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NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION

2013 Groundwater Quality Monitoring

Beverly Channel Monitoring Wells

307076-06086 – WR-REP-2013 Groundwater Quality Monitoring

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PROJECT 307076-06086 - 2013 GROUNDWATER QUALITY MONITORING

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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 and 2012). 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 and 2012) 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 from 0.0005 to 0.005 m/m. Groundwater flow velocity has been estimated to vary from 16 to 160 m/year.
- 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 2013 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.

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 is located in the northern portion of the Study Area. 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, and 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 deducted 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.

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 Grundfos or Geosub submersible pumps, 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. water level probe and Grundfos pump);

- 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 July 8, 9, 10, and 11, 2013. 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 hardness, 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, including BTEX, PHC F1 and F2;
- dissolved metals 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 2013 Analytical Schedule

Station	Major Ions/Routine Potability (see Table 3)	Petroleum Hydrocarbons (see Table 4)	Dissolved Metals & Trace Elements (see Table 5)	VOCs (see Table 6)
MW-01	✓	✓	✓	✓
MW-02	✓	✓	✓	✓
MW-03	✓	✓	✓	✓
MW-04	✓	✓	✓	✓
MW-05	✓	✓	✓	✓

Station	Major Ions/Routine Potability (see Table 3)	Petroleum Hydrocarbons (see Table 4)	Dissolved Metals & Trace Elements (see Table 5)	VOCs (see Table 6)
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); 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.

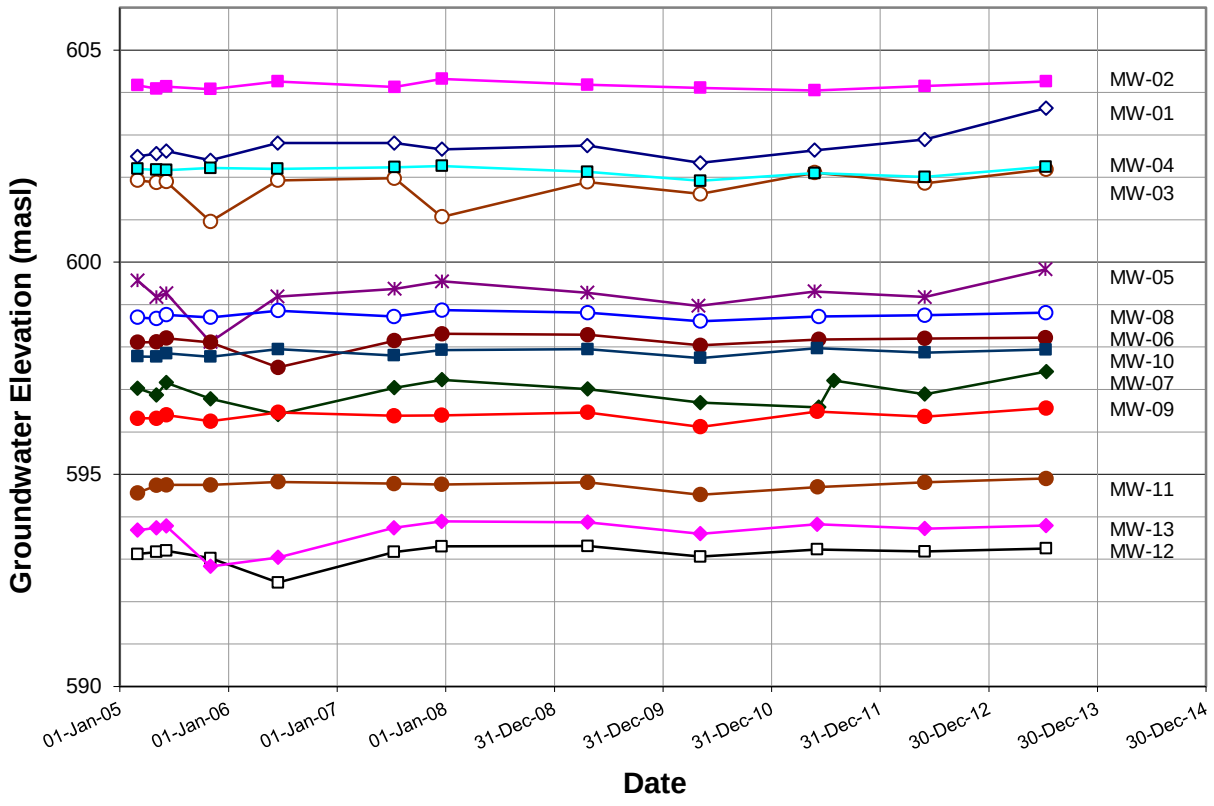
4. RESULTS

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 593.25 (MW-12) to 604.26 (MW-02) metres above sea level (masl) in 2013 (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 (between monitoring wells MW-04 and MW-05) to approximately 0.001 m/m in the north (between monitoring wells MW-10 and

MW-11). Based on a geometric mean hydraulic conductivity of 2.3 x 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 6.1 to 10.9°C; EC values ranged from 720 to 2610 µS/cm; and pH ranged from 6.98 to 7.60 in 2013, 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 data are included in Appendix 4. Hydrochemical control charts and Mann-Kendall analysis are provided in Appendix 5. Statistical tables for each monitoring well including parameter minimum, maximum, mean and count are included in Appendix 6.

4.3.1 Select Inorganic Data

Select inorganic parameter data are presented in Table 3. Results from the July 2013 sampling event are summarized as follows:

- Concentrations of dissolved iron and manganese exceeded the applied guideline at all monitoring wells in 2013. Their respective concentrations were within historical ranges, except for at MW-02, where iron concentrations reached historic highs.
- Concentrations of TDS exceeded the applied guideline at most monitoring wells in 2013, excluding MW-01 and MW-13. TDS concentrations were generally 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-08, and MW-12 noted in 2011 appear to have decreased to stable levels through 2012 and 2013.
- The results for the other inorganic parameters were consistent with historical values.

4.3.2 Petroleum Hydrocarbons

PHC results are presented in Table 4. PHC F2 was detected at MW-02 at a concentration of 0.31 mg/L in 2013. This result is within five times the reported detection limit (RDL, 0.25 mg/L) and is therefore considered to be unreliable. No other PHCs were detected in 2013.

4.3.3 Dissolved Metals and Trace Elements

Dissolved metals parameter data are presented in Table 5, and the results from the 2013 sampling event are summarized below:

- Dissolved metals and trace elements occurred 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.
- The 2013 results were consistent with historical values, and dissolved aluminum (which was detected in 2012) was no longer detected in 2013.

4.3.4 Volatile Organic Compounds

Volatile organic compounds (VOCs) results are presented in Table 6. Phenols were the only VOC analyzed in 2013. Phenols were detected at concentrations within five times the RDL (0.001 mg/L) at MW-07 (0.0017 mg/L), and were reported at below RDL at all other wells in 2013. Phenols have historically been sporadically detected at concentrations close to the RDL in all of the monitoring wells.

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-02	Iron	↑
MW-03	Chloride	↑?
MW-04	Iron	↑?
	Manganese	↑?
MW-05	Chloride	↑?
MW-08	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.

Standard Methods (2005) indicates an ion balance of ±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 (142%, 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 the sample.

A field blank was collected and analyzed for major ions/ routine potability, BTEX, PHC F1 and F2, dissolved metals, trace elements, and phenols. DOC was detected at a concentration of 3.5 mg/L, which is within five times the RDL (1 mg/L). The result was verified by the lab via repeat analysis. The detection of DOC in the field blank is not expected to interfere with the interpretation of the analytical results. The remaining 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.

5. DISCUSSION OF KEY GROUNDWATER QUALITY INDICATORS

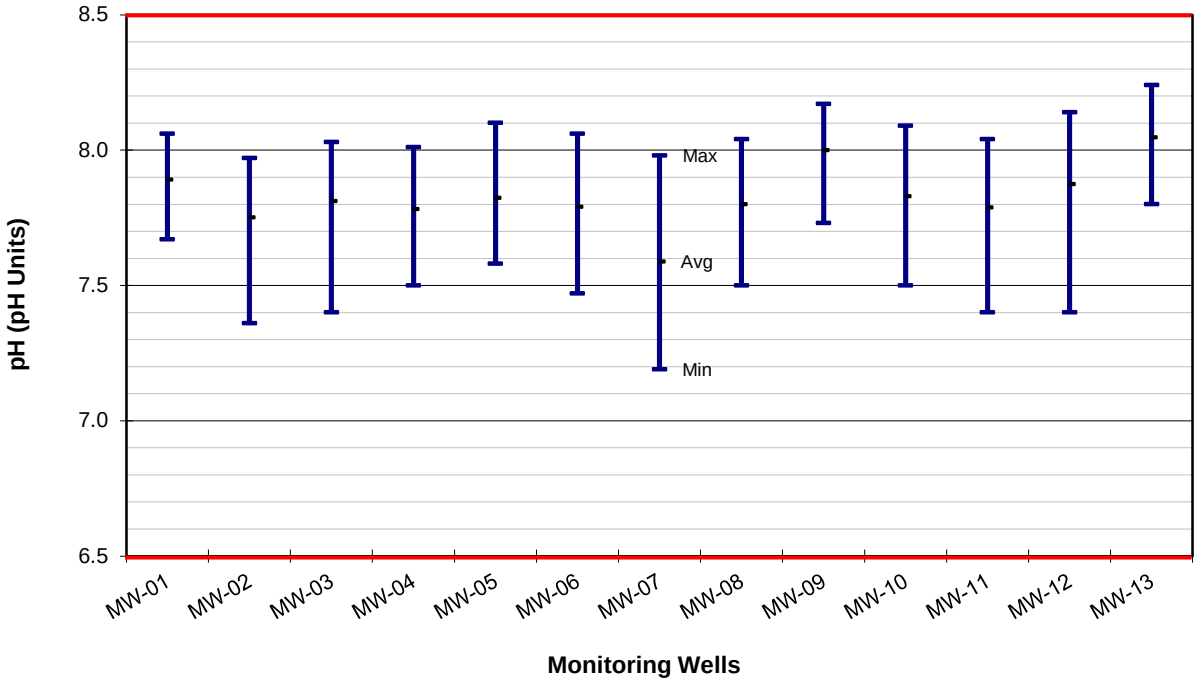
5.1 pH

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

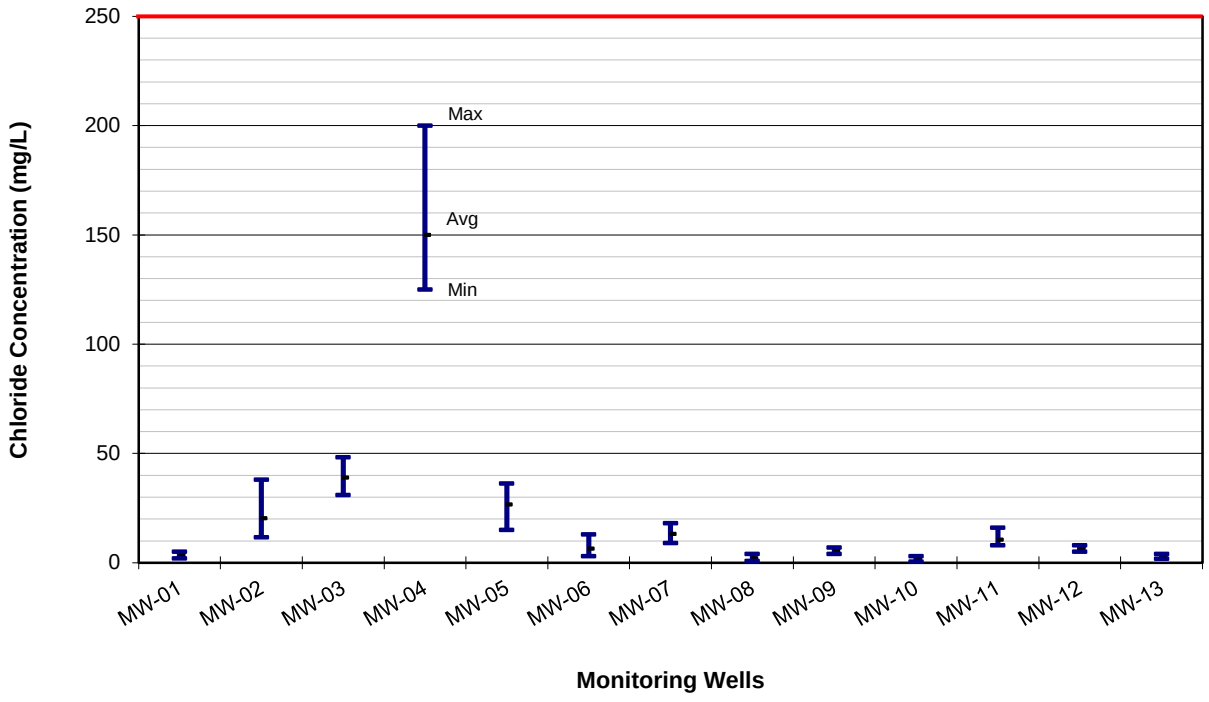


5.2 Chloride

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).

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



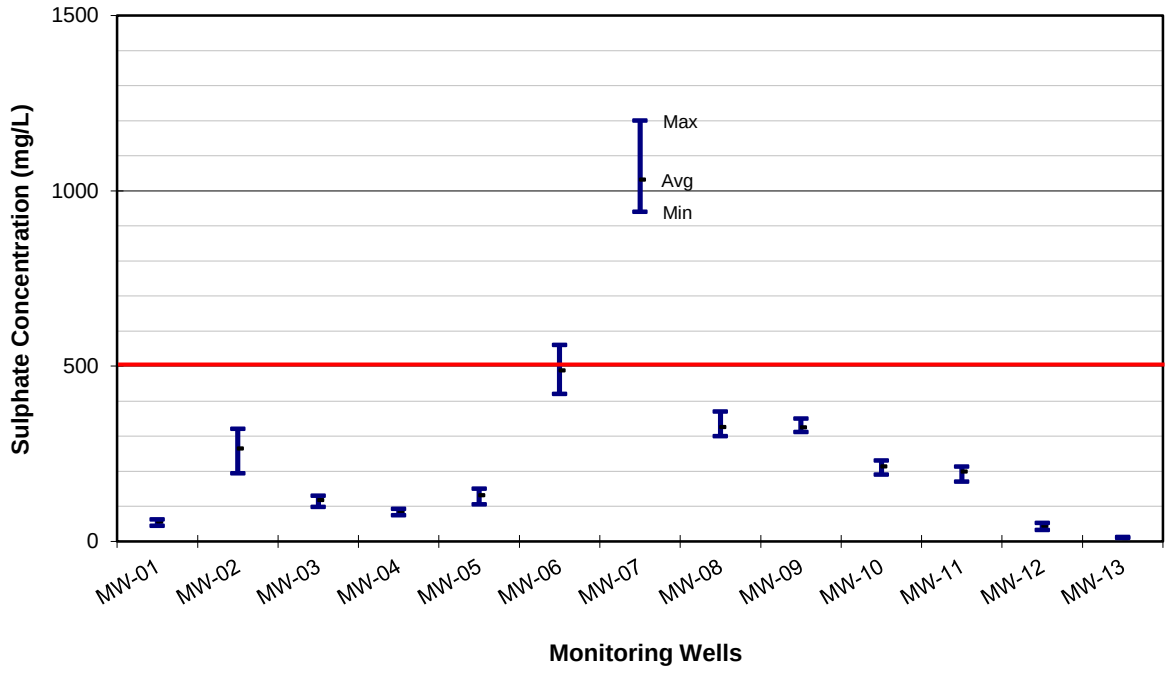
5.3 Sulphate

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 940 to 1,200 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



