids	(mg/L)	999	862	980	918	977	880	927	876	867	876	938	862	999	918.18	50.08	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	486	450	487	478	520	450	458	463	459	439	388	388	520	461.64	33.37	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	552	486	584	551	480	530	542	497	481	538	518	480	584	523.55	34.15	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0104	<0.0050	<0.0050	<0.001	0.0104	N/A	N/A	11
Antimony	(mg/L)	0.0006	0.0005	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0006	N/A	N/A	11
Arsenic	(mg/L)	0.0042	0.0046	0.0044	0.0052	0.002	0.0062	0.00672	0.00672	0.006	0.00767	0.00675	0.002	0.00767	0.0055	0.0016	11
Barium	(mg/L)	0.084	0.115	0.0629	0.0519	0.03	---	0.0675	0.0614	0.0499	0.0639	0.0551	0.03	0.115	0.06	0.02	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	0.00009	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	0.00009	N/A	N/A	4
Boron	(mg/L)	0.244	0.184	0.206	0.176	0.17	---	0.179	0.18	0.154	0.163	0.130	0.13	0.244	0.18	0.03	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00005	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0011	0.0005	0.0012	0.0016	0.003	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0005	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0008	0.0009	0.0004	0.0005	0.0004	<0.0003	0.00035	0.00036	0.00018	0.00018	0.00017	0.00017	0.0009	N/A	N/A	11
Copper	(mg/L)	0.001	0.001	0.0011	0.0012	0.0006	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0006	0.0016	N/A	N/A	11
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0004	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.00001	<0.00010	<0.00020	<0.00020	<0.00020	<0.0000050	<0.0000050	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0012	0.0025	0.0011	0.0016	0.0014	0.002	0.00168	0.00154	0.00137	0.00175	0.00129	0.0011	0.0025	0.0016	0.0004	11
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0031	0.0036	0.0017	0.0027	0.0025	<0.0020	<0.0020	<0.0020	<0.0001	0.0036	N/A	N/A	11
Selenium	(mg/L)	0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	0.00159	<0.00040	<0.00040	<0.00040	<0.0002	0.00159	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	1.4	1.27	1.45	1.59	1.4	---	---	---	---	---	---	1.27	1.59	1.42	0.12	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0008	0.001	0.0008	0.0012	0.002	<0.001	0.00094	0.00144	<0.00030	<0.00030	<0.00030	<0.00030	0.002	N/A	N/A	11
Uranium	(mg/L)	0.0011	0.0015	0.0009	0.0008	0.0008	0.0007	0.00072	0.0008	0.00069	0.00067	0.00071	0.00067	0.0015	0.0009	0.0002	11
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	0.001	<0.001	0.00017	0.00018	<0.00010	<0.00010	<0.00010	<0.0001	0.001	N/A	N/A	11
Zinc	(mg/L)	0.003	<0.002	0.006	0.004	<0.003	<0.003	0.0163	0.0116	0.0042	<0.003	<0.003	<0.002	0.0163	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.25	<0.05	<0.25	N/A	N/A	11





PROJECT NO.: 307076-06086

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation	(m bloc)	28.41	28.48	28.27	28.35	28.34	28.27	28.61	28.25	28.37	28.17	28.64	28.17	28.64	28.38	0.15	11
Depth To Groundwater	(m bloc)	28.41	28.48	28.27	28.35	28.34	28.27	28.61	28.25	28.37	28.17	28.64	28.17	28.64	28.38	0.15	11
Groundwater Surface Elevation	(m asl)	596.32	596.25	596.46	596.38	596.39	596.46	596.12	596.48	596.36	596.56	596.09	596.09	596.56	596.35	0.15	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,538	1,548	1,507	1,463	1,537	1,463	1,548	1,518.60	34.66	5
pH	(--)	---	---	---	---	---	---	7.35	7.49	7.43	7.43	7.67	7.35	7.67	7.47	0.12	5
Temperature	(°C)	---	---	---	---	---	---	6.8	9.1	7.7	8.9	7.1	6.8	9.1	7.92	1.04	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	71.6	92.6	98.1	94.9	83	97	93.1	87.4	88.3	96.2	87.8	71.6	98.1	90.00	7.72	11
Chloride	(mg/L)	5	7	7	6	4	6	5.57	5.84	4.82	5.29	5.39	4	7	5.63	0.89	11
Fluoride	(mg/L)	0.29	0.22	0.23	0.21	0.2	0.22	0.251	<0.050	0.184	0.203	0.199	<0.050	0.29	N/A	N/A	11
Iron	(mg/L)	1.11	1.4	1.44	1.74	<0.06	1.9	2.04	1.46	1.89	1.94	1.85	1.11	2.04	1.68	0.30	11
Magnesium	(mg/L)	26	27.3	27.7	27.6	22	27	27.8	25.2	23.7	26.8	25.6	22	27.8	26.06	1.85	11