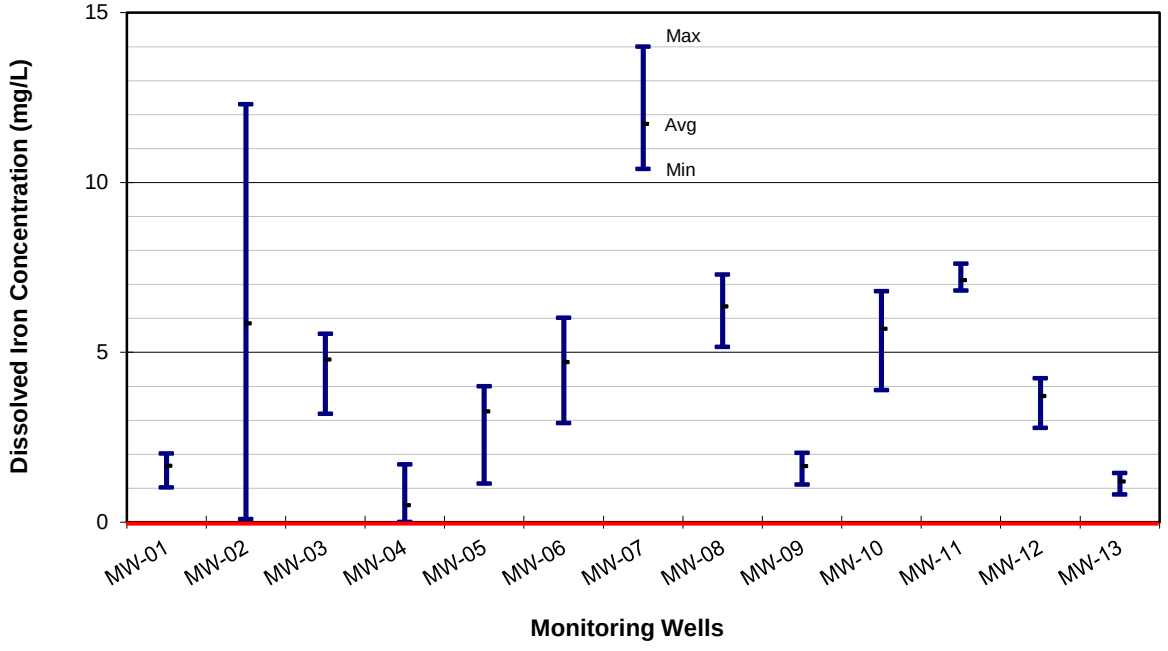
5.4 Dissolved Iron

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 0.005 to 14 mg/L (Figure E).

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



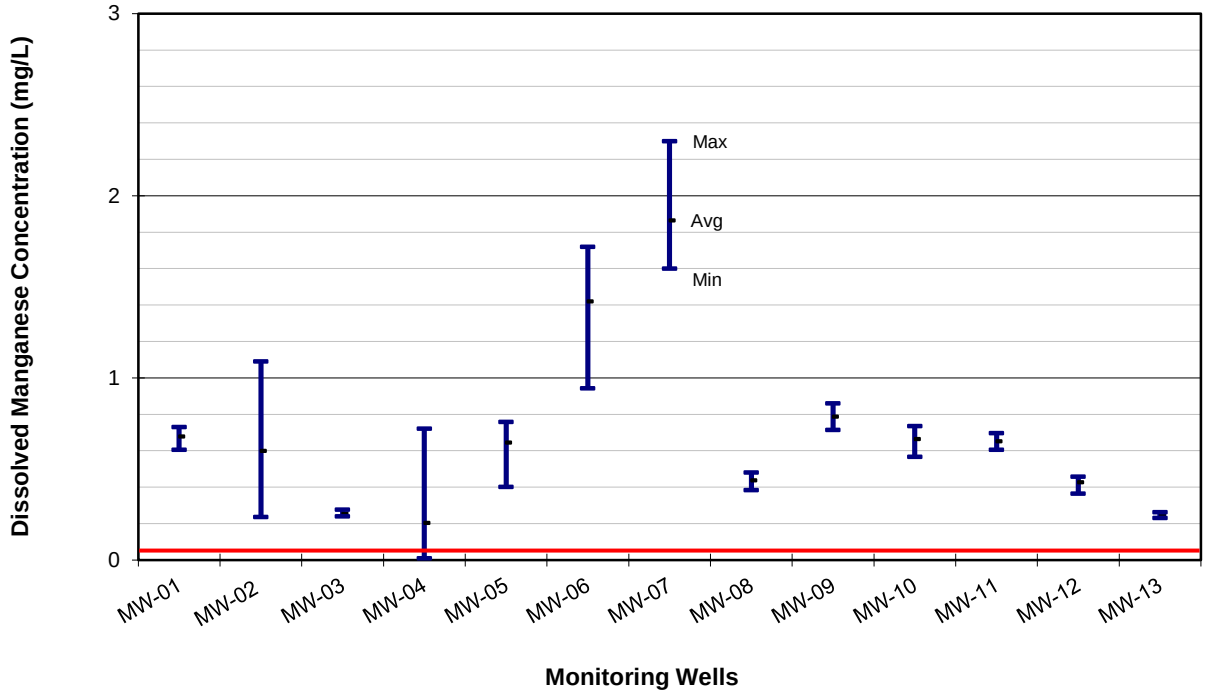
5.5 Dissolved Manganese

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 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



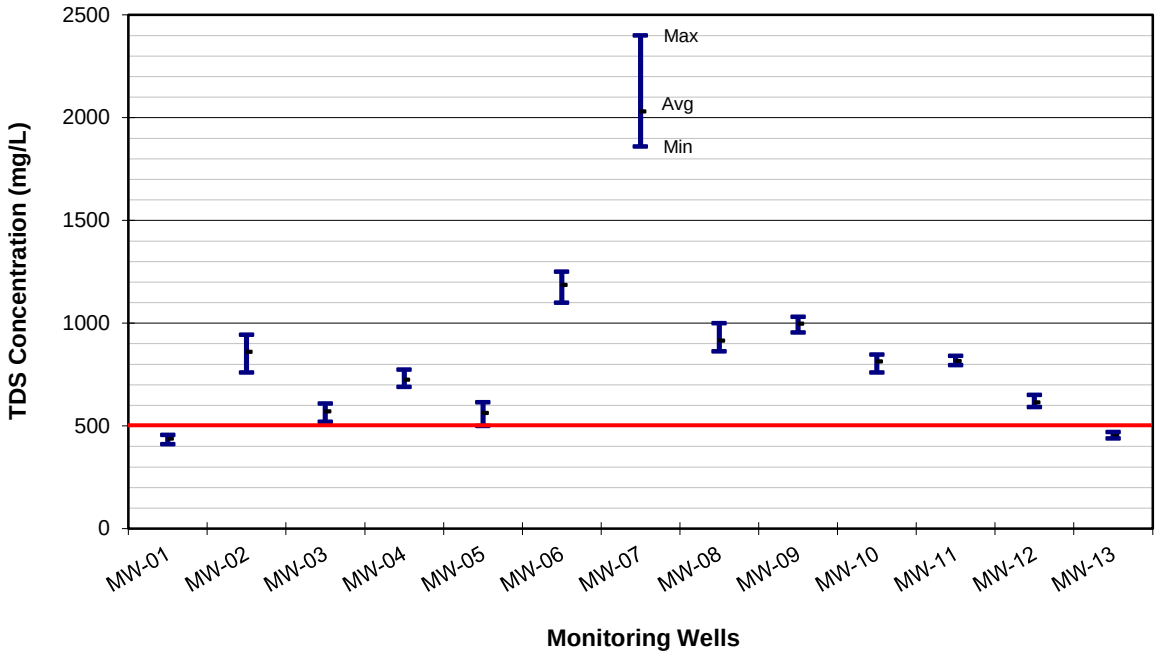
5.6 Total Dissolved Solids

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



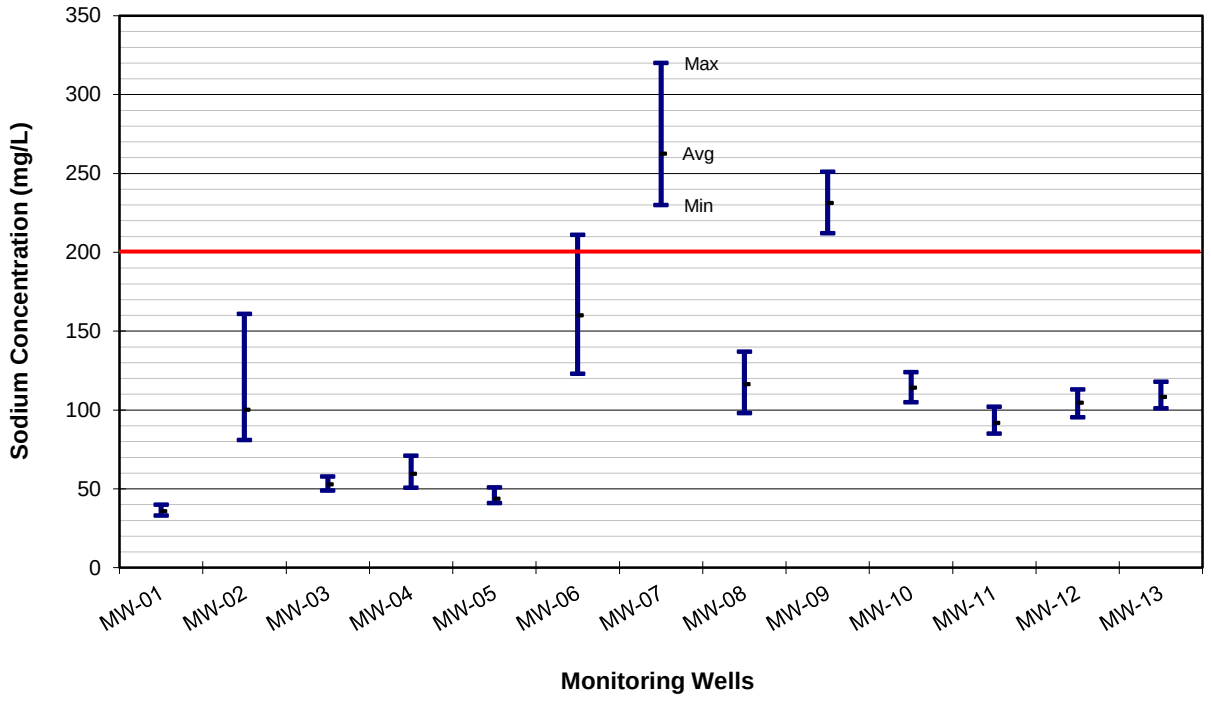
5.7 Sodium

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 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, toxaemia 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 July 2013. Results are summarized as follows:

- Lateral groundwater flow was generally to the northwest. The linear groundwater flow velocity ranged 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.
- The historically high concentrations of DOC noted in 2011 at MW-02, MW-08, and MW-12, were not confirmed as the 2013 values continued to be near historical averages.
- Aluminum, which was detected at multiple monitoring wells in 2012, was no longer detected in 2013.
- Hydrocarbons (PHC F2) were detected for one sample at MW-02, but at a concentration within five times the RDL.
- Statistically significant trends were observed at MW-02 (increasing iron), and MW-08 (decreasing chloride).
- 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:

- Include slope criteria for the Mann-Kendall/Sen's slope analysis, so that small absolute changes are no longer identified as significant trends (i.e. the chloride trend at MW-08 was -0.3 mg/L/yr, which was a small absolute change even though the normalized slope was >10%/yr).
- Include field parameters from 2005 to 2009 in Table 2.
- Annual groundwater monitoring should be completed in 2014. The analytical schedule should be the same as presented in Table B above.

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.

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APEGGA PERMIT TO PRACTICE NO. P0725.

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Tables

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Table 1

Piezometer Installation Details, Datum/Groundwater Surface Elevations, and Hydraulic Conductivities

PROJECT NO.: 307076-06086

Monitoring Station	Easting	Northing	Ground Elevation (masl)	Datum Elevation (Top of PVC) (masl)	Stickup (PVC) (m)	Total Depth of Piezometer (mbgs)	Depth Interval of Screen (mbgs)	Date Measured (d-m-y)	Depth To Groundwater (mbtoc)	Depth To Groundwater (mbgs)	Groundwater Surface Elevation (masl)	Hydraulic Conductivity (m/s)	Lithology
MW-01	350335	5951040.5	617.52	618.04	0.52	19.80	14.30 - 19.80	07-Mar-2005	15.55	15.03	602.49	6.8E-05	Sand and Gravel
								04-May-2005	15.48	14.96	602.56		
								06-Jun-2005	15.42	14.90	602.62		
								17-Nov-2005	15.64	15.12	602.40		
								15-Jun-2006	15.23	14.71	602.81		
								12-Jul-2007	15.23	14.71	602.81		
								19-Dec-2007	15.38	14.86	602.66		
								21-Apr-2009	15.29	14.77	602.75		
								05-May-2010	15.70	15.18	602.34		
								25-May-2011	15.40	14.88	602.65		
								29-May-2012	15.15	14.63	602.89		
								10-Jul-2013	14.41	13.89	603.63		
MW-02	352457.8	5950583.4	630.71	631.31	0.60	33.80	26.20 - 33.80	07-Mar-2005	27.14	26.54	604.17	1.8E-04	Sand and Gravel
								04-May-2005	27.22	26.62	604.09		
								06-Jun-2005	27.17	26.57	604.14		
								17-Nov-2005	27.23	26.63	604.08		
								15-Jun-2006	27.05	26.45	604.26		
								13-Jul-2007	27.18	26.58	604.13		
								19-Dec-2007	26.99	26.39	604.32		
								21-Apr-2009	27.13	26.53	604.18		
								05-May-2010	27.20	26.60	604.11		
								25-May-2011	27.26	26.66	604.05		
								29-May-2012	27.16	26.56	604.15		
								10-Jul-2013	27.05	26.45	604.26		
MW-03	353030.2	5952940.9	623.79	624.43	0.64	29.60	23.50 - 29.60	08-Mar-2005	22.50	21.86	601.93	2.2E-04	Sand and Gravel
								04-May-2005	22.55	21.91	601.88		
								06-Jun-2005	22.53	21.89	601.90		
								17-Nov-2005	23.47	22.83	600.96		
								15-Jun-2006	22.50	21.86	601.93		
								12-Jul-2007	22.45	21.81	601.98		
								19-Dec-2007	23.36	22.72	601.07		
								21-Apr-2009	22.54	21.90	601.89		
								06-May-2010	22.82	22.18	601.61		
								25-May-2011	22.32	21.68	602.11		
								29-May-2012	22.57	21.93	601.86		
								10-Jul-2013	22.24	21.60	602.19		
MW-04	354823.4	5953959.8	620.25	620.79	0.54	26.20	19.50 - 26.20	08-Mar-2005	18.59	18.05	602.20	N/A	Sand and Gravel
								04-May-2005	18.61	18.07	602.18		
								06-Jun-2005	18.62	18.08	602.17		
								17-Nov-2005	18.57	18.03	602.22		
								14-Jun-2006	18.59	18.05	602.20		
								13-Jul-2007	18.55	18.01	602.24		
								19-Dec-2007	18.52	17.98	602.27		
								21-Apr-2009	18.66	18.12	602.13		
								06-May-2010	18.87	18.33	601.92		
								07-Jun-2011	18.70	18.15	602.10		
								30-May-2012	18.78	18.24	602.01		
								09-Jul-2013	18.54	18.00	602.25		
MW-05	354293.7	5954889.5	624.28	624.89	0.61	31.40	23.20 - 31.40	08-Mar-2005	25.32	24.71	599.57	1.8E-04	Gravel
								04-May-2005	25.71	25.10	599.18		
								06-Jun-2005	25.62	25.01	599.27		
								17-Nov-2005	26.77	26.16	598.12		
								14-Jun-2006	25.70	25.09	599.19		
								13-Jul-2007	25.52	24.91	599.37		
								19-Dec-2007	25.34	24.73	599.55		
								21-Apr-2009	25.61	25.00	599.28		
								29-Apr-2010	25.92	25.31	598.97		
								25-May-2011	25.58	24.97	599.31		
								29-May-2012	25.71	25.10	599.18		
								08-Jul-2013	25.06	24.45	599.83		
MW-06	361559.3	5958812.2	629.61	630.28	0.67	39.00	32.90 - 39.00	08-Mar-2005	32.17	31.50	598.11	1.5E-04	Sand and Gravel
								04-May-2005	32.16	31.49	598.12		
								06-Jun-2005	32.07	31.40	598.21		
								17-Nov-2005	32.17	31.50	598.11		
								16-Jun-2006	32.76	32.09	597.52		
								12-Jul-2007	32.13	31.46	598.15		
								19-Dec-2007	31.97	31.30	598.31		
								22-Apr-2009	31.99	31.32	598.29		
								05-May-2010	32.24	31.57	598.04		
								07-Jun-2011	32.10	31.43	598.18		
								29-May-2012	32.08	31.41	598.20		
								08-Jul-2013	32.06	31.39	598.22		
MW-07	359089.7	5959604.2	630.41	631.01	0.60	43.90	36.30 - 43.90	09-Mar-2005	33.98	33.38	597.03	N/A	Sand and Gravel
								04-May-2005	34.14	33.54	596.87		
								06-Jun-2005	33.85	33.25	597.16		
								17-Nov-2005	34.23	33.63	596.78		
								16-Jun-2006	34.60	34.00	596.41		
								12-Jul-2007	33.97	33.37	597.04		
								19-Dec-2007	33.78	33.18	597.23		
								22-Apr-2009	34.00	33.40	597.01		
								05-May-2010	34.32	33.72	596.69		
								08-Jun-2011	34.43	33.83	596.58		
								28-Jul-2011	33.80	33.20	597.21		
								30-May-2012	34.12	33.52	596.89		
								11-Jul-2013	33.59	32.99	597.42		