Manganese	(mg/L)	0.714	0.752	0.797	0.785	0.77	0.86	0.828	0.754	0.784	0.842	0.868	0.714	0.868	0.80	0.05	11
Potassium	(mg/L)	4.2	3.9	3.9	3.3	3.5	4.1	---	4.09	4.22	4.06	4.23	3.3	4.23	3.95	0.32	10
Sodium	(mg/L)	226	227	231	231	230	240	240	212	226	251	222	212	251	230.55	10.34	11
Bicarbonate	(mg/L)	626	640	644	656	670	630	639	646	643	644	625	525	670	633.00	37.70	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.020	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	<0.050	<0.050	0.005	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.071	<0.071	<0.071	<0.071	<0.054	0.005	<0.2	N/A	N/A	11
Sulphate	(mg/L)	313	312	316	322	350	330	342	325	319	327	341	312	350	327.00	12.63	11
Dissolved Organic Carbon	(mg/L)	5	6	8	7	9	5.5	5.6	8	6	5.9	5.8	5	9	6.53	1.28	11
Electrical Conductivity	(µS/cm)	1520	1550	1520	1530	1500	1500	1540	1580	1550	1530	1390	1390	1580	1519	48.67	11
Ion Balance	(%)	93.2	98	99.9	97.9	0.86	100	98.4	90	94.1	103	102	0.86	103	88.85	29.44	11
pH	(--)	7.9	8.1	7.9	8.1	8	7.73	8.17	8.17	8.04	7.89	8.12	7.73	8.17	8.01	0.14	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.003	N/A	N/A	11
Total Dissolved Solids	(mg/L)	954	984	1,000	1,010	1,020	1,000	1,030	978	982	1,030	1,030	954	1,030	1,001.64	25.20	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	513	524	528	538	550	520	524	530	527	527	430	430	550	519.18	31.08	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	286	344	359	351	300	350	347	322	318	351	325	286	359	332.09	23.73	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	0.14	0.02	<0.01	<0.01	<0.001	0.1	<0.0050	<0.0050	0.0112	<0.0050	<0.0050	<0.001	0.14	N/A	N/A	11
Antimony	(mg/L)	0.0007	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0007	N/A	N/A	11
Arsenic	(mg/L)	0.0019	0.0018	0.0018	0.002	0.002	0.0023	0.00255	0.0028	0.00234	0.00237	0.00232	0.0018	0.0028	0.0022	0.0003	11
Barium	(mg/L)	0.0608	0.052	0.0389	0.0302	0.02	---	0.025	0.0294	0.0209	0.0243	0.0224	0.02	0.0608	0.03	0.01	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.001	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	<0.0001	N/A	N/A	4
Boron	(mg/L)	0.339	0.294	0.289	0.26	0.26	---	0.267	0.255	0.226	0.249	0.196	0.196	0.339	0.26	0.04	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000008	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000008	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0016	0.0006	0.0013	0.0016	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0006	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0011	0.0023	0.0011	0.0009	0.0009	0.0008	0.00085	0.00128	0.0008	0.00138	0.0012	0.0008	0.0023	0.0011	0.0004	11
Copper	(mg/L)	0.001	0.0011	0.0012	0.0008	0.0008	0.0003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0003	0.0012	N/A	N/A	11
Lead	(mg/L)	0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.0002	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.00001	<0.00010	<0.00020	<0.00020	<0.00020	<0.000050	<0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0019	0.0038	0.0015	0.0017	0.0018	0.0016	0.00158	0.00156	0.00143	0.00154	0.00131	0.00131	0.0038	0.0018	0.0007	11
Nickel	(mg/L)	0.0002	0.0087	<0.0001	0.003	0.0023	0.0017	0.0027	<0.0020	<0.0020	<0.0020	<0.0020	<0.0001	0.0087	N/A	N/A	11
Selenium	(mg/L)	<0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	0.843	0.869	0.861	0.961	0.81	---	---	---	---	---	---	0.81	0.961	0.87	0.06	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.0001	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0058	0.0038	0.0008	0.0009	0.002	0.005	0.00078	<0.00030	<0.00030	<0.00060	<0.00030	<0.00030	0.0058	N/A	N/A	11
Uranium	(mg/L)	0.0019	0.0015	0.0014	0.0014	0.0014	0.0012	0.00121	0.00132	0.00121	0.00138	0.00132	0.0012	0.0019	0.0014	0.0002	11
Vanadium	(mg/L)	0.0005	0.0002	<0.0001	0.0005	<0.001	<0.001	<0.00010	0.00012	<0.00010	<0.00020	<0.00010	<0.0001	<0.001	N/A	N/A	11
Zinc	(mg/L)	0.003	<0.002	0.005	<0.002	0.003	<0.003	<0.0020	0.002	0.003	<0.003	<0.003	<0.002	0.005	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	<0.05													