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Table 1

Piezometer Installation Details, Datum/Groundwater Surface Elevations, and Hydraulic Conductivities

PROJECT NO.: 307076-06086

Monitoring Station	Easting	Northing	Ground Elevation (masl)	Datum Elevation (Top of PVC) (masl)	Stickup (PVC) (m)	Total Depth of Piezometer (mbgs)	Depth Interval of Screen (mbgs)	Date Measured (d-m-y)	Depth To Groundwater (mbtoc)	Depth To Groundwater (mbgs)	Groundwater Surface Elevation (masl)	Hydraulic Conductivity (m/s)	Lithology
MW-08	363133.8	5961205	625.87	626.44	0.57	33.50	28.70 - 33.50	09-Mar-2005	27.74	27.17	598.70	9.5E-04	Gravel
								04-May-2005	27.77	27.20	598.67		
								06-Jun-2005	27.68	27.11	598.76		
								15-Nov-2005	27.74	27.17	598.70		
								16-Jun-2006	27.58	27.01	598.86		
								11-Jul-2007	27.72	27.15	598.72		
								19-Dec-2007	27.57	27.00	598.87		
								22-Apr-2009	27.63	27.06	598.81		
								05-May-2010	27.83	27.26	598.61		
								07-Jun-2011	27.72	27.15	598.72		
								30-May-2012	27.69	27.12	598.75		
								09-Jul-2013	27.63	27.06	598.81		
MW-09	361003.5	5962032.3	624.06	624.73	0.67	36.60	30.50 - 36.60	09-Mar-2005	28.41	27.74	596.32	4.1E-04	Gravel, Sand and Gravel
								04-May-2005	28.41	27.74	596.32		
								06-Jun-2005	28.33	27.66	596.40		
								17-Nov-2005	28.48	27.81	596.25		
								16-Jun-2006	28.27	27.60	596.46		
								11-Jul-2007	28.35	27.68	596.38		
								18-Dec-2007	28.34	27.67	596.39		
								22-Apr-2009	28.27	27.60	596.46		
								06-May-2010	28.61	27.94	596.12		
								02-Jun-2011	28.25	27.58	596.48		
								29-May-2012	28.37	27.70	596.36		
								10-Jul-2013	28.17	27.50	596.56		
MW-10	364954.6	5963505.1	624.06	624.67	0.61	41.80	31.40 - 41.80	09-Mar-2005	26.89	26.28	597.78	N/A	Gravel, Sand and Gravel
								04-May-2005	26.90	26.29	597.77		
								06-Jun-2005	26.82	26.21	597.85		
								16-Nov-2005	26.90	26.29	597.77		
								16-Jun-2006	26.72	26.11	597.95		
								11-Jul-2007	26.87	26.26	597.80		
								18-Dec-2007	26.74	26.13	597.93		
								22-Apr-2009	26.72	26.11	597.95		
								05-May-2010	26.93	26.32	597.74		
								02-Jun-2011	26.70	26.09	597.97		
								30-May-2012	26.80	26.19	597.87		
								09-Jul-2013	26.73	26.12	597.94		
MW-11	362564.4	5965300.7	624.49	625.16	0.67	44.20	35.10 - 44.20	10-Mar-2005	30.60	29.93	594.56	1.5E-04	Sand and Gravel
								04-May-2005	30.42	29.75	594.74		
								06-Jun-2005	30.41	29.74	594.75		
								16-Nov-2005	30.41	29.74	594.75		
								16-Jun-2006	30.34	29.67	594.82		
								11-Jul-2007	30.38	29.71	594.78		
								18-Dec-2007	30.40	29.73	594.76		
								22-Apr-2009	30.35	29.68	594.81		
								05-May-2010	30.64	29.97	594.52		
								02-Jun-2011	30.46	29.79	594.70		
								30-May-2012	30.35	29.68	594.81		
								10-Jul-2013	30.26	29.59	594.90		
MW-12	366805.9	5968379.9	625.46	626.07	0.61	38.10	33.50 - 38.10	10-Mar-2005	32.95	32.34	593.12	1.4E-04	Sand, Sand and Gravel
								04-May-2005	32.90	32.29	593.17		
								06-Jun-2005	32.87	32.26	593.20		
								16-Nov-2005	33.05	32.44	593.02		
								16-Jun-2006	33.62	33.01	592.45		
								11-Jul-2007	32.90	32.29	593.17		
								18-Dec-2007	32.77	32.16	593.30		
								22-Apr-2009	32.76	32.15	593.31		
								06-May-2010	33.01	32.40	593.06		
								02-Jun-2011	32.84	32.23	593.23		
								29-May-2012	32.89	32.28	593.18		
								10-Jul-2013	32.82	32.21	593.25		
MW-13	365292.7	5968147.1	625.65	626.28	0.63	40.50	36.00 - 40.50	10-Mar-2005	32.60	31.97	593.68	N/A	Gravel
								04-May-2005	32.54	31.91	593.74		
								06-Jun-2005	32.50	31.87	593.78		
								16-Nov-2005	33.45	32.82	592.83		
								16-Jun-2006	33.24	32.61	593.04		
								11-Jul-2007	32.54	31.91	593.74		
								18-Dec-2007	32.39	31.76	593.89		
								22-Apr-2009	32.41	31.78	593.87		
								06-May-2010	32.68	32.05	593.60		
								02-Jun-2011	32.46	31.83	593.82		
								30-May-2012	32.56	31.93	593.72		
								10-Jul-2013	32.49	31.86	593.79		

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. ***N/M - Denotes not measured.***
3. ***N/A - Denotes not available.***
4. ***masl - Denotes metres above sea level.***
5. ***mbgs - Denotes metres below ground surface.***
6. ***mbtoc - Denotes metres below top of PVC casing.***

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Table 2

Groundwater Results: Field-Measured Parameters

PROJECT No.: 307076-06086

Monitoring Station	Date (dd-mmm-yyyy)	Field-Measured Parameters: Temperature (ºC)	Field-Measured Parameters: Electrical Conductivity (EC) (uS/cm)	Field-Measured Parameters: pH (pH units)	Sample Comment
MW-01	05-May-2010	5.6	749	6.95	
	25-May-2011	7.67	741	7.11	
	29-May-2012	7.6	749	6.88	
	10-Jul-2013	6.8	720	7.21	Clear
MW-02	05-May-2010	4.8	1306	7.04	
	25-May-2011	8.3	1397	7.02	
	29-May-2012	7.3	1023	7.49	
	10-Jul-2013	10.9	1161	7.1	Cloudy brown
MW-03	06-May-2010	6.6	974	7.14	
	25-May-2011	8.9	976	7.08	Clear
	29-May-2012	8.3	958	7.72	
	10-Jul-2013	8.4	966	7.14	Cloudy brown
MW-04	06-May-2010	8.2	1213	7.14	
	07-Jun-2011	8.1	1230	7.12	Clear
	30-May-2012	7.8	1420	7.14	
	09-Jul-2013	8.3	1216	7.1	Clear
MW-05	29-Apr-2010	7.6	985	7.08	
	25-May-2011	8.3	1070	7.06	
	29-May-2012	9.7	982	7.28	
	08-Jul-2013	7.1	987	7.34	Silty
MW-06	06-May-2010	5.7	1773	7.21	
	07-Jun-2011	11.1	1762	7.22	
	29-May-2012	7.6	1699	7.29	
	08-Jul-2013	8.6	1683	7.23	Clear
MW-07	05-May-2010	7.2	2640	6.91	
	08-Jun-2011	6.6	1750	7.73	
	28-Jul-2011	7.2	2680	7.11	
	30-May-2012	8.1	2540	7.04	
	11-Jul-2013	7.5	2610	6.98	Clear
MW-08	05-May-2010	5.4	1359	7.09	
	07-Jun-2011	9	1378	7.41	Slight silt
	30-May-2012	7.3	1363	7.31	
	09-Jul-2013	6.9	1198	7.34	Clear / Silty
MW-09	06-May-2010	6.8	1538	7.35	
	02-Jun-2011	9.1	1548	7.49	Very silty
	29-May-2012	7.7	1507	7.43	
	10-Jul-2013	8.9	1463	7.43	Cloudy brown
MW-10	05-May-2010	6.6	1287	7.11	
	25-May-2011	9.1	1192	7.36	Clear
	30-May-2012	7.4	1267	7.29	
	09-Jul-2013	7	1247	7.24	Clear
MW-11	05-May-2010	7.2	1303	7.06	
	03-Jun-2011	6.9	1341	7.42	
	30-May-2012	9.8	1282	7.19	
	10-Jul-2013	7.4	1258	7.18	Silty grey
MW-12	06-May-2010	5.1	1032	7.32	
	02-Jun-2011	8.7	983	6.95	Clear
	29-May-2012	7.3	1024	7.37	
	10-Jul-2013	6.1	998	7.34	Murky brown
MW-13	06-May-2010	7	776	7.53	
	02-Jun-2011	8.5	841	7.06	Clear
	30-May-2012	6.9	733	7.69	
	10-Jul-2013	10.1	759	7.6	Cloudy brown

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

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Table 3

Groundwater Analytical Results: General, Indicators, Ions, etc.

PROJECT No.: 307076-06086

		General				Indicators						Cations, Anions & Ion Balance									Organics	Nitrogen Parameters				Phosphorous
Monitoring Station	Date (dd-mmm-yyyy)	Electrical Conductivity (uS/cm)	pH (pH units)	Total Hardness as $CaCO_3$ (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Chloride (mg/L)	Sulphate (SO_4) (mg/L)	Iron (Fe) (mg/L)	Manganese (Mn) (mg/L)	Total Dissolved Solids (mg/L)	Total Dissolved Solids - Calculated (mg/L)	Calcium (Ca) (mg/L)	Magnesium (Mg) (mg/L)	Potassium (K) (mg/L)	Sodium (Na) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Fluoride (mg/L)	Ion Balance (Balance)	Dissolved Organic Carbon (DOC) (mg/L)	Nitrite as N (mg/L)	Nitrate as N (mg/L)	Nitrate plus nitrite as N (mg/L)	Total Ammonia as N (mg/L)	Orthophosphate (mg/L)
Canadian Drinking Water AO Guidelines 2012 #1		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 #2		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	---	---	1	10	10	---	---
MW-01	07-Mar-2005	762	7.7	338	364	4	57.4	**1.02** #1	**0.605** #1	442	---	94.6	24.8	3.1	40	444	< 5	< 5	0.19	1	3	< 0.05	< 0.1	< 0.1	0.39	< 0.01
	17-Nov-2005	760	7.9	347	370	4	61.1	**1.67** #1	**0.662** #1	447	---	94.8	26.9	2.3	36	451	< 5	< 5	0.13	0.976	3	< 0.05	< 0.1	< 0.1	0.212	< 0.001
	15-Jun-2006	748	8	361	367	4	56.8	**1.81** #1	**0.7** #1	448	---	99.7	27.3	2.9	37	448	< 5	< 5	0.14	1.03	3	< 0.05	< 0.1	< 0.1	0.274	< 0.0001
	12-Jul-2007	718	7.8	345	365	3	54.6	**1.84** #1	**0.664** #1	433	---	95.1	26.1	2.3	33	445	< 5	< 5	0.13	0.986	3	< 0.05	< 0.1	< 0.1	0.185	0.005
	19-Dec-2007	770	7.8	310	390	2	60	< 0.06	**0.67** #1	442	---	87	23	2.2	34	470	< 1	< 1	0.2	0.0087	2	< 0.06	< 0.2	< 0.2	0.26	0.02
	21-Apr-2009	770	7.67	310	370	5	44	< 0.06	**0.66** #1	410	---	84	24	2.4	36	450	< 0.5	< 0.5	0.14	0.93	2.3	< 0.003	0.003	0.003	0.22	0.003
	05-May-2010	762	8.06	363	371	3.46	62.0	**2.02** #1	**0.730** #1	456	---	98.6	28.4	---	38.1	453	< 5.0	< 5.0	0.150	1.02	3.0	< 0.050	< 0.050	< 0.071	0.221	< 0.010
	25-May-2011	768	8.04	332	366	3.02	57.1	**1.53** #1	**0.675** #1	---	432	91.1	25.4	2.68	33.3	446	< 5.0	< 5.0	0.109	0.949	3.4	< 0.050	< 0.050	< 0.071	0.271	< 0.010
	29-May-2012	769	8.00	330	369	3.13	56.2	**1.57** #1	**0.694** #1	---	435	93.0	23.7	2.70	35.0	450	< 5.0	< 5.0	0.106	0.947	3.1	< 0.050	< 0.050	< 0.071	0.228	< 0.010
	10-Jul-2013	727	7.94	349	359	3.49	52.3	**1.82** #1	**0.729** #1	445	433	96.5	26.2	2.71	36.0	438	< 5.0	< 5.0	0.124	1.03	3.5	< 0.050	< 0.050	< 0.071	0.246	---
MW-02	07-Mar-2005	1210	7.7	424	422	13	227	0.275	**0.236** #1	**759** #1	---	113	34.5	6.8	111	514	< 5	< 5	0.21	1.01	8	< 0.05	0.1	0.1	1.75	< 0.01
	17-Nov-2005	1400	7.9	523	471	38	270	0.085	**0.671** #1	**894** #1	---	125	51.3	7.2	120	575	< 5	< 5	0.11	0.984	6	< 0.05	< 0.1	< 0.1	1.34	< 0.001
	15-Jun-2006	1420	7.9	633	516	23	274	**3.19** #1	**1.09** #1	**925** #1	---	162	55.4	5.5	95	629	< 5	< 5	0.09	1.02	5	< 0.05	< 0.1	< 0.1	1.17	< 0.001
	13-Jul-2007	1360	7.9	609	516	12	263	**8.72** #1	**0.841** #1	**880** #1	---	154	54.4	4.3	83	630	< 5	< 5	0.09	0.987	6	< 0.05	< 0.1	< 0.1	0.756	0.002
	19-Dec-2007	1400	7.4	530	540	13	290	< 0.06	**0.7** #1	**895** #1	---	140	46	4.5	83	660	< 1	< 1	0.1	0.0084	5	< 0.06	< 0.2	< 0.2	0.1	0.08
	21-Apr-2009	1400	7.36	500	500	18	230	**1.5** #1	**0.53** #1	**810** #1	---	130	44	4.4	81	610	< 0.5	< 0.5	0.08	0.89	4.1	< 0.003	0.005	0.005	0.56	< 0.003
	05-May-2010	1290	7.97	589	489	11.6	268	**9.35** #1	**0.505** #1	**866** #1	---	147	54.0	---	87.2	597	< 5.0	< 5.0	0.094	1	5.4	< 0.050	< 0.050	< 0.071	0.539	< 0.010
	25-May-2011	1500	7.90	563	515	22.3	318	**9.25** #1	**0.434** #1	---	**944** #1	141	51.3	4.25	97.9	628	< 5.0	< 5.0	< 0.050	0.891	11.3	< 0.050	< 0.050	< 0.071	0.728	< 0.010
	30-May-2012	1350	7.80	522	496	29.6	231	**8.07** #1	**0.431** #1	---	**826** #1	135	44.8	5.18	82.9	605	< 5.0	< 5.0	0.061	0.910	4.9	< 0.050	< 0.050	< 0.071	0.538	< 0.010
	10-Jul-2013	1220	7.69	662	482	24.2	194	**12.3** #1	**0.554** #1	**805** #1	**902** #1	172	56.4	5.25	161	588	< 5.0	< 5.0	0.080	1.42	5.4	< 0.050	< 0.050	< 0.071	0.726	---
MW-03	07-Mar-2005	937	7.4	413	362	31	113	**3.19** #1	**0.264** #1	**563** #1	---	106	36.1	3.5	56	442	< 5	< 5	0.14	1.03	5	< 0.05	< 0.1	< 0.1	0.38	< 0.01
	17-Nov-2005	949	7.8	410	365	35	122	**4.47** #1	**0.239** #1	**573** #1	---	104	36.4	3	54	445	< 5	< 5	0.1	0.981	4	< 0.05	< 0.1	< 0.1	0.306	< 0.001
	15-Jun-2006	943	8	423	360	35	116	**4.85** #1	**0.258** #1	**568** #1	---	109	36.6	3	52	439	< 5	< 5	0.1	1.02	3	< 0.05	< 0.1	< 0.1	0.359	< 0.001
	12-Jul-2007	930	8	425	361	36	122	**4.89** #1	**0.249** #1	**578** #1	---	108	37.7	3	55	440	< 5	< 5	0.11	1.02	3	< 0.05	< 0.1	< 0.1	0.291	0.005
	19-Dec-2007	960	7.7	370	380	35	130	< 0.06	**0.25** #1	**571** #1	---	98	32	2.7	49	460	< 1	< 1	0.1	0.0087	3	< 0.06	< 0.2	< 0.2	0.06	0.04
	21-Apr-2009	950	7.57	360	350	35	98	< 0.06	**0.24** #1	**520** #1	---	92	32	2.8	51	430	< 0.5	< 0.5	0.11	0.95	2.5	< 0.003	0.009	0.009	0.33	0.003
	06-May-2010	967	8.03	411	357	44.3	124	**5.23** #1	**0.253** #1	**579** #1	---	104	36.8	---	52.3	435	< 5.0	< 5.0	0.117	0.964	5.3	< 0.050	< 0.050	< 0.071	0.339	< 0.010
	02-Jun-2011	1000	7.98	452	355	44.2	120	**5.55** #1	**0.277** #1	---	**588** #1	115	40.1	3.20	52.7	433	< 5.0	< 5.0	0.105	1.05	3.3	< 0.050	< 0.050	< 0.071	0.302	< 0.010
	29-May-2012	988	7.83	386	355	45.9	115	**4.83** #1	**0.246** #1	---	**560** #1	102	31.8	3.05	48.8	434	< 5.0	< 5.0	0.080	0.917	3.4	< 0.050	< 0.050	< 0.071	0.327	< 0.010
	10-Jul-2013	963	7.81	430	350	48.3	119	**5.36** #1	**0.274** #1	**608** #1	**586** #1	109	38.3	3.20	57.9	427	< 5.0	< 5.0	0.105	1.03	3.0	< 0.050	< 0.050	< 0.071	0.369	---
MW-04	08-Mar-2005	1200	7.5	510	375	137	81.4	0.173	**0.152** #1	**694** #1	---	142	37.7	9.9	57	458	< 5	< 5	0.15	0.985	1	< 0.05	0.8	0.8	< 0.05	< 0.01
	17-Nov-2005	1280	7.8	532	368	157	87	0.104	**0.053** #1	**726** #1	---	147	40	9.5	59	449	< 5	< 5	0.12	0.982	5	< 0.05	1.2	1.2	0.013	< 0.001
(Duplicate)	17-Nov-2005	1290	7.9	533	371	157	89	0.105	**0.053** #1	**731** #1	---	147	40.4	9.7	60	452	< 5	< 5	0.12	0.981	4	< 0.05	1.2	1.2	0.01	< 0.001
	14-Jun-2006	1280	7.7	543	373	155	86.2	0.005	**0.13** #1	**724** #1	---	147	42.7	10.2	57	455	< 5	< 5	0.13	0.994	4	< 0.05	0.5	0.5	0.007	< 0.001
	13-Jul-2007	1360	7.9	564	368	190	84.5	< 0.005	0.009	**774** #1	---	154	43.6	10.4	68	449	< 5	< 5	0.14	0.999	3	< 0.05	0.5	0.5	0.008	< 0.001
	19-Dec-2007	1400	7.7	500	380	200	82	< 0.06	0.016	**763** #1	---	140	35	10	71	460	< 1	< 1	0.1	0.009	3	< 0.06	0.6	0.6	0.01	0.04

Groundwater Analytical Results: General, Indicators, Ions, etc.

PROJECT No.: 307076-06086

		General				Indicators						Cations, Anions & Ion Balance									Organics	Nitrogen Parameters				Phosphorous
Monitoring Station	Date (dd-mmm-yyyy)	Electrical Conductivity (uS/cm)	pH (pH units)	Total Hardness as $CaCO_3$ (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Chloride (mg/L)	Sulphate (SO_4) (mg/L)	Iron (Fe) (mg/L)	Manganese (Mn) (mg/L)	Total Dissolved Solids (mg/L)	Total Dissolved Solids - Calculated (mg/L)	Calcium (Ca) (mg/L)	Magnesium (Mg) (mg/L)	Potassium (K) (mg/L)	Sodium (Na) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Fluoride (mg/L)	Ion Balance (Balance)	Dissolved Organic Carbon (DOC) (mg/L)	Nitrite as N (mg/L)	Nitrate as N (mg/L)	Nitrate plus nitrite as N (mg/L)	Total Ammonia as N (mg/L)	Orthophosphate (mg/L)
Canadian Drinking Water AO Guidelines 2012 #1		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 #2		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	---	---	1	10	10	---	---
	21-Apr-2009	1200	7.62	500	370	150	74	< 0.06	0.03	**690** #1	---	140	37	9.4	63	450	< 0.5	< 0.5	0.14	0.99	2.8	< 0.003	0.4	0.4	< 0.05	< 0.003
	06-May-2010	1220	8.01	561	385	131	92.1	0.078	**0.258** #1	**724** #1	---	152	44.0	---	63.4	470	< 5.0	< 5.0	0.129	1.07	3.0	< 0.050	0.090	0.090	< 0.050	< 0.010
	07-Jun-2011	1280	7.95	520	395	125	88.9	0.028	**0.114** #1	---	**693** #1	140	41.3	8.78	50.7	482	< 5.0	< 5.0	0.119	0.963	3.0	< 0.050	0.264	0.264	< 0.050	< 0.010
	30-May-2012	1280	7.88	509	409	126	88.2	**1.47** #1	**0.722** #1	---	**699** #1	141	38.1	8.93	50.9	500	< 5.0	< 5.0	0.089	0.928	3.2	< 0.050	< 0.050	< 0.071	< 0.050	< 0.010
(Duplicate)	30-May-2012	1280	7.94	587	409	126	88.6	**1.73** #1	**0.861** #1	---	**736** #1	161	44.8	11.4	58.9	499	< 5.0	< 5.0	0.094	1.07	3.3	< 0.050	< 0.050	< 0.071	< 0.050	< 0.010
	09-Jul-2013	1230	7.76	566	404	129	87.8	**1.70** #1	**0.561** #1	**761** #1	**724** #1	154	44.0	10.8	55.8	493	< 5.0	< 5.0	0.082	1.03	3.3	< 0.050	< 0.050	< 0.071	< 0.050	---
MW-05	08-Mar-2005	831	7.6	353	330	15	105	**1.14** #1	**0.402** #1	499	---	96.2	27.5	6.1	51	403	< 5	< 5	0.18	1.03	5	< 0.05	< 0.1	< 0.1	0.63	< 0.01
	17-Nov-2005	881	7.9	370	346	21	115	**3.31** #1	**0.531** #1	**522** #1	---	98.6	30.1	6.9	43	422	< 5	< 5	0.11	0.954	4	< 0.05	< 0.1	< 0.1	0.331	< 0.001
	14-Jun-2006	902	7.7	405	345	22	124	**3.48** #1	**0.583** #1	**545** #1	---	107	33.5	7.6	44	421	< 5	< 5	0.11	1.01	4	< 0.05	< 0.1	< 0.1	0.338	< 0.001
	13-Jul-2007	931	8.1	416	349	25	135	**4** #1	**0.682** #1	**563** #1	---	110	34.3	7.3	42	426	< 5	< 5	0.11	0.985	4	< 0.05	< 0.1	< 0.1	0.216	0.004
	19-Dec-2007	930	7.6	380	360	22	150	< 0.06	**0.66** #1	**566** #1	---	100	30	7.4	41	440	< 1	< 1	0.1	0.0088	3	< 0.06	< 0.2	< 0.2	0.05	0.05
	21-Apr-2009	960	7.58	430	350	30	130	< 0.06	**0.72** #1	**570** #1	---	120	34	7.6	43	420	< 0.5	< 0.5	0.12	1	2.5	< 0.003	0.007	0.007	0.22	< 0.003
	29-Apr-2010	969	7.95	451	351	30.6	144	**3.39** #1	**0.758** #1	**596** #1	---	120	36.7	---	46.1	428	< 5.0	< 5.0	0.107	1.03	3.3	< 0.050	< 0.050	< 0.071	0.234	< 0.010
	25-May-2011	990	8.05	397	355	30.9	141	**3.82** #1	**0.657** #1	---	**572** #1	105	32.7	7.29	41.7	433	< 5.0	< 5.0	0.075	0.911	4.4	< 0.050	< 0.050	< 0.071	0.261	< 0.010
	29-May-2012	1000	7.93	409	362	33.7	138	**3.83** #1	**0.707** #1	---	**583** #1	112	31.3	8.00	42.6	442	< 5.0	< 5.0	0.061	0.923	6.9	< 0.050	< 0.050	< 0.071	0.233	< 0.010
	08-Jul-2013	998	7.83	433	367	36.3	139	**3.17** #1	**0.754** #1	**614** #1	**599** #1	118	33.5	8.61	42.9	448	< 5.0	< 5.0	0.092	0.953	4.1	< 0.050	< 0.050	< 0.071	0.234	---
MW-06	08-Mar-2005	1580	7.5	670	459	4	451	**2.92** #1	**1.32** #1	**1100** #1	---	171	58.9	6.1	138	560	< 5	< 5	0.18	1.05	5	< 0.05	< 0.1	< 0.1	1.46	< 0.01
	17-Nov-2005	1780	8	584	526	13	471	**2.96** #1	**0.943** #1	**1220** #1	---	148	52	5	**211** #1	641	< 5	< 5	0.15	1.01	8	< 0.05	< 0.1	< 0.1	1.95	< 0.001
	16-Jun-2006	1700	7.7	657	519	10	482	**3.58** #1	**1.01** #1	**1220** #1	---	168	57.7	5.5	190	633	< 5	< 5	0.14	1.04	7	< 0.05	< 0.1	< 0.1	2.38	0.001
	12-Jul-2007	1760	7.9	620	522	10	478	**4.5** #1	**1.28** #1	**1200** #1	---	157	55.3	4.8	182	637	< 5	< 5	0.17	0.994	7	< 0.05	< 0.1	< 0.1	1.92	0.04
	19-Dec-2007	1700	7.7	620	510	3	**560** #1	< 0.06	**1.5** #1	**1230** #1	---	160	54	5	140	630	< 1	< 1	0.2	0.0085	6	< 0.06	< 0.2	< 0.2	1.9	0.17
	22-Apr-2009	1700	7.47	710	490	6	420	**5.7** #1	**1.7** #1	**1100** #1	---	180	62	5.5	150	590	< 0.5	< 0.5	0.14	1.1	5.1	< 0.003	0.004	0.004	1.7	0.028
	06-May-2010	1770	8.06	625	513	8.45	**520** #1	**5.38** #1	**1.39** #1	**1250** #1	---	156	57.1	---	194	626	< 5.0	< 5.0	0.173	0.988	6.7	< 0.050	< 0.050	< 0.071	1.88	< 0.010
	07-Jun-2011	1760	7.96	658	494	3.45	**501** #1	**5.55** #1	**1.64** #1	---	**1150** #1	164	60.4	5.02	123	603	< 5.0	< 5.0	0.129	0.913	8.0	< 0.050	< 0.050	< 0.071	1.57	< 0.010
	29-May-2012	1730	7.81	650	493	2.95	494	**6.02** #1	**1.70** #1	---	**1160** #1	167	56.5	5.80	139	602	< 5.0	< 5.0	0.128	0.947	6.8	< 0.050	< 0.050	< 0.071	1.55	< 0.010
	08-Jul-2013	1720	7.81	647	501	4.57	499	**5.84** #1	**1.72** #1	**1240** #1	**1170** #1	168	55.2	5.17	135	611	< 5.0	< 5.0	0.128	0.922	6.4	< 0.050	< 0.050	< 0.071	1.66	---
MW-07	09-Mar-2005	2680	7.5	1130	544	13	**1130** #1	**10.4** #1	**1.88** #1	**2150** #1	---	287	100	6.6	**287** #1	664	< 5	< 5	0.11	1.02	5	< 0.05	0.1	0.1	2.24	< 0.001
	17-Nov-2005	2670	7.7	1060	546	16	**1010** #1	**10.9** #1	**1.83** #1	**1990** #1	---	270	94.8	5.5	**268** #1	666	< 5	< 5	0.08	1.02	6	< 0.05	< 0.1	< 0.1	2.03	< 0.001
	16-Jun-2006	2530	7.5	1110	542	15	**1010** #1	< 0.005	**1.86** #1	**2010** #1	---	284	96.4	6.2	**269** #1	661	< 5	< 5	0.07	1.05	6	< 0.05	0.1	0.1	2.28	< 0.001
	12-Jul-2007	2290	7.6	1010	526	12	**940** #1	**10.9** #1	**1.78** #1	**1870** #1	---	257	89.8	4.6	**248** #1	641	< 5	< 5	0.09	1.03	6	< 0.05	< 0.1	< 0.1	2.03	0.01
	19-Dec-2007	2500	7.5	850	540	9	**1000** #1	< 0.06	**1.6** #1	**1890** #1	---	220	72	5.1	**230** #1	660	< 1	< 1	0.1	0.0084	6	< 0.06	< 0.2	< 0.2	0.26	0.02
	22-Apr-2009	3000	7.19	1300	600	18	**1200** #1	**14** #1	**2.3** #1	**2400** #1	---	330	110	6.6	**320** #1	730	< 0.5	< 0.5	0.08	1.1	6.6	< 0.003	0.004	0.004	2.5	0.008
	05-May-2010	2600	7.90	1040	538	13.2	**1040** #1	**12.5** #1	**1.90** #1	**2010** #1	---	262	93.5	---	**274** #1	657	< 5.0	< 5.0	0.135	1	5.8	< 0.050	< 0.050	< 0.071	2.33	< 0.010
	08-Jun-2011	1900	7.69	728	440	8.07	**622** #1	**8.26** #1	**1.21** #1	---	**1330** #1	178	68.8	4.38	189	537	< 5.0	< 5.0	0.116	1.04	11.5	< 0.050	< 0.050	< 0.071	1.83	< 0.010

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Table 3

Groundwater Analytical Results: General, Indicators, Ions, etc.