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Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
<b>Groundwater Elevation</b>																	
Depth To Groundwater	(m btoc)	26.89	26.9	26.72	26.87	26.74	26.72	26.93	26.70	26.80	26.73	26.63	26.63	26.93	26.78	0.10	11
Groundwater Surface Elevation	(m asl)	597.78	597.77	597.95	597.8	597.93	597.95	597.74	597.97	597.81	597.94	598.04	597.74	598.04	597.88	0.10	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,287	1,192	1,267	1,247	1,292	1,192	1,292	1,257.00	40.47	5
pH	(---)	---	---	---	---	---	---	7.11	7.36	7.29	7.24	7.42	7.11	7.42	7.28	0.12	5
Temperature	(°C)	---	---	---	---	---	---	6.6	9.1	7.4	7.0	7.8	6.6	9.1	7.58	0.96	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	131	129	139	132	120	140	139	113	127	141	125	113	141	130.55	8.99	11
Chloride	(mg/L)	<1	3	2	2	<1	2	0.73	1.19	0.53	0.68	0.67	0.53	3	N/A	N/A	11
Fluoride	(mg/L)	0.18	0.12	0.13	0.12	0.2	0.14	0.169	<0.050	0.113	0.107	0.110	<0.050	0.2	N/A	N/A	11
Iron	(mg/L)	5.29	5.49	5.89	5.93	<0.06	5.9	6.8	3.89	5.98	6.11	6.10	3.89	6.8	5.74	0.76	11
Magnesium	(mg/L)	36.1	35.2	37.8	36.9	29	36	39.1	30.2	31.6	37.3	34.2	29	39.1	34.85	3.27	11
Manganese	(mg/L)	0.639	0.642	0.67	0.656	0.64	0.71	0.735	0.566	0.655	0.729	0.689	0.566	0.735	0.67	0.05	11
Potassium	(mg/L)	5.3	5	5.6	4.7	4.8	5.6	---	5.58	5.79	6.22	5.79	4.7	6.22	5.44	0.48	10
Sodium	(mg/L)	117	108	119	110	110	120	124	105	111	118	108	105	124	113.64	6.15	11
Bicarbonate	(mg/L)	628	634	641	651	660	620	633	607	639	638	507	507	660	623.45	41.14	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.020	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	<0.050	<0.050	0.005	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.071	<0.071	<0.071	<0.071	<0.054	0.005	<0.2	N/A	N/A	11
Sulphate	(mg/L)	221	222	212	208	230	190	227	206	211	215	229	190	230	215.55	11.94	11
Dissolved Organic Carbon	(mg/L)	5	6	6	5	5	4.7	5.1	6.7	5.9	5.4	6.9	4.7	6.9	5.61	0.74	11
Electrical Conductivity	(µS/cm)	1270	1260	1120	1270	1300	1300	1270	1260	1290	1250	1110	1110	1300	1245	66.54	11
Ion Balance	(%)	99.7	93.8	103	97.2	0.84	110	104	89.9	93.5	103	106	0.84	110	90.99	30.50	11
pH	(---)	7.7	7.5	7.7	8	7.8	7.51	8.07	8.04	7.89	8.09	8.05	7.5	8.09	7.85	0.22	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.0010	0.0018	<0.0010	<0.0010	<0.0010	<0.001	0.002	N/A	N/A	11
Total Dissolved Solids	(mg/L)	819	814	831	814	822	800	847	759	801	833	845	759	847	816.82	24.68	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	514	520	525	533	540	510	519	497	524	523	416	416	540	511.00	33.48	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	476	467	503	482	410	490	508	407	447	506	453	407	508	468.09	35.73	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0139	<0.0050	<0.0050	<0.001	0.0139	N/A	N/A	11
Antimony	(mg/L)	0.0007	0.0006	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0007	N/A	N/A	11
Arsenic	(mg/L)	0.003	0.0037	0.0036	0.0039	0.002	0.0044	0.00459	0.00287	0.0042	0.00485	0.00463	0.002	0.00485	0.0038	0.0009	11
Barium	(mg/L)	0.0296	0.0331	0.0319	0.0291	0.02	---	0.029	0.0321	0.0273	0.0295	0.0282	0.02	0.0331	0.03	0.00	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	<0.0001	N/A	N/A	4
Boron	(mg/L)	0.209	0.202	0.187	0.168	0.16	---	0.177	0.17	0.15	0.162	0.127	0.127	0.209	0.17	0.02	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000007	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000007	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0012	<0.0004	0.0011	0.0015	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0004	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0003	0.0005	0.0003	0.0004	0.0005	<0.0003	0.00044	0.00031	0.00032	0.00032	0.00031	0.0003	0.0005	N/A	N/A	11
Copper	(mg/L)	0.0007	0.0009	0.0009	0.0008	0.0006	0.0006	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	0.0006	0.0015	N/A	N/A	11
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0004	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	<0.000020	<0.000020	<0.0000050	<0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0009	0.001	0.0009	0.0009	0.0011	0.0009	0.00097	0.00481	0.000884	0.00087	0.000770	0.00077	0.00481	0.0013	0.0012	11
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.003	0.0029	0.001	0.0029	<0.0020	<0.0020	<0.0020	<0.0020	<0.0001	0.003	N/A	N/A	11
Selenium	(mg/L)	<0.0004	0.0006	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	1.29	1.43	1.41	1.55	1.3	---	---	---	---	---	---	1.29	1.55	1.40	0.11	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0008	0.0008	0.0007	0.0007	0.002	<0.001	0.00083	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.002	N/A	N/A	11
Uranium	(mg/L)	0.0019	0.0015	0.0014	0.0013	0.0014	0.0011	0.00115	0.00133	0.00113	0.00116	0.00117	0.0011	0.0019	0.0013	0.0002	11
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	0.00021	<0.00010	<0.00010	<0.00010	<0.0001	<0.001	N/A	N/A	11
Zinc	(mg/L)	0.003	<0.002	0.009	0.015	<0.003	<0.003	0.0023	0.003	<0.0030	<0.0030	<0.0030	<0.002	0.015	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0											



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Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation	(m bloc)	30.6	30.41	30.34	30.38	30.4	30.35	30.64	30.46	30.35	30.26	30.19	30.19	30.64	30.40	0.13	11
Depth To Groundwater	(m bloc)	30.6	30.41	30.34	30.38	30.4	30.35	30.64	30.46	30.35	30.26	30.19	30.19	30.64	30.40	0.13	11
Groundwater Surface Elevation	(m asl)	594.56	594.75	594.82	594.78	594.76	594.81	594.52	594.7	594.81	594.9	594.97	594.52	594.97	594.76	0.13	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,303	1,341	1,282	1,258	1,322	1,258	1,341	1,301.20	32.61	5
pH	(--)	---	---	---	---	---	---	7.06	7.42	7.19	7.18	7.38	7.06	7.42	7.25	0.15	5
Temperature	(°C)	---	---	---	---	---	---	7.2	6.9	9.8	7.4	7.3	6.9	9.8	7.72	1.18	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	150	140	153	143	130	150	144	148	134	147	136	130	153	143.18	7.40	11
Chloride	(mg/L)	8	16	11	8	10	10	15.2	9.69	8.71	8.92	14.1	8	16	10.87	2.89	11
Fluoride	(mg/L)	0.14	0.09	0.09	0.09	0.1	0.11	0.132	<0.050	0.067	0.105	0.074	<0.050	0.14	N/A	N/A	11
Iron	(mg/L)	6.89	6.95	7.23	7.15	<0.06	7	7.61	6.99	6.82	7.52	7.07	6.82	7.61	7.12	0.26	11
Magnesium	(mg/L)	45.8	42.5	45.7	45.3	38	45	45.9	46.4	38.7	44.7	41.5	38	46.4	43.59	2.99	11
Manganese	(mg/L)	0.668	0.628	0.659	0.632	0.61	0.67	0.663	0.687	0.605	0.697	0.672	0.605	0.697	0.65	0.03	11
Potassium	(mg/L)	4.9	4.5	4.8	3.9	4.3	4.9	---	5.36	5.34	5.09	5.32	3.9	5.36	4.84	0.48	10
Sodium	(mg/L)	92	85	92	88	87	91	98.1	96	87.9	102	89.0	85	102	91.64	5.18	11
Bicarbonate	(mg/L)	642	654	672	662	680	640	650	653	648	640	473	473	680	637.64	56.10	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.020	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.003	<0.050	<0.050	<0.050	<0.050	<0.050	0.003	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.003	<0.071	<0.071	<0.071	<0.071	<0.054	0.003	<0.2	N/A	N/A	11
Sulphate	(mg/L)	196	199	194	193	210	170	212	203	202	213	227	170	227	201.73	14.57	11
Dissolved Organic Carbon	(mg/L)	15	7	7	8	6	5.5	6	6.8	6.6	6.2	5.6	5.5	15	7.25	2.67	11
Electrical Conductivity	(µS/cm)	1270	1270	1100	1280	1300	1300	1290	1320	1300	1270	1090	1090	1320	1254	80.03	11
Ion Balance	(%)	104	93.4	101	98.6	0.87	110	99.1	102	91.8	103	110	0.87	110	92.16	30.81	11
pH	(--)	7.7	7.4	7.7	8	7.7	7.51	8.04	8	7.9	7.93	7.99	7.4	8.04	7.81	0.22	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.004	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.004	N/A	N/A	11
Total Dissolved Solids	(mg/L)	813	809	831	806	810	800	840	830	795	828	856	795	856	819.82	18.63	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	526	536	551	542	560	530	533	536	531	525	388	388	560	523.45	46.15	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	563	525	570	544	480	560	549	561	494	551	510	480	570	537.00	30.38	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	0.02	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0106	<0.0050	<0.0050	<0.001	0.02	N/A	N/A	11
Antimony	(mg/L)	0.0008	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0008	N/A	N/A	11
Arsenic	(mg/L)	0.0022	0.0025	0.0022	0.0023	<0.001	0.0024	0.00259	0.00239	0.00232	0.0026	0.00255	<0.001	0.0026	N/A	N/A	11