PROJECT No.: 307076-06086

Monitoring Station	Date (dd-mmm-yyyy)	General: Electrical Conductivity (uS/cm)	General: pH (pH units)	General: Total Hardness as $CaCO_3$ (mg/L)	General: Total Alkalinity as $CaCO_3$ (mg/L)	Indicators: Chloride (mg/L)	Indicators: Sulphate (SO_4) (mg/L)	Indicators: Iron (Fe) (mg/L)	Indicators: Manganese (Mn) (mg/L)	Indicators: Total Dissolved Solids (mg/L)	Indicators: Total Dissolved Solids - Calculated (mg/L)	Cations, Anions & Ion Balance: Calcium (Ca) (mg/L)	Cations, Anions & Ion Balance: Magnesium (Mg) (mg/L)	Cations, Anions & Ion Balance: Potassium (K) (mg/L)	Cations, Anions & Ion Balance: Sodium (Na) (mg/L)	Cations, Anions & Ion Balance: Bicarbonate (HCO_3) (mg/L)	Cations, Anions & Ion Balance: Carbonate (CO_3) (mg/L)	Cations, Anions & Ion Balance: Hydroxide (OH) (mg/L)	Cations, Anions & Ion Balance: Fluoride (mg/L)	Cations, Anions & Ion Balance: Ion Balance (Balance)	Organics: Dissolved Organic Carbon (DOC) (mg/L)	Nitrogen Parameters: Nitrite as N (mg/L)	Nitrogen Parameters: Nitrate as N (mg/L)	Nitrogen Parameters: Nitrate plus nitrite as N (mg/L)	Nitrogen Parameters: Total Ammonia as N (mg/L)	Phosphorous: Orthophosphate (mg/L)
Canadian Drinking Water AO Guidelines 2012 [#1]		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 [#2]		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	---	---	1	10	10	---	---
	28-Jul-2011	2670	7.98	1000	540	11.8	**1020** [#1]	**11.7** [#1]	**1.84** [#1]	---	**1950** [#1]	256	87.9	5.55	**245** [#1]	659	< 5.0	< 5.0	0.128	0.952	6.3	< 0.050	< 0.050	< 0.071	2.39	< 0.010
	30-May-2012	2570	7.71	948	531	12.6	**949** [#1]	**11.3** [#1]	**1.79** [#1]	---	**1860** [#1]	247	80.4	6.96	**245** [#1]	648	< 5.0	< 5.0	0.093	0.969	6.0	< 0.050	< 0.050	< 0.071	2.22	< 0.010
	11-Jul-2013	2680	7.30	1010	586	11.5	**1020** [#1]	**12.1** [#1]	**1.87** [#1]	**2180** [#1]	**1980** [#1]	269	82.4	5.37	**241** [#1]	716	< 5.0	< 5.0	0.110	0.926	6.2	< 0.050	< 0.050	< 0.071	2.39	---
MW-08	09-Mar-2005	1470	7.7	552	486	3	369	**5.66** [#1]	**0.474** [#1]	**999** [#1]	---	147	45	6	137	593	< 5	< 5	0.13	0.988	5	< 0.05	0.1	0.1	1.83	< 0.001
	15-Nov-2005	1310	7.5	486	450	4	300	**5.16** [#1]	**0.384** [#1]	**862** [#1]	---	133	37.4	5.2	112	549	< 5	< 5	0.11	0.959	6	< 0.05	< 0.1	< 0.1	1.5	< 0.001
	16-Jun-2006	1240	7.7	584	487	3	341	**6.97** [#1]	**0.481** [#1]	**980** [#1]	---	161	44.2	6.1	132	594	< 5	< 5	0.09	1.04	6	< 0.05	< 0.1	< 0.1	1.89	< 0.001
	11-Jul-2007	1390	7.9	551	478	2	316	**7.29** [#1]	**0.454** [#1]	**918** [#1]	---	150	42.9	5	115	583	< 5	< 5	0.08	1	7	< 0.05	< 0.1	< 0.1	1.61	0.003
	19-Dec-2007	1400	7.7	480	520	2	370	< 0.06	**0.44** [#1]	**977** [#1]	---	130	36	5.4	120	630	< 1	< 1	0.1	0.0084	5	< 0.06	< 0.2	< 0.2	0.25	0.05
	21-Apr-2009	1400	7.62	530	450	3	300	< 0.06	**0.45** [#1]	**880** [#1]	---	150	40	5.6	110	560	< 0.5	< 0.5	0.11	1	5.3	< 0.003	0.007	0.007	1.7	0.016
	05-May-2010	1360	8.04	542	458	1.43	333	**7.22** [#1]	**0.470** [#1]	**927** [#1]	---	146	43.2	---	122	558	< 5.0	< 5.0	0.130	1.01	5.3	< 0.050	< 0.050	< 0.071	1.74	< 0.010
	07-Jun-2011	1400	7.95	497	463	0.97	320	**5.41** [#1]	**0.411** [#1]	---	**876** [#1]	136	38.3	5.12	98.0	565	< 5.0	< 5.0	0.082	0.898	10.3	< 0.050	< 0.050	< 0.071	1.71	< 0.010
	30-May-2012	1360	7.93	481	459	0.86	308	**6.69** [#1]	**0.409** [#1]	---	**867** [#1]	135	35.0	5.69	107	560	< 5.0	< 5.0	0.084	0.923	5.7	< 0.050	< 0.050	< 0.071	1.76	< 0.010
	09-Jul-2013	1290	7.96	538	439	1.37	304	**6.47** [#1]	**0.415** [#1]	**876** [#1]	**877** [#1]	149	40.4	6.47	112	535	< 5.0	< 5.0	0.093	1.04	5.5	< 0.050	< 0.050	< 0.071	1.76	---
MW-09	09-Mar-2005	1520	7.9	286	513	5	313	**1.11** [#1]	**0.714** [#1]	**954** [#1]	---	71.6	26	4.2	**226** [#1]	626	< 5	< 5	0.29	0.932	5	< 0.05	0.1	0.1	1.81	< 0.001
(Duplicate)	09-Mar-2005	1520	7.9	312	515	5	340	**1.07** [#1]	**0.705** [#1]	**1010** [#1]	---	79.1	27.9	4.7	**243** [#1]	628	< 5	< 5	0.29	0.974	5	< 0.05	0.1	0.1	1.79	< 0.001
	17-Nov-2005	1550	8.1	344	524	7	312	**1.4** [#1]	**0.752** [#1]	**984** [#1]	---	92.6	27.3	3.9	**227** [#1]	640	< 5	< 5	0.22	0.98	6	< 0.05	< 0.1	< 0.1	1.85	< 0.001
	16-Jun-2006	1520	7.9	359	528	7	316	**1.44** [#1]	**0.797** [#1]	**1000** [#1]	---	98.1	27.7	3.9	**231** [#1]	644	< 5	< 5	0.23	0.999	8	< 0.05	< 0.1	< 0.1	2.09	< 0.001
	11-Jul-2007	1530	8.1	351	538	6	322	**1.74** [#1]	**0.785** [#1]	**1010** [#1]	---	94.9	27.6	3.3	**231** [#1]	656	< 5	< 5	0.21	0.979	7	< 0.05	< 0.1	< 0.1	1.8	0.002
	18-Dec-2007	1500	8	300	550	4	350	< 0.06	**0.77** [#1]	**1020** [#1]	---	83	22	3.5	**230** [#1]	670	< 1	< 1	0.2	0.0086	9	< 0.06	< 0.2	< 0.2	0.23	0.04
	22-Apr-2009	1500	7.73	350	520	6	330	**1.9** [#1]	**0.86** [#1]	**1000** [#1]	---	97	27	4.1	**240** [#1]	630	< 0.5	< 0.5	0.22	1	5.5	< 0.003	0.005	0.005	1.9	0.028
	06-May-2010	1540	8.17	347	524	5.57	342	**2.04** [#1]	**0.828** [#1]	**1030** [#1]	---	93.1	27.8	---	**240** [#1]	639	< 5.0	< 5.0	0.251	0.984	5.6	< 0.050	< 0.050	< 0.071	2.02	< 0.010
(Duplicate)	06-May-2010	1540	8.17	346	526	5.63	345	**2.03** [#1]	**0.832** [#1]	**1040** [#1]	---	93.1	27.6	---	**246** [#1]	641	< 5.0	< 5.0	0.243	0.992	5.5	< 0.050	< 0.050	< 0.071	2.00	< 0.010
	02-Jun-2011	1580	8.17	322	530	5.84	325	**1.46** [#1]	**0.754** [#1]	---	**978** [#1]	87.4	25.2	4.09	**212** [#1]	646	< 5.0	< 5.0	< 0.050	0.900	8.0	< 0.050	< 0.050	< 0.071	2.05	< 0.010
(Duplicate)	02-Jun-2011	1570	8.22	331	530	5.64	325	**1.29** [#1]	**0.773** [#1]	---	**988** [#1]	89.5	26.0	4.16	**220** [#1]	646	< 5.0	< 5.0	< 0.050	0.930	7.1	< 0.050	< 0.050	< 0.071	2.09	< 0.010
	29-May-2012	1550	8.04	318	527	4.82	319	**1.89** [#1]	**0.784** [#1]	---	**982** [#1]	88.3	23.7	4.22	**226** [#1]	643	< 5.0	< 5.0	0.184	0.941	6.0	< 0.050	< 0.050	< 0.071	2.02	< 0.010
	10-Jul-2013	1530	7.89	351	527	5.29	327	**1.94** [#1]	**0.842** [#1]	**1030** [#1]	**1030** [#1]	96.2	26.8	4.06	**251** [#1]	644	< 5.0	< 5.0	0.203	1.03	5.9	< 0.050	< 0.050	< 0.071	2.10	---
MW-10	09-Mar-2005	1270	7.7	476	514	< 1	221	**5.29** [#1]	**0.639** [#1]	**819** [#1]	---	131	36.1	5.3	117	628	< 5	< 5	0.18	0.997	5	< 0.05	0.1	0.1	1.68	< 0.001
	16-Nov-2005	1260	7.5	467	520	3	222	**5.49** [#1]	**0.642** [#1]	**814** [#1]	---	129	35.2	5	108	634	< 5	< 5	0.12	0.938	6	< 0.05	< 0.1	< 0.1	1.36	< 0.001
	16-Jun-2006	1120	7.7	503	525	2	212	**5.89** [#1]	**0.67** [#1]	**831** [#1]	---	139	37.8	5.6	119	641	< 5	< 5	0.13	1.03	6	< 0.05	< 0.1	< 0.1	1.76	< 0.001
	11-Jul-2007	1270	8	482	533	2	208	**5.93** [#1]	**0.656** [#1]	**814** [#1]	---	132	36.9	4.7	110	651	< 5	< 5	0.12	0.972	5	< 0.05	< 0.1	< 0.1	1.65	0.002
	18-Dec-2007	1300	7.8	410	540	< 1	230	< 0.06	**0.64** [#1]	**822** [#1]	---	120	29	4.8	110	660	< 1	< 1	0.2	0.0084	5	< 0.06	< 0.2	< 0.2	1.8	< 0.02
	22-Apr-2009	1300	7.51	490	510	2	190	**5.9** [#1]	**0.71** [#1]	**800** [#1]	---	140	36	5.6	120	620	< 0.5	< 0.5	0.14	1.1	4.7	< 0.003	0.005	0.005	1.8	0.003
	05-May-2010	1270	8.07	508	519	0.73	227	**6.80** [#1]	**0.735** [#1]	**847** [#1]	---	139	39.1	---	124	633	< 5.0	< 5.0	0.169	1.04	5.1	< 0.050	< 0.050	< 0.071	1.71	< 0.010
	02-Jun-2011	1260	8.04	407	497	1.19	206	**3.89** [#1]	**0.566** [#1]	---	**759** [#1]	113	30.2	5.58	105	607	< 5.0	< 5.0	< 0.050	0.899	6.7	< 0.050	< 0.050	< 0.071	1.60	< 0.010

Groundwater Analytical Results: General, Indicators, Ions, etc.