Barium	(mg/L)	0.0494	0.0466	0.044	0.0377	0.03	---	0.0396	0.0423	0.0386	0.0424	0.0421	0.03	0.0494	0.04	0.01	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	0.00008	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	0.00008	N/A	N/A	4
Boron	(mg/L)	0.189	0.227	0.205	0.186	0.18	---	0.189	0.199	0.161	0.173	0.135	0.135	0.227	0.18	0.03	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000009	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000009	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0011	0.0006	0.0013	0.0016	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0006	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0006	0.0007	0.0003	0.0004	0.0006	0.0004	0.00047	0.00047	0.00038	0.00036	0.00030	0.0003	0.0007	0.0005	0.0001	11
Copper	(mg/L)	<0.0006	0.0009	0.0009	<0.0006	0.0008	0.0007	<0.0010	0.0017	<0.0010	<0.0010	<0.0010	<0.0006	0.0017	N/A	N/A	11
Lead	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	<0.000020	<0.000020	<0.0000050	0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.001	0.0009	0.0006	0.0007	0.001	0.0007	0.00072	0.00061	0.00069	0.0007	0.000539	0.000539	0.001	0.0007	0.0002	11
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0027	0.0027	0.0008	0.0027	<0.0020	<0.0020	<0.0020	<0.0020	<0.0001	0.0027	N/A	N/A	11
Selenium	(mg/L)	<0.0004	<0.0004	0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	1.27	1.24	1.22	1.35	1.1	---	---	---	---	---	---	1.1	1.35	1.24	0.09	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0008	0.001	0.001	0.0024	0.003	<0.001	0.00102	<0.00030	<0.00030	<0.00030	0.00119	<0.00030	0.003	N/A	N/A	11
Uranium	(mg/L)	0.0012	0.0012	0.0011	0.0011	0.0013	0.001	0.001	0.00109	0.001	0.00116	0.00099	0.00099	0.0013	0.0011	0.0001	11
Vanadium	(mg/L)	0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	0.0001	<0.001	N/A	N/A	11
Zinc	(mg/L)	0.004	<0.002	0.009	<0.002	<0.003	<0.003	0.0023	0.0105	<0.0030	<0.0030	<0.0030	<0.002	0.0105	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.001	<0.001	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1											



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Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation	(m bloc)	32.95	33.05	33.62	32.9	32.77	32.76	33.01	32.84	32.89	32.82	32.84	32.76	33.62	32.95	0.24	11
Depth To Groundwater	(m bloc)	32.95	33.05	33.62	32.9	32.77	32.76	33.01	32.84	32.89	32.82	32.84	32.76	33.62	32.95	0.24	11
Groundwater Surface Elevation	(m asl)	593.12	593.02	592.45	593.17	593.3	593.31	593.06	593.23	593.18	593.25	593.23	592.45	593.31	593.12	0.24	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,032	983	1024	998	1020	983	1032	1011.40	20.27	5
pH	(--)	---	---	---	---	---	---	7.32	6.95	7.37	7.34	7.42	6.95	7.42	7.28	0.19	5
Temperature	(°C)	---	---	---	---	---	---	5.1	8.7	7.3	6.1	7.6	5.1	8.7	6.96	1.39	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	95.7	94.9	100	95.4	82	98	96.4	98.1	89.8	101	93.8	82	101	95.01	5.29	11
Chloride	(mg/L)	6	8	7	7	5	8	7.05	6.4	6.25	6.89	7.2	5	8	6.80	0.87	11
Fluoride	(mg/L)	0.13	0.07	0.07	0.08	<0.1	0.09	0.114	0.071	0.076	0.083	0.0064	0.0064	0.13	N/A	N/A	11
Iron	(mg/L)	2.78	3.37	3.76	3.77	<0.06	4.1	4.24	3.34	4.14	3.99	3.88	2.78	4.24	3.74	0.45	11
Magnesium	(mg/L)	27.9	28.5	29.1	29.2	23	29	30.2	30.9	25.6	28.9	27.7	23	30.9	28.18	2.20	11
Manganese	(mg/L)	0.365	0.402	0.436	0.422	0.4	0.45	0.456	0.45	0.435	0.457	0.462	0.365	0.462	0.43	0.03	11
Potassium	(mg/L)	5	5.2	5.1	4.2	4.3	4.9	---	4.86	5.23	5	5.14	4.2	5.23	4.89	0.36	10
Sodium	(mg/L)	106	111	106	101	99	110	109	95.4	95.7	113	97.6	95.4	113	103.97	6.46	11
Bicarbonate	(mg/L)	636	712	669	670	700	650	667	662	660	649	598	598	712	661.18	30.27	11
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	<0.050	<0.050	0.005	<0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.071	<0.071	<0.071	<0.071	<0.071	0.005	<0.2	N/A	N/A	11
Sulphate	(mg/L)	46	53	44	42.4	43	32	47	---	43	44	47.4	32	52.5	44.19	5.20	10
Dissolved Organic Carbon	(mg/L)	6	7	7	7	7	6.4	10.5	13.5	6.6	6.9	8.3	6	13.5	7.84	2.24	11
Electrical Conductivity	(µS/cm)	1000	1020	904	1020	1000	1000	1030	1050	1030	1000	915	904	1050	997	46.32	11
Ion Balance	(%)	102	92.7	100	97.4	0.84	110	100	97.9	91.5	106	103	0.84	110	91.03	30.39	11
pH	(--)	7.9	7.4	7.8	8	7.8	7.66	8.13	8.14	8.03	7.89	8.02	7.4	8.14	7.89	0.22	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.003	N/A	N/A	11
Total Dissolved Solids	(mg/L)	600	651	621	609	601	610	623	606	591	628	619	591	651	614.45	16.48	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	521	584	549	550	570	540	547	543	541	532	490	490	584	542.45	24.36	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	354	354	370	358	300	360	365	372	330	371	348	300	372	352.91	21.35	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0146	<0.0050	<0.0050	<0.001	0.0146	N/A	N/A	11
Antimony	(mg/L)	0.0008	0.0005	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0008	N/A	N/A	11
Arsenic	(mg/L)	0.0022	0.0026	0.0023	0.0025	0.002	0.002	0.00285	0.00199	0.00267	0.00285	0.00266	0.00199	0.00285	0.0025	0.0003	11
Barium	(mg/L)	0.153	0.182	0.178	0.146	0.1	---	0.143	0.13	0.112	0.143	0.125	0.1	0.182	0.14	0.03	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	0.00006	N/A	N/A	4
Boron	(mg/L)	0.234	0.282	0.251	0.233	0.22	---	0.242	0.244	0.219	0.227	0.178	0.178	0.282	0.23	0.03	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.00012	<0.001	<0.0002	0.000006	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000006	<0.001	N/A	N/A	11
Chromium	(mg/L)	0.0038	<0.0004	0.0016	0.0015	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0004	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0008	0.001	0.0007	0.0012	0.0007	0.0006	0.00065	0.00043	0.00046	0.00045	0.00044	0.00043	0.0012	0.0007	0.0002	11
Copper	(mg/L)	<0.0006	0.0008	<0.0006	<0.0006	<0.0002	0.0008	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0002	<0.0010	N/A	N/A	11
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0004	N/A	N/A	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	0.00007	0.000001	<0.00010	<0.000020	<0.000020	<0.000020	<0.0000050	0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0015	0.0013	0.0012	0.0017	0.0014	0.0012	0.00115	0.00102	0.00121	0.00115	0.000921	0.000921	0.0017	0.0013	0.0002	11
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0033	0.0021	0.0012	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0001	0.0033	N/A	N/A	11
Selenium	(mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	0.915	0.903	0.925	0.972	0.84	---	---	---	---	---	---	0.84	0.972	0.91	0.05	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0011	0.0008	0.0008	0.0007	0.002	<0.001	0.00081	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.002	N/A	N/A	11
Uranium	(mg/L)	0.001	0.0011	0.001	0.0009	0.0011	0.0008	0.00083	0.00087	0.00085	0.00094	0.00080	0.0008	0.0011	0.0009	0.0001	11
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.001	N/A	N/A	11
Zinc	(mg/L)	0.01	<0.002	0.007	0.004	<0.003	<0.003	<0.0020	0.0021	<0.0030	<0.0030	0.0044	<0.002	0.01	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.0004	<0.00075	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	&													



PROJECT NO.: 307076-06086

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Summer 2013	Summer 2014	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation	(m btoe)	32.6	33.45	33.24	32.54	32.39	32.41	32.68	32.46	32.56	32.49	32.49	32.39	33.45	32.66	0.35	11
Depth To Groundwater	(m btoe)	32.6	33.45	33.24	32.54	32.39	32.41	32.68	32.46	32.56	32.49	32.49	32.39	33.45	32.66	0.35	11
Groundwater Surface Elevation	(m asl)	593.68	592.83	593.04	593.74	593.89	593.87	593.6	593.82	593.72	593.79	593.79	592.83	593.89	593.62	0.35	11
<b>Field-Measured Parameters</b>																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	776	541	733	759	775	541	776	716.80	99.80	5
pH	(--)	---	---	---	---	---	---	7.53	7.06	7.69	7.6	7.77	7.06	7.77	7.53	0.28	5
Temperature	(°C)	---	---	---	---	---	---	7.0	8.5	6.9	10.1	7.2	6.9	10.1	7.94	1.37	5
<b>Select Indicator Parameters</b>																	