PROJECT No.: 307076-06086

		General				Indicators						Cations, Anions & Ion Balance									Organics	Nitrogen Parameters				Phosphorous
Monitoring Station	Date (dd-mmm-yyyy)	Electrical Conductivity (uS/cm)	pH (pH units)	Total Hardness as $CaCO_3$ (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Chloride (mg/L)	Sulphate (SO_4) (mg/L)	Iron (Fe) (mg/L)	Manganese (Mn) (mg/L)	Total Dissolved Solids (mg/L)	Total Dissolved Solids - Calculated (mg/L)	Calcium (Ca) (mg/L)	Magnesium (Mg) (mg/L)	Potassium (K) (mg/L)	Sodium (Na) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Fluoride (mg/L)	Ion Balance (Balance)	Dissolved Organic Carbon (DOC) (mg/L)	Nitrite as N (mg/L)	Nitrate as N (mg/L)	Nitrate plus nitrite as N (mg/L)	Total Ammonia as N (mg/L)	Orthophosphate (mg/L)
Canadian Drinking Water AO Guidelines 2012 #1		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 #2		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	---	---	1	10	10	---	---
	30-May-2012	1290	7.89	447	524	0.53	211	**5.98 #1**	**0.655 #1**	---	**801 #1**	127	31.6	5.79	111	639	< 5.0	< 5.0	0.113	0.935	5.9	< 0.050	< 0.050	< 0.071	1.79	< 0.010
	09-Jul-2013	1250	8.09	506	523	0.68	215	**6.11 #1**	**0.729 #1**	**833 #1**	**832 #1**	141	37.3	6.22	118	638	< 5.0	< 5.0	0.107	1.03	5.4	< 0.050	< 0.050	< 0.071	1.88	---
(Duplicate)	09-Jul-2013	1250	8.04	506	527	0.85	216	**6.03 #1**	**0.710 #1**	**837 #1**	**833 #1**	142	36.7	5.96	115	643	< 5.0	< 5.0	0.115	1.01	5.4	< 0.050	< 0.050	< 0.071	1.93	---
MW-11	10-Mar-2005	1270	7.7	563	526	8	196	**6.89 #1**	**0.668 #1**	**813 #1**	---	150	45.8	4.9	92	642	< 5	< 5	0.14	1.04	15	< 0.05	0.1	0.1	1.5	< 0.001
	16-Nov-2005	1270	7.4	525	536	16	199	**6.95 #1**	**0.628 #1**	**809 #1**	---	140	42.5	4.5	85	654	< 5	< 5	0.09	0.934	7	< 0.05	< 0.1	< 0.1	1.41	< 0.001
	16-Jun-2006	1100	7.7	570	551	11	194	**7.23 #1**	**0.659 #1**	**831 #1**	---	153	45.7	4.8	92	672	< 5	< 5	0.09	1.01	7	< 0.05	< 0.1	< 0.1	1.56	< 0.001
	11-Jul-2007	1280	8	544	542	8	193	**7.15 #1**	**0.632 #1**	**806 #1**	---	143	45.3	3.9	88	662	< 5	< 5	0.09	0.986	8	< 0.05	< 0.1	< 0.1	1.43	0.002
	18-Dec-2007	1300	7.7	480	560	10	210	< 0.06	**0.61 #1**	**810 #1**	---	130	38	4.3	87	680	< 1	< 1	0.1	0.0087	6	< 0.06	< 0.2	< 0.2	0.2	0.05
	22-Apr-2009	1300	7.51	560	530	10	170	**7 #1**	**0.67 #1**	**800 #1**	---	150	45	4.9	91	640	< 0.5	< 0.5	0.11	1.1	5.5	< 0.003	0.003	0.003	1.5	0.022
	05-May-2010	1290	8.04	549	533	15.2	212	**7.61 #1**	**0.663 #1**	**840 #1**	---	144	45.9	---	98.1	650	< 5.0	< 5.0	0.132	0.991	6.0	< 0.050	< 0.050	< 0.071	1.48	< 0.010
	02-Jun-2011	1320	8.00	561	536	9.69	203	**6.99 #1**	**0.687 #1**	---	**830 #1**	148	46.4	5.36	96.0	653	< 5.0	< 5.0	< 0.050	1.02	6.8	< 0.050	< 0.050	< 0.071	1.55	< 0.010
	30-May-2012	1300	7.90	494	531	8.71	202	**6.82 #1**	**0.605 #1**	---	**795 #1**	134	38.7	5.34	87.9	648	< 5.0	< 5.0	0.067	0.918	6.6	< 0.050	< 0.050	< 0.071	1.51	< 0.010
	10-Jul-2013	1270	7.93	551	525	8.92	213	**7.52 #1**	**0.697 #1**	**828 #1**	**836 #1**	147	44.7	5.09	102	640	< 5.0	< 5.0	0.105	1.03	6.2	< 0.050	< 0.050	< 0.071	1.57	---
MW-12	10-Mar-2005	1000	7.9	354	521	6	45.9	**2.78 #1**	**0.365 #1**	**600 #1**	---	95.7	27.9	5	106	636	< 5	< 5	0.13	1.02	6	< 0.05	0.1	0.1	1.39	< 0.001
	16-Nov-2005	1020	7.4	354	584	8	52.5	**3.37 #1**	**0.402 #1**	**651 #1**	---	94.9	28.5	5.2	111	712	< 5	< 5	0.07	0.927	7	< 0.05	< 0.1	< 0.1	1.2	< 0.001
	16-Jun-2006	904	7.8	370	549	7	44.2	**3.76 #1**	**0.436 #1**	**621 #1**	---	100	29.1	5.1	106	669	< 5	< 5	0.07	1	7	< 0.05	< 0.1	< 0.1	1.34	< 0.001
	11-Jul-2007	1020	8	358	550	7	42.4	**3.77 #1**	**0.422 #1**	**609 #1**	---	95.4	29.2	4.2	101	670	< 5	< 5	0.08	0.974	7	< 0.05	< 0.1	< 0.1	1.16	0.002
	18-Dec-2007	1000	7.8	300	570	5	43	< 0.06	**0.4 #1**	**601 #1**	---	82	23	4.3	99	700	< 1	< 1	< 0.1	0.0084	7	< 0.06	< 0.2	< 0.2	0.29	< 0.02
	22-Apr-2009	1000	7.66	360	540	8	32	**4.1 #1**	**0.45 #1**	**610 #1**	---	98	29	4.9	110	650	< 0.5	< 0.5	0.09	1.1	6.4	< 0.003	0.005	0.005	1.3	0.013
	06-May-2010	1030	8.13	365	547	7.05	46.8	**4.24 #1**	**0.456 #1**	**623 #1**	---	96.4	30.2	---	109	667	< 5.0	< 5.0	0.114	1	10.5	< 0.050	< 0.050	< 0.071	1.32	< 0.010
	02-Jun-2011	1050	8.14	372	543	6.40	44.6	**3.34 #1**	**0.450 #1**	---	**606 #1**	98.1	30.9	4.86	95.4	662	< 5.0	< 5.0	0.071	0.979	13.5	< 0.050	0.054	< 0.071	1.31	---
	30-May-2012	1030	8.03	330	541	6.25	43.3	**4.14 #1**	**0.435 #1**	---	**591 #1**	89.8	25.6	5.23	95.7	660	< 5.0	< 5.0	0.076	0.915	6.6	< 0.050	< 0.050	< 0.071	1.32	< 0.010
	10-Jul-2013	1000	7.89	371	532	6.89	44.4	**3.99 #1**	**0.457 #1**	**628 #1**	**618 #1**	101	28.9	5.00	113	649	< 5.0	< 5.0	0.083	1.06	6.9	< 0.050	< 0.050	< 0.071	1.36	---
MW-13	10-Mar-2005	784	8.1	202	435	2	10.6	**0.818 #1**	**0.263 #1**	460	---	53.7	16.5	4.2	112	531	< 5	< 5	0.2	1	4	< 0.05	0.1	0.1	1.4	< 0.001
	16-Nov-2005	782	7.8	195	440	4	12.5	**1.08 #1**	**0.243 #1**	454	---	51.2	16.2	3.4	103	537	< 5	< 5	0.14	0.922	5	< 0.05	< 0.1	< 0.1	1.29	< 0.001
	16-Jun-2006	715	8	209	443	4	10.1	**1.19 #1**	**0.256 #1**	470	---	55.6	17.1	3.9	112	715	541	< 5	0.14	0.994	5	< 0.05	0.2	0.2	1.31	< 0.001
	11-Jul-2007	782	8.2	202	444	2	9.1	**1.26 #1**	**0.252 #1**	456	---	53	16.9	3.5	105	541	< 5	< 5	0.13	0.963	5	< 0.05	< 0.1	< 0.1	1.22	0.002
	18-Dec-2007	790	8	170	460	2	9	< 0.06	**0.25 #1**	457	---	45	14	3.5	110	560	< 1	< 1	0.2	0.0087	5	< 0.06	< 0.2	< 0.2	0.23	< 0.02
	22-Apr-2009	770	7.81	200	430	3	9	**1.3 #1**	**0.26 #1**	460	---	54	17	3.9	110	520	< 0.5	< 0.5	0.15	1	4.5	< 0.003	0.005	0.005	1.3	0.014
	06-May-2010	776	8.22	192	435	2.15	9.54	**1.45 #1**	**0.249 #1**	453	---	50.0	16.4	---	110	530	< 5.0	< 5.0	0.160	0.975	4.1	< 0.050	< 0.050	< 0.071	1.30	< 0.010
	02-Jun-2011	796	8.24	183	434	1.92	9.12	**1.25 #1**	**0.231 #1**	---	442	48.1	15.3	3.74	103	530	< 5.0	< 5.0	0.162	0.921	5.2	< 0.050	< 0.050	< 0.071	1.36	< 0.010
	30-May-2012	786	8.18	179	433	1.81	9.24	**1.33 #1**	**0.238 #1**	---	438	48.0	14.4	4.00	101	529	< 5.0	< 5.0	0.119	0.905	4.6	< 0.050	< 0.050	< 0.071	1.31	< 0.010
	10-Jul-2013	769	7.92	191	430	2.28	10.0	**1.17 #1**	**0.252 #1**	464	458	49.7	16.2	3.98	118	525	< 5.0	< 5.0	0.147	1.02	4.4	< 0.050	< 0.050	< 0.071	1.38	---

Groundwater Analytical Results: General, Indicators, Ions, etc.

PROJECT No.: 307076-06086

		General				Indicators						Cations, Anions & Ion Balance									Organics	Nitrogen Parameters				Phosphorous
Monitoring Station	Date	Electrical Conductivity	pH	Total Hardness as $CaCO_3$	Total Alkalinity as $CaCO_3$	Chloride	Sulphate (SO_4)	Iron (Fe)	Manganese (Mn)	Total Dissolved Solids	Total Dissolved Solids - Calculated	Calcium (Ca)	Magnesium (Mg)	Potassium (K)	Sodium (Na)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Hydroxide (OH)	Fluoride	Ion Balance	Dissolved Organic Carbon (DOC)	Nitrite as N	Nitrate as N	Nitrate plus nitrite as N	Total Ammonia as N	Orthophosphate
	(dd-mmm-yyyy)	(uS/cm)	(pH units)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(Balance)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Canadian Drinking Water AO Guidelines 2012 [#1]		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2012 [#2]		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	---	---	1	10	10	---	---
QA/QC																										
FIELD BLANK	05-May-2010	1.07	6.06 [#1]	< 1.0	< 5.0	< 0.50	< 0.50	< 0.020	< 0.0050	< 1.0	---	< 0.50	< 0.10	---	< 0.50	< 5.0	< 5.0	< 5.0	< 0.050	LowTDS	< 1.0	< 0.050	< 0.050	< 0.071	< 0.050	< 0.010
	25-May-2011	1.06	6.02 [#1]	< 1.0	< 5.0	< 0.50	< 0.50	< 0.020	< 0.0050	---	< 1.0	< 0.50	< 0.10	< 0.10	< 0.50	< 5.0	< 5.0	< 5.0	< 0.050	LowTDS	< 1.0	< 0.050	< 0.050	< 0.071	< 0.050	< 0.010
	09-Jul-2013	1.90	6.19 [#1]	< 1	< 2.0	< 0.50	< 0.50	< 0.010	< 0.0020	< 10	< 1	< 0.50	< 0.10	< 0.10	< 1.0	< 5.0	< 5.0	< 5.0	< 0.020	Low TDS	3.5	< 0.050	< 0.050	< 0.071	< 0.050	---

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 [#1] 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 [#2] 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)

Table 4

Groundwater Analytical Results: Petroleum Hydrocarbons

PROJECT No.: 307076-06086		BTEX						Select Hydrocarbons		
Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m&p-Xylene (mg/L)	o-Xylene (mg/L)	Xylenes-Total (mg/L)	PHC F1 (C_6-C_{10}) (mg/L)	PHC F1 (C_6-C_{10}) - BTEX (mg/L)	PHC F2 (C_{10}-C_{16}) (mg/L)
Canadian Drinking Water AO Guidelines 2012 #1		---	0.024	0.0024	---	---	0.3	---	---	---
Canadian Drinking Water MAC Guidelines 2012 #2		0.005	---	---	---	---	---	---	---	---
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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	0.31
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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	07-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	0.00117	< 0.00050	0.00193	0.00092	0.00286	< 0.10	< 0.10	< 0.25
(Duplicate)	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	08-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
MW-06	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
	16-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
	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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	07-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	08-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25

Groundwater Analytical Results: Petroleum Hydrocarbons

PROJECT No.: 307076-06086		BTEX						Select Hydrocarbons		
Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m&p-Xylene (mg/L)	o-Xylene (mg/L)	Xylenes-Total (mg/L)	PHC F1 (C_6-C_{10}) (mg/L)	PHC F1 (C_6-C_{10}) - BTEX (mg/L)	PHC F2 (C_{10}-C_{16}) (mg/L)
Canadian Drinking Water AO Guidelines 2012 #1		---	0.024	0.0024	---	---	0.3	---	---	---
Canadian Drinking Water MAC Guidelines 2012 #2		0.005	---	---	---	---	---	---	---	---
MW-07	09-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
	16-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
	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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	08-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	28-Jul-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	11-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
MW-08	09-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
	15-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
	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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	07-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
MW-09	09-Mar-2005	< 0.0005	< 0.0005	< 0.0005	---	---	< 0.0005	< 0.1	< 0.1	< 0.05
(Duplicate)	09-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
	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	0.3
	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
(Duplicate)	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
(Duplicate)	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
MW-10	09-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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
(Duplicate)	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
MW-11	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	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
MW-12	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
	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25

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Table 4

Groundwater Analytical Results: Petroleum Hydrocarbons

PROJECT No.: 307076-06086		BTEX						Select Hydrocarbons		
Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m&p-Xylene (mg/L)	o-Xylene (mg/L)	Xylenes-Total (mg/L)	PHC F1 (C_6-C_{10}) (mg/L)	PHC F1 (C_6-C_{10}) - BTEX (mg/L)	PHC F2 (C_{10}-C_{16}) (mg/L)
Canadian Drinking Water AO Guidelines 2012 #1		---	0.024	0.0024	---	---	0.3	---	---	---
Canadian Drinking Water MAC Guidelines 2012 #2		0.005	---	---	---	---	---	---	---	---
MW-13	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
	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
QA/QC										
FIELD BLANK	05-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	< 0.00050	< 0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 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 #1 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 #2 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)