Calcium	(mg/L)	53.7	51.2	55.6	53	45	54	50	48.1	48	49.7	48.8	45	55.6	50.65	3.18	11
Chloride	(mg/L)	2	4	4	2	2	3	2.15	1.92	1.81	2.28	2.63	1.81	4	2.53	0.81	11
Fluoride	(mg/L)	0.2	0.14	0.14	0.13	0.2	0.15	0.16	0.162	0.119	0.147	0.129	0.119	0.2	0.15	0.03	11
Iron	(mg/L)	0.818	1.08	1.19	1.26	<0.06	1.3	1.45	1.25	1.33	1.17	1.3	0.818	1.45	1.21	0.17	11
Magnesium	(mg/L)	16.5	16.2	17.1	16.9	14	17	16.4	15.3	14.4	16.2	15.4	14	17.1	15.95	1.04	11
Manganese	(mg/L)	0.263	0.243	0.256	0.252	0.25	0.26	0.249	0.231	0.238	0.252	0.245	0.231	0.263	0.25	0.01	11
Potassium	(mg/L)	4.2	3.4	3.9	3.5	3.5	3.9	---	3.74	4	3.98	4.07	3.4	4.2	3.82	0.27	10
Sodium	(mg/L)	112	103	112	105	110	110	110	103	101	118	104	101	118	108.00	5.18	11
Bicarbonate	(mg/L)	531	537	715	541	560	520	530	530	529	525	485	485	715	545.73	58.93	11
Carbonate	(mg/L)	<5	<5	541	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	541	N/A	N/A	11
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5	N/A	N/A	11
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.06	N/A	N/A	11
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	0.2	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	<0.050	<0.050	0.005	0.2	N/A	N/A	11
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	0.2	<0.1	<0.2	0.005	<0.071	<0.071	<0.071	<0.071	<0.071	0.005	0.2	N/A	N/A	11
Sulphate	(mg/L)	10.6	12.5	10.1	9.1	9.0	9.0	9.5	9.1	9.2	10.0	11.0	9	12.5	9.93	1.09	11
Dissolved Organic Carbon	(mg/L)	4	5	5	5	5	4.5	4.1	5.2	4.6	4.4	6.3	4	6.3	4.83	0.63	11
Electrical Conductivity	(µS/cm)	784	782	715	782	790	770	776	796	786	769	698	698	796	768	31.65	11
Ion Balance	(%)	100	92.2	99.4	96.3	0.87	100	97.5	92.1	90.5	102	101	0.87	102	88.35	29.28	11
pH	(--)	8.1	7.8	8	8.2	8	7.81	8.22	8.24	8.18	7.92	8.16	7.8	8.24	8.06	0.16	11
Phenols	(mg/L)	<0.001	<0.001	<0.001	0.001	<0.001	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	0.003	N/A	N/A	11
Total Dissolved Solids	(mg/L)	460	454	470	456	457	460	453	442	438	464	457	438	470	455.55	9.08	11
Total Alkalinity as CaCO <sub>3</sub>	(mg/L)	435	440	443	444	460	430	435	434	433	430	398	398	460	434.73	14.89	11
Total Hardness as CaCO <sub>3</sub>	(mg/L)	202	195	209	202	170	200	192	183	179	191	185	170	209	191.64	11.60	11
<b>Dissolved Metals Parameters</b>																	
Aluminum	(mg/L)	<0.01	0.07	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	0.0371	<0.001	0.07	N/A	N/A	11
Antimony	(mg/L)	0.0008	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	0.0008	N/A	N/A	11
Arsenic	(mg/L)	0.0012	0.0016	0.0014	0.0014	0.001	0.0015	0.00162	0.00157	0.0014	0.00176	0.00179	0.001	0.00179	0.0015	0.0002	11
Barium	(mg/L)	0.389	0.413	0.424	0.428	0.29	---	0.407	0.411	0.354	0.462	0.420	0.29	0.462	0.40	0.05	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.001	N/A	N/A	11
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	---	<0.00005	<0.0001	N/A	N/A	4
Boron	(mg/L)	0.258	0.301	0.273	0.246	0.25	---	0.254	0.265	0.197	0.221	0.196	0.196	0.301	0.25	0.03	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000005	<0.0002	N/A	N/A	11
Chromium	(mg/L)	0.0048	0.0007	0.0011	0.0016	<0.001	<0.001	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0007	<0.0050	N/A	N/A	11
Cobalt	(mg/L)	0.0008	0.0033	0.0007	0.0009	0.0009	0.0007	0.00092	0.00062	0.00065	0.00128	0.00074	0.00062	0.0033	0.0010	0.0008	11
Copper	(mg/L)	<0.0006	0.0007	<0.0006	<0.0006	<0.0002	0.0003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0002	<0.0010	N/A	N/A	11
Lead	(mg/L)	0.0002	0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	0.0002	N/A	N/A	11
Mercury	(mg/L)	<0.0001	0.0001	<0.0001	<0.0001	0.00007	<0.000001	<0.00010	<0.000020	<0.000020	<0.000020	<0.0000050	<0.000001	<0.0001	N/A	N/A	11
Molybdenum	(mg/L)	0.0023	0.0027	0.0021	0.0023	0.0028	0.0022	0.00219	0.00194	0.0018	0.00484	0.00183	0.0018	0.00484	0.0025	0.0009	11
Nickel	(mg/L)	0.0009	0.0015	<0.0001	0.0022	0.0016	0.0012	0.0021	<0.0020	<0.0020	0.0112	<0.0020	<0.0001	0.0112	N/A	N/A	11
Selenium	(mg/L)	<0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.0002	<0.001	N/A	N/A	11
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0002	N/A	N/A	11
Strontium	(mg/L)	0.57	0.542	0.553	0.58	0.5	---	---	---	---	---	---	0.5	0.58	0.55	0.03	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.0005	N/A	N/A	11
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	<0.0002	<0.001	N/A	N/A	6
Titanium	(mg/L)	0.0006	0.0006	0.0006	0.0006	0.002	<0.001	0.0007	<0.00030	<0.00030	<0.00030	0.00148	<0.00030	0.002	N/A	N/A	11
Uranium	(mg/L)	0.0008	0.0009	0.0008	0.0008	0.0009	0.0007	0.00069	0.00073	0.00063	0.00075	0.00069	0.00063	0.0009	0.0008	0.0001	4
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	<0.0001	<0.001	N/A	N/A	11
Zinc	(mg/L)	0.005	<0.002	0.009	<0.002	<0.003	<0.003	<0.0020	<0.0020	<0.0030	<0.0030	<0.0030	<0.002	0.009	N/A	N/A	11
<b>Petroleum Hydrocarbon Parameters</b>																	
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0004	<0.0005	N/A	N/A	11
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.00071	<0.00071	<0.00071	<0.0005	<0.001	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> )	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F1 (C <sub>6</sub> -C <sub>10</sub> ) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	N/A	N/A	11
PHC F2 (C <sub>10</sub> -C <sub>16</sub> )	(mg/L)	<0.05	<0.05	<0.05	<0.05	<											



## Appendix 7 QA/QC Results Summary





**QA/QC FOR DUPLICATE SAMPLES  
June 2014 Sampling Event**

Parameters	Units	Detection Limit	MW-10	Duplicate from MW-10	RPD	AD
Date			12-Jun-2014	12-Jun-2014		
TDS-calculated	mg/L	---	752	771	---	19
Total Hardness (as CaCO <sub>3</sub> )	mg/L	---	453	452	---	1
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	5.	416.	445.	6.7	---
EC	µS/cm	0.2	1110.	1140.	2.7	---
pH	pH Units	0.1	8.05	8.04	0.1	---
Bicarbonate	mg/L	5.	507.	543.	6.9	---
Carbonate	mg/L	5.	<5.	<5.	---	---
Chloride:D	mg/L	0.5	0.67	0.82	---	0.15
Fluoride:D	mg/L	0.05	0.11	0.104	---	0.006
Sulphate:D	mg/L	0.5	229.	229.	0.0	---
Nitrate as N	mg/L-N	0.05	<0.05	<0.05	---	---
Nitrite as N	mg/L-N	0.02	<0.02	<0.02	---	---
Calcium:D	mg/L	0.5	125.	124.	0.8	---
Magnesium:D	mg/L	0.1	34.2	34.5	0.9	---
Potassium:D	mg/L	0.1	5.79	5.84	0.9	---
Sodium:D	mg/L	0.5	108.	110.	1.8	---
Iron:D	mg/L	0.005	6.1	6.08	0.3	---
Manganese:D	mg/L	0.001	0.689	0.74	7.1	---
Phenols	mg/L	0.001	<0.001	<0.001	---	---
DOC	mg/L	1.	6.9	5.	---	1.9
Ion Balance	%		106.	102.	3.8	---
Aluminum:D	mg/L	0.005	<0.0050	<0.0050	---	---
Antimony:D	mg/L	0.0004	<0.0004	<0.0004	---	---
Arsenic:D	mg/L	0.0004	0.00463	0.0045	2.8	---
Barium:D	mg/L	0.005	0.0282	0.0293	3.8	---
Beryllium:D	mg/L	0.0005	<0.0005	<0.0005	---	---
Bismuth:D	mg/L	---	---	---	---	---
Boron:D	mg/L	0.05	0.127	0.129	---	0.002
Cadmium:D	mg/L	0.0001	<0.0001	<0.0001	---	---
Chromium:D	mg/L	0.005	<0.005	<0.005	---	---
Cobalt:D	mg/L	0.0001	0.00031	0.00032	---	0.00001
Copper:D	mg/L	0.001	<0.001	<0.001	---	---
Lead:D	mg/L	0.0001	<0.0001	<0.0001	---	---
Mercury:D	mg/L	0.000005	<0.000005	<0.000005	---	---
Molybdenum:D	mg/L	0.00005	0.00077	0.00078	1.5	---
Nickel:D	mg/L	0.002	<0.0020	<0.0020	---	---
Selenium:D	mg/L	0.0004	<0.0004	<0.0004	---	---
Silver:D	mg/L	0.0001	<0.0001	<0.0001	---	---
Strontium:D	mg/L	---	---	---	---	---
Thallium:D	mg/L	0.00005	<0.00005	<0.00005	---	---
Tin:D	mg/L	---	---	---	---	---
Titanium:D	mg/L	0.0003	<0.0003	<0.0003	---	---
Uranium:D	mg/L	0.0001	0.00117	0.00112	4.4	---
Vanadium:D	mg/L	0.0001	<0.0001	<0.0001	---	---
Zinc:D	mg/L	0.003	<0.003	<0.003	---	---
Benzene	mg/L	0.0005	<0.0005	<0.0005	---	---
Toluene	mg/L	0.0005	<0.0005	<0.0005	---	---
Ethylbenzene	mg/L	0.0005	<0.0005	<0.0005	---	---
Xylenes-total	mg/L	0.00071	<0.00071	<0.00071	---	---
F1 (C <sub>6</sub> -C <sub>10</sub> )-BTEX	mg/L	0.1	<0.1	<0.1	---	---
F2 (C <sub>11</sub> -C <sub>16</sub> )	mg/L	0.25	<0.25	<0.25	---	---

RPD: Relative Percent Difference. Zeiner (1994) indicated that RPD <20% is acceptable.  
 AD: Absolute Difference. Zeiner(1994) indicated the AD < MDL is acceptable.  
 If either of the parent or duplicate values are < 5x MDL, then the AD is calculated instead of the RPD (Zeiner 1994).  
 Highlighted values exceed Zeiner(1994) criteria.