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Table 5

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 307076-06086

Monitoring Station	Date (dd-mmm-yyyy)	Dissolved Metals and Trace Elements																									
		Aluminum (Al) (mg/L)	Antimony (Sb) (mg/L)	Arsenic (As) (mg/L)	Barium (Ba) (mg/L)	Beryllium (Be) (mg/L)	Bismuth (Bi) (mg/L)	Boron (B) (mg/L)	Cadmium (Cd) (mg/L)	Chromium (Cr) (mg/L)	Cobalt (Co) (mg/L)	Copper (Cu) (mg/L)	Iron (Fe) (mg/L)	Lead (Pb) (mg/L)	Magnesium (Mg) (mg/L)	Manganese (Mn) (mg/L)	Mercury (Hg) (mg/L)	Molybdenum (Mo) (mg/L)	Nickel (Ni) (mg/L)	Selenium (Se) (mg/L)	Silver (Ag) (mg/L)	Strontium (Sr) (mg/L)	Thallium (Tl) (mg/L)	Tin (Sn) (mg/L)	Titanium (Ti) (mg/L)	Uranium (U) (mg/L)	Vanadium (V) (mg/L)	Zinc (Zn) (mg/L)
Canadian Drinking Water AO Guidelines 2012 #1		**0.1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1**	**0.3**	**---**	**---**	**0.05**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**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-01	07-Mar-2005	0.02	0.0008	0.0008	0.199	< 0.0005	< 0.00005	0.053	< 0.0001	0.0009	0.0017	< 0.0006	**1.02 #1**	0.0004	24.8	**0.605 #1**	< 0.0001	0.0007	0.0004	< 0.0004	< 0.0002	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	< 0.0004	0.0015	0.0007	**1.67 #1**	< 0.0001	26.9	**0.662 #1**	< 0.0001	0.0013	0.0012	< 0.0004	< 0.0002	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	0.0027	0.0008	< 0.0006	**1.81 #1**	< 0.0001	27.3	**0.7 #1**	< 0.0001	0.0004	< 0.0001	< 0.0004	< 0.0002	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	0.0011	0.0009	< 0.0006	**1.84 #1**	< 0.0001	26.1	**0.664 #1**	< 0.0001	0.0009	0.003	0.0005	< 0.0002	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	< 0.001	0.0009	< 0.0002	< 0.06	< 0.0002	23	**0.67 #1**	< 0.00005	0.0008	0.0027	< 0.001	< 0.0001	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	< 0.001	0.0008	0.0005	< 0.06	< 0.0002	24	**0.66 #1**	0.000001	0.0004	0.0009	< 0.0002	< 0.0001	---	< 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	< 0.0050	0.00088	< 0.0010	**2.02 #1**	< 0.00010	28.4	**0.730 #1**	< 0.00010	0.00046	0.0025	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00084	0.0017	**1.53 #1**	< 0.00010	25.4	**0.675 #1**	< 0.000020	0.00039	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00068	< 0.0010	**1.57 #1**	< 0.00010	23.7	**0.694 #1**	< 0.000020	0.000423	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00075	< 0.0010	**1.82 #1**	< 0.00010	26.2	**0.729 #1**	< 0.000020	0.000360	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00223	< 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	0.0013	0.0008	0.0015	0.275	0.0004	34.5	**0.236 #1**	0.0001	0.0046	< 0.0001	0.0008	< 0.0002	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	< 0.0004	0.0031	0.0021	0.085	< 0.0001	51.3	**0.671 #1**	< 0.0001	0.0148	0.0644	0.0006	< 0.0002	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	0.004	0.0031	0.0011	**3.19 #1**	< 0.0001	55.4	**1.09 #1**	< 0.0001	0.0009	0.0012	0.0005	< 0.0002	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	< 0.0004	0.0032	0.0007	**8.72 #1**	< 0.0001	54.4	**0.841 #1**	< 0.0001	0.0008	0.0055	< 0.0004	< 0.0002	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	0.004	0.0026	0.0005	< 0.06	0.0003	46	**0.7 #1**	< 0.00005	0.0006	0.0046	< 0.001	< 0.0001	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	< 0.001	0.0017	0.0002	**1.5 #1**	< 0.0002	44	**0.53 #1**	0.000001	0.0005	0.0019	< 0.0002	< 0.0001	---	< 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	< 0.0050	0.00157	< 0.0010	**9.35 #1**	< 0.00010	54.0	**0.505 #1**	< 0.00010	0.00041	0.0043	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00100	< 0.0010	**9.25 #1**	< 0.00010	51.3	**0.434 #1**	< 0.000020	0.00040	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00103	< 0.0010	**8.07 #1**	< 0.00010	44.8	**0.431 #1**	< 0.000020	0.000615	0.0027	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00072	< 0.0010	**12.3 #1**	< 0.00010	56.4	**0.554 #1**	< 0.000020	0.000324	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00102	< 0.00010	< 0.0030
MW-03	07-Mar-2005	< 0.01	0.0007	0.0012	0.0744	< 0.0005	< 0.00005	0.128	< 0.0001	0.0009	0.0012	< 0.0006	**3.19 #1**	< 0.0001	36.1	**0.264 #1**	< 0.0001	0.0008	< 0.0001	< 0.0004	< 0.0002	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	< 0.0004	0.0008	0.0008	**4.47 #1**	< 0.0001	36.4	**0.239 #1**	< 0.0001	0.0015	0.0003	0.0005	< 0.0002	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	< 0.00045	< 0.00005	0.109	< 0.0001	0.0029	0.0008	0.0007	**4.85 #1**	< 0.0001	36.6	**0.258 #1**	< 0.0001	0.0007	< 0.0001	0.0005	< 0.0002	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	0.0012	0.0008	< 0.0006	**4.89 #1**	0.0005	37.7	**0.249 #1**	0.00009	0.0029	< 0.00001	< 0.0002	< 0.0002	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	0.002	0.0008	0.0002	< 0.06	0.0002	32	**0.25 #1**	< 0.00005	0.0012	0.0042	< 0.001	< 0.0001	0.82	< 0.0002	< 0.001	0.002	0.0006	0.001	< 0.003
	21-Apr-2009	< 0.001	< 0.0002	0.0013	---	< 0.001	---	---	< 0.000005	< 0.001	0.0006	0.0007	< 0.06	< 0.0002	32	**0.24 #1**	0.000001	0.0007	0.001	< 0.0002	< 0.0001	---	< 0.0002	< 0.001	< 0.001	0.0006	< 0.001	< 0.003
	06-May-2010	< 0.0050	< 0.00040	0.00154	0.0380	< 0.00050	---	0.116	< 0.00010	< 0.0050	0.00076	< 0.0010	**5.23 #1**	< 0.00010	36.8	**0.253 #1**	< 0.00010	0.00079	0.0027	< 0.00040	< 0.00010	---	< 0.000050	---	0.00079	0.00056	0.00036	< 0.0020
	02-Jun-2011	< 0.0050	< 0.00040	0.00141	0.0389	< 0.00050	---	0.103	< 0.00010	< 0.0050	0.00061	< 0.0010	**5.55 #1**	< 0.00010	40.1	**0.277 #1**	< 0.000020	0.00056	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00058	< 0.00010	< 0.0020
	29-May-2012	< 0.0050	< 0.00040	0.00132	0.0350	< 0.00050	---	0.088	< 0.00010	< 0.0050	0.00062	< 0.0010	**4.83 #1**	< 0.00010	31.8	**0.246 #1**	< 0.000020	0.000535	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00051	< 0.00010	< 0.0030
	10-Jul-2013	< 0.0050	< 0.00040	0.00147	0.0431	< 0.00050	---	0.098	< 0.00010	< 0.0050	0.00073	< 0.0010	**5.36 #1**	< 0.00010	38.3	**0.274 #1**	< 0.000020	0.000682	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00064	< 0.00010	< 0.0030
MW-04	08-Mar-2005	< 0.01	0.0009	0.0011	0.0737	< 0.0005	< 0.00005	0.101	< 0.0001	0.0018	0.0007	0.0008	0.173	0.0002	37.7	**0.152 #1**	< 0.0001	0.0005	< 0.0001	0.0006	< 0.0002	0.561	< 0.0005	< 0.0002	0.0007	0.0029	< 0.0001	0.004
	17-Nov-2005	< 0.01	0.0007	0.0006	0.0809	< 0.0005	0.00007	0.093	< 0.0001	0.0007	0.0049	0.0012	0.104	< 0.0001	40	**0.053 #1**	0.0002	0.003	0.014	0.0009	< 0.0002	0.616	< 0.0001	< 0.0002	0.0004	0.0025	< 0.0001	0.029
(Duplicate)	17-Nov-2005	0.01	0.0006	0.0007	0.0817	< 0.0005	0.00005	0.097	< 0.0001	0.0009	0.0051	0.0012	0.105	< 0.0001	40.4	**0.053 #1**	0.0001	0.0028	0.0132	0.0009	< 0.0002	0.609	< 0.0001	< 0.0002	0.0004	0.0026	< 0.0001	0.032
	14-Jun-2006	< 0.01	0.0008	0.0006	0.764	< 0.0005	< 0.00005	0.092	< 0.0001	0.0017	< 0.0001	0.0009	0.005	< 0.0001	42.7	**0.13 #1**	< 0.0001	0.0005	0.0007	0.001	< 0.0002	0.585	< 0.00005	< 0.0002	0.0003	0.0028	0.0022	0.005
	13-Jul-2007	< 0.01	< 0.0004	0.0008	0.085	< 0.0005	< 0.00005	0.1	< 0.0001	0.0047	0.0001	< 0.0006	< 0.005	< 0.0001	43.6	0.009	0.0002	0.0005	0.0042	0.0006	< 0.0002	0.59	0.00024	< 0.0002	0.0004	0.0027	0.0009	0.005
	19-Dec-2007	< 0.001	< 0.0002	< 0.001	0.08	< 0.001	---	0.09	< 0.0002	0.001	< 0.0003	0.0006	< 0.06	0.0002	35	0.016	< 0.00005	0.0006	0.0052	< 0.001	< 0.0001	0.61	< 0.0002	< 0.001	0.002	0.0023	< 0.001	< 0.003
	21-Apr-2009	< 0.001	< 0.0002	< 0.0002	---	< 0.001	---	---	0.000024	< 0.001	< 0.0003	0.0009	< 0.06	< 0.0002	37	0.03	0.000003	0.0004	0.0021	< 0.0002	< 0.0001	---	< 0.0002	< 0.001	< 0.001	0.0029	< 0.001	< 0.003
	06-May-2010	< 0.0050	< 0.00040	0.00117	0.0843	< 0.00050	---	0.098	< 0.00010	< 0.0050	0.00054	< 0.0010	0.078	< 0.00010	44.0	**0.258 #1**	< 0.00010	0.00038	0.0047	0.00106	< 0.00010	---	< 0.000050	---	0.00046	0.00284	0.00072	< 0.0020
	07-Jun-2011	< 0.0050	< 0.00040	< 0.00040	0.0832	< 0.00050	---	0.090	< 0.00010	< 0.0050	0.00015	< 0.0010	0.028	< 0.00010	41.3	**0.114 #1**	< 0.000020	0.00038	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00333	< 0.00010	< 0.0020
	30-May-2012	0.0135	< 0.00040	0.00054	0.0954	< 0.00050	---	0.086	< 0.00010	< 0.0050	0.00088	< 0.0010	**1.47 #1**	< 0.00010	38.1	**0.722 #1**	< 0.000020	0.000398	0.0024	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00396	< 0.00010	< 0.0030
(Duplicate)	30-May-2012	0.0112	< 0.00040	0.00059	0.0967	< 0.00050	---	0.087	< 0.00010	< 0.0050	0.00088	< 0.0010	**1.73 #1**	< 0.00010	44.8	**0.861 #1**	< 0.000020	0.000326	0.0022	< 0.00040	< 0.00010	---	< 0.000050	---	0.00041	0.00404	< 0.00010	< 0.0030
	09-Jul-2013	< 0.0050	< 0.00040	0.00065	0.103	< 0.00050	---	0.091	< 0.00010	< 0.0050	0.00058	< 0.0010	**1.70 #1**	< 0.00010	44.0	**0.561 #1**	< 0.000020	0.000359	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00392	< 0.00010	< 0.0030
MW-05	08-Mar-2005	< 0.01	0.0008	0.0035	0.0618	< 0.0005	< 0.00005	0.14	< 0.0001	0.0009	0.0008	< 0.0006	**1.14 #1**	0.0002	27.5	**0.402 #1**	< 0.0001	0.0022	< 0.0001	0.0004	< 0.0002	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	< 0.0004	0.001	0.0007	**3.31 #1**	< 0.0001	30.1	**0.531 #1**	< 0.0001	0.0029	0.0022	0.0004	< 0.0002	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	0.0016	0.0007	0.0006	**3.48 #1**	< 0.0001	33.5	**0.583 #1**	< 0.0001	0.0013	0.0002	< 0.0004	< 0.0002	0.659	< 0.00005	< 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	0.0005	0.0008	0.0009	**4 #1**	< 0.0001	34.3	**0.682 #1**	< 0.0001	0.0006	0.0034	0.0005	< 0.0002	0.684	< 0.00005	< 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	0.003	0.0007	< 0.0002	< 0.06	0.0002	30	**0.66 #1**	< 0.00005	0.0005	0.0029	< 0.001	< 0.0001	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	< 0.001	0.0007	0.0008	< 0.06	< 0.0002	34	**0.72 #1**	0.000001	0.0006	0.0014	< 0.0002	< 0.0001	---	< 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	< 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	---	< 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	< 0.0050	0.00075	< 0.0010	**3.82 #1**	< 0.00010	32.7	**0.657 #1**	< 0.000020	0.00042	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00067	< 0.0010	**3.83 #1**	< 0.00010	31.3	**0.707 #1**	< 0.000020	0.000321	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00082	< 0.0010	**3.17 #1**	< 0.00010	33.5	**0.754 #1**	< 0.000020	0.000414	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00060	< 0.00010	0.0049
MW-06	08-Mar-2005	< 0.01	0.0009	0.0042	0.071	< 0.0005	< 0.00005	0.148	< 0.0001	0.0035	0.0012	0.0011	**2.92 #1**	0.0004	58.9	**1.32 #1**	< 0.0001	0.0014	< 0.0001	0.0005	< 0.0002	1.2	< 0.0005	< 0.0002	0.0008	0.0023	0.0002	0.004

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 307076-06086

Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (Al) (mg/L)	Antimony (Sb) (mg/L)	Arsenic (As) (mg/L)	Barium (Ba) (mg/L)	Beryllium (Be) (mg/L)	Bismuth (Bi) (mg/L)	Boron (B) (mg/L)	Cadmium (Cd) (mg/L)	Chromium (Cr) (mg/L)	Cobalt (Co) (mg/L)	Copper (Cu) (mg/L)	Iron (Fe) (mg/L)	Lead (Pb) (mg/L)	Magnesium (Mg) (mg/L)	Manganese (Mn) (mg/L)	Mercury (Hg) (mg/L)	Molybdenum (Mo) (mg/L)	Nickel (Ni) (mg/L)	Selenium (Se) (mg/L)	Silver (Ag) (mg/L)	Strontium (Sr) (mg/L)	Thallium (Tl) (mg/L)	Tin (Sn) (mg/L)	Titanium (Ti) (mg/L)	Uranium (U) (mg/L)	Vanadium (V) (mg/L)	Zinc (Zn) (mg/L)
Canadian Drinking Water AO Guidelines 2012 [#1]		**0.1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1**	**0.3**	**---**	**---**	**0.05**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**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**	**---**	**---**
	17-Nov-2005	0.01	0.0005	0.0038	0.0557	< 0.0005	0.00006	0.16	< 0.0001	< 0.0004	0.0012	0.0012	**2.96 [#1]**	< 0.0001	52	**0.943 [#1]**	< 0.0001	0.0015	0.0004	0.0005	< 0.0002	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	0.0015	0.0007	0.0014	**3.58 [#1]**	< 0.0001	57.7	**1.01 [#1]**	< 0.0001	0.0014	< 0.0001	0.0007	< 0.0002	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	0.0014	0.0009	0.0014	**4.5 [#1]**	< 0.0001	55.3	**1.28 [#1]**	< 0.0001	0.0016	0.006	< 0.0004	< 0.00021	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	0.002	0.0008	0.0011	< 0.06	0.0002	54	**1.5 [#1]**	< 0.00005	0.0012	0.0052	< 0.001	< 0.0001	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	< 0.001	0.0004	< 0.0002	**5.7 [#1]**	< 0.0002	62	**1.7 [#1]**	< 0.000001	0.001	0.0015	< 0.0002	< 0.0001	---	< 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	< 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	---	< 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	< 0.0050	0.00036	< 0.0010	**5.55 [#1]**	< 0.00010	60.4	**1.64 [#1]**	< 0.000020	0.00080	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00030	< 0.0010	**6.02 [#1]**	< 0.00010	56.5	**1.70 [#1]**	< 0.000020	0.000878	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00036	< 0.0010	**5.84 [#1]**	< 0.00010	55.2	**1.72 [#1]**	< 0.000020	0.00097	< 0.0020	< 0.00040	< 0.00010	---	< 0.00010	---	< 0.00060	0.00158	< 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	0.0017	0.0026	0.0024	**10.4 [#1]**	0.0004	100	**1.88 [#1]**	< 0.0001	0.001	< 0.0001	0.0008	< 0.0002	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	< 0.0004	0.002	0.0018	**10.9 [#1]**	< 0.0001	94.8	**1.83 [#1]**	< 0.0001	0.001	< 0.0001	< 0.0004	< 0.0002	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	0.0018	0.0012	0.0023	< 0.005	< 0.0001	96.4	**1.86 [#1]**	< 0.0001	0.0008	< 0.0001	0.0007	< 0.0002	2.58	< 0.00005	< 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	0.0011	0.0014	0.0015	**10.9 [#1]**	< 0.0001	89.8	**1.78 [#1]**	< 0.0001	0.0012	0.0056	0.0008	< 0.0002	2.49	< 0.00005	< 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	0.004	0.0013	0.0016	< 0.06	0.0003	72	**1.6 [#1]**	< 0.00005	0.0011	0.0059	< 0.001	< 0.0001	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	< 0.001	0.0013	0.0007	**14 [#1]**	< 0.0002	110	**2.3 [#1]**	< 0.000001	0.0004	0.0024	< 0.0002	< 0.0001	---	< 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	---	0.279	< 0.00010	< 0.0050	0.00128	0.0014	**12.5 [#1]**	< 0.00010	93.5	**1.90 [#1]**	< 0.00010	0.00097	0.0056	0.00127	< 0.00010	---	< 0.000050	---	0.00109	0.00156	< 0.00010	0.0057
	08-Jun-2011	< 0.0050	< 0.00040	0.00570	0.0954	< 0.00050	---	0.215	< 0.00010	< 0.0050	0.00116	< 0.0010	**8.26 [#1]**	< 0.00010	68.8	**1.21 [#1]**	< 0.000020	0.00151	0.0021	< 0.00040	< 0.00010	---	0.000071	---	0.00030	0.00138	< 0.00010	0.0050
	28-Jul-2011	< 0.0050	< 0.00040	0.00333	0.0483	---	---	0.262	< 0.00010	< 0.0050	---	< 0.0010	**11.7 [#1]**	< 0.00010	87.9	**1.84 [#1]**	< 0.000020	---	< 0.0020	< 0.00040	< 0.00010	---	---	---	---	0.00152	---	< 0.0030
	30-May-2012	0.0116	< 0.00040	0.00376	0.0544	< 0.00050	---	0.240	< 0.00010	< 0.0050	0.00104	< 0.0010	**11.3 [#1]**	< 0.00010	80.4	**1.79 [#1]**	< 0.000020	0.000974	0.0026	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00143	< 0.00010	< 0.0030
	11-Jul-2013	< 0.0050	< 0.00050	0.00382	0.0466	---	---	0.276	< 0.00010	< 0.0050	---	< 0.0010	**12.1 [#1]**	< 0.00025	82.4	**1.87 [#1]**	< 0.000020	---	< 0.0020	< 0.00050	< 0.00010	---	---	---	---	0.00140	---	< 0.0050
MW-08	09-Mar-2005	< 0.01	0.0006	0.0042	0.084	< 0.0005	< 0.00005	0.244	< 0.0001	0.0011	0.0008	0.001	**5.66 [#1]**	0.0004	45	**0.474 [#1]**	< 0.0001	0.0012	< 0.0001	0.0004	< 0.0002	1.4	< 0.0005	< 0.0002	0.0008	0.0011	< 0.0001	0.003
	15-Nov-2005	< 0.01	0.0005	0.0046	0.115	< 0.0005	0.00009	0.184	< 0.0001	0.0005	0.0009	0.001	**5.16 [#1]**	< 0.0001	37.4	**0.384 [#1]**	< 0.0001	0.0025	< 0.0001	0.0005	< 0.0002	1.27	< 0.0001	< 0.0002	0.001	0.0015	< 0.0001	< 0.002
	16-Jun-2006	< 0.01	0.0006	0.0044	0.0629	< 0.0005	< 0.00005	0.206	< 0.0001	0.0012	0.0004	0.0011	**6.97 [#1]**	< 0.0001	44.2	**0.481 [#1]**	< 0.0001	0.0011	< 0.0001	< 0.0004	< 0.0002	1.45	< 0.00005	< 0.0002	0.0008	0.0009	< 0.0001	0.006
	11-Jul-2007	< 0.01	0.0005	0.0052	0.0519	< 0.0005	< 0.00005	0.176	< 0.0001	0.0016	0.0005	0.0012	**7.29 [#1]**	< 0.0001	42.9	**0.454 [#1]**	< 0.0001	0.0016	0.0031	< 0.0004	< 0.0002	1.59	< 0.00005	< 0.0002	0.0012	0.0008	0.0004	0.004
	19-Dec-2007	< 0.001	< 0.0002	0.002	0.03	< 0.001	---	0.17	< 0.0002	0.003	0.0004	0.0006	< 0.06	0.0002	36	**0.44 [#1]**	< 0.00005	0.0014	0.0036	< 0.001	< 0.0001	1.4	< 0.0002	< 0.001	0.002	0.0008	0.001	< 0.003
	21-Apr-2009	< 0.001	< 0.0002	0.0062	---	< 0.001	---	---	< 0.000005	< 0.001	< 0.0003	0.0016	< 0.06	< 0.0002	40	**0.45 [#1]**	< 0.000001	0.002	0.0017	< 0.0002	< 0.0001	---	< 0.0002	< 0.001	< 0.001	0.0007	< 0.001	< 0.003
	05-May-2010	< 0.0050	< 0.00040	0.00672	0.0675	< 0.00050	---	0.179	< 0.00010	< 0.0050	0.00035	< 0.0010	**7.22 [#1]**	< 0.00010	43.2	**0.470 [#1]**	< 0.00010	0.00168	0.0027	< 0.00040	< 0.00010	---	< 0.000050	---	0.00094	0.00072	0.00017	0.0163
	07-Jun-2011	< 0.0050	< 0.00040	0.00667	0.0614	< 0.00050	---	0.180	< 0.00010	< 0.0050	0.00036	< 0.0010	**5.41 [#1]**	< 0.00010	38.3	**0.411 [#1]**	< 0.000020	0.00154	0.0025	0.00159	< 0.00010	---	< 0.000050	---	0.00144	0.00080	0.00018	0.0116
	30-May-2012	0.0104	< 0.00040	0.00600	0.0499	< 0.00050	---	0.154	< 0.00010	< 0.0050	0.00018	< 0.0010	**6.69 [#1]**	< 0.00010	35.0	**0.409 [#1]**	< 0.000020	0.00137	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00069	< 0.00010	0.0042
	09-Jul-2013	< 0.0050	< 0.00040	0.00767	0.0639	< 0.00050	---	0.163	< 0.00010	< 0.0050	0.00018	< 0.0010	**6.47 [#1]**	< 0.00010	40.4	**0.415 [#1]**	< 0.000020	0.00175	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00067	< 0.00010	< 0.0030
MW-09	09-Mar-2005	**0.14 [#1]**	0.0007	0.0019	0.0608	< 0.0005	< 0.00005	0.339	< 0.0001	0.0016	0.0011	0.001	**1.11 [#1]**	0.0001	26	**0.714 [#1]**	< 0.0001	0.0019	0.0002	< 0.0004	< 0.0002	0.843	< 0.0005	< 0.0002	0.0058	0.0019	0.0005	0.003
(Duplicate)	09-Mar-2005	**0.12 [#1]**	0.0007	0.0019	0.0616	< 0.0005	< 0.00005	0.332	< 0.0001	0.0012	0.0012	0.001	**1.07 [#1]**	0.0003	27.9	**0.705 [#1]**	< 0.0001	0.0019	0.0002	< 0.0004	< 0.0002	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	0.0006	0.0023	0.0011	**1.4 [#1]**	< 0.0001	27.3	**0.752 [#1]**	< 0.0001	0.0038	0.0087	0.0005	< 0.0002	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	0.0013	0.0011	0.0012	**1.44 [#1]**	< 0.0001	27.7	**0.797 [#1]**	< 0.0001	0.0015	< 0.0001	< 0.0004	< 0.0002	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	0.0016	0.0009	0.0008	**1.74 [#1]**	< 0.0001	27.6	**0.785 [#1]**	< 0.0001	0.0017	0.003	< 0.0004	< 0.0002	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	< 0.001	0.0009	0.0008	< 0.06	< 0.0002	22	**0.77 [#1]**	< 0.00005	0.0018	0.0023	< 0.001	< 0.0001	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	< 0.001	0.0008	0.0003	**1.9 [#1]**	< 0.0002	27	**0.86 [#1]**	< 0.000001	0.0016	0.0017	< 0.0002	< 0.0001	---	< 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	< 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	---	< 0.000050	---	0.00078	0.00121	< 0.00010	< 0.0020
(Duplicate)	06-May-2010	< 0.0050	< 0.00040	0.00257	0.0247	< 0.00050	---	0.261	< 0.00010	< 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	---	< 0.000050	---	0.00077	0.00120	< 0.00010	0.0020
	02-Jun-2011	< 0.0050	< 0.00040	0.00280	0.0294	< 0.00050	---	0.255	< 0.00010	< 0.0050	0.00128	< 0.0010	**1.46 [#1]**	< 0.00010	25.2	**0.754 [#1]**	< 0.000020	0.00156	< 0.0020	< 0.00040	0.00013	---	< 0.000050	---	< 0.00030	0.00132	0.00012	0.0020
(Duplicate)	02-Jun-2011	< 0.0050	< 0.00040	0.00272	0.0296	< 0.00050	---	0.237	< 0.00010	< 0.0050	0.00126	< 0.0010	**1.29 [#1]**	< 0.00010	26.0	**0.773 [#1]**	< 0.000020	0.00152	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00128	0.00015	< 0.0020
	29-May-2012	0.0112	< 0.00040	0.00234	0.0209	< 0.00050	---	0.226	< 0.00010	< 0.0050	0.00080	< 0.0010	**1.89 [#1]**	< 0.00010	23.7	**0.784 [#1]**	< 0.000020	0.00143	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00138	< 0.0010	**1.94 [#1]**	< 0.00010	26.8	**0.842 [#1]**	< 0.000020	0.00154	< 0.0020	< 0.00040	< 0.00010	---	< 0.00010	---	< 0.00060	0.00138	< 0.00020	< 0.0030
MW-10	09-Mar-2005	< 0.01	0.0007	0.003	0.0296	< 0.0005	< 0.00005	0.209	< 0.0001	0.0012	0.0003	0.0007	**5.29 [#1]**	0.0004	36.1	**0.639 [#1]**	< 0.0001	0.0009	< 0.0001	< 0.0004	< 0.0002	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	< 0.0004	0.0005	0.0009	**5.49 [#1]**	< 0.0001	35.2	**0.642 [#1]**	< 0.0001	0.001	< 0.0001	0.0006	< 0.0002	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	0.0011	0.0003	0.0009	**5.89 [#1]**	< 0.0001	37.8	**0.67 [#1]**	< 0.0001	0.0009	< 0.0001	< 0.0004	< 0.0002	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	0.0015	0.0004	0.0008	**5.93 [#1]**	< 0.0001	36.9	**0.656 [#1]**	< 0.0001	0.0009	0.003	< 0.0004	< 0.0002	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	< 0.001	0.0005	0.0006	< 0.06	< 0.0002	29	**0.64 [#1]**	< 0.00005	0.0011	0.0029	< 0.001	< 0.0001	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	< 0.001	< 0.0003	0.0006	**5.9 [#1]**	< 0.0002	36	**0.71 [#1]**	< 0.000001	0.0009	0.001	< 0.0002	< 0.0001	---	< 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	< 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	---	< 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	< 0.0050	0.00031	< 0.0010	**3.89 [#1]**	< 0.00010	30.2	**0.566 [#1]**	< 0.000020	0.00481	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00032	< 0.0010	**5.98 [#1]**	< 0.00010	31.6	**0.655 [#1]**	< 0.000020	0.000884	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00113	< 0.00010	< 0.0030

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 307076-06086

Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (Al) (mg/L)	Antimony (Sb) (mg/L)	Arsenic (As) (mg/L)	Barium (Ba) (mg/L)	Beryllium (Be) (mg/L)	Bismuth (Bi) (mg/L)	Boron (B) (mg/L)	Cadmium (Cd) (mg/L)	Chromium (Cr) (mg/L)	Cobalt (Co) (mg/L)	Copper (Cu) (mg/L)	Iron (Fe) (mg/L)	Lead (Pb) (mg/L)	Magnesium (Mg) (mg/L)	Manganese (Mn) (mg/L)	Mercury (Hg) (mg/L)	Molybdenum (Mo) (mg/L)	Nickel (Ni) (mg/L)	Selenium (Se) (mg/L)	Silver (Ag) (mg/L)	Strontium (Sr) (mg/L)	Thallium (Tl) (mg/L)	Tin (Sn) (mg/L)	Titanium (Ti) (mg/L)	Uranium (U) (mg/L)	Vanadium (V) (mg/L)	Zinc (Zn) (mg/L)
Canadian Drinking Water AO Guidelines 2012 [#1]		**0.1**	---	---	---	---	---	---	---	---	---	**1**	**0.3**	---	---	**0.05**	---	---	---	---	---	---	---	---	---	---	---	---	**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**	---	---
	09-Jul-2013	< 0.0050	< 0.00040	0.00485	0.0295	< 0.00050	---	0.162	< 0.00010	< 0.0050	0.00032	< 0.0010	**6.11** [#1]	< 0.00010	37.3	**0.729** [#1]	< 0.000020	0.000870	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00116	< 0.00010	< 0.0030
(Duplicate)	09-Jul-2013	< 0.0050	< 0.00040	0.00479	0.0293	< 0.00050	---	0.159	< 0.00010	< 0.0050	0.00031	< 0.0010	**6.03** [#1]	< 0.00010	36.7	**0.710** [#1]	< 0.000020	0.000863	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00115	< 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	0.0011	0.0006	< 0.0006	**6.89** [#1]	< 0.0001	45.8	**0.668** [#1]	< 0.0001	0.001	< 0.0001	< 0.0004	< 0.0002	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	0.0006	0.0007	0.0009	**6.95** [#1]	< 0.0001	42.5	**0.628** [#1]	< 0.0001	0.0009	< 0.0001	< 0.0004	< 0.0002	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	0.0013	0.0003	0.0009	**7.23** [#1]	< 0.0001	45.7	**0.659** [#1]	< 0.0001	0.0006	< 0.0001	0.0004	< 0.0002	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	< 0.0005	< 0.00005	0.186	< 0.0001	0.0016	0.0004	< 0.0006	**7.15** [#1]	< 0.0001	45.3	**0.632** [#1]	< 0.0001	0.0007	0.0027	< 0.0004	< 0.0002	1.35	< 0.00005	< 0.0002	0.0024	0.0011	0.0004	< 0.002
	18-Dec-2007	< 0.001	< 0.0002	< 0.001	0.03	< 0.001	---	0.18	< 0.0002	< 0.001	0.0006	0.0008	< 0.06	< 0.0002	38	**0.61** [#1]	< 0.00005	0.001	0.0027	< 0.001	< 0.0001	1.1	< 0.0002	< 0.001	0.003	0.0013	< 0.001	< 0.003
	22-Apr-2009	< 0.001	< 0.0002	0.0024	---	< 0.001	---	---	0.000009	< 0.001	0.0004	0.0007	**7** [#1]	< 0.0002	45	**0.67** [#1]	0.000001	0.0007	0.0008	< 0.0002	< 0.0001	---	< 0.0002	< 0.001	< 0.001	0.001	< 0.001	< 0.003
	05-May-2010	< 0.0050	< 0.00040	0.00259	0.0396	< 0.00050	---	0.189	< 0.00010	< 0.0050	0.00047	< 0.0010	**7.61** [#1]	< 0.00010	45.9	**0.663** [#1]	< 0.00010	0.00072	0.0027	< 0.00040	< 0.00010	---	< 0.000050	---	0.00102	0.00100	< 0.00010	0.0023
	02-Jun-2011	< 0.0050	< 0.00040	0.00239	0.0423	< 0.00050	---	0.199	< 0.00010	< 0.0050	0.00047	0.0017	**6.99** [#1]	< 0.00010	46.4	**0.687** [#1]	< 0.000020	0.00061	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00109	0.00010	0.0105
	30-May-2012	0.0106	< 0.00040	0.00232	0.0386	< 0.00050	---	0.161	< 0.00010	< 0.0050	0.00038	< 0.0010	**6.82** [#1]	< 0.00010	38.7	**0.605** [#1]	< 0.000020	0.000669	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00100	< 0.00010	< 0.0030
	10-Jul-2013	< 0.0050	< 0.00040	0.00260	0.0424	< 0.00050	---	0.173	< 0.00010	< 0.0050	0.00036	< 0.0010	**7.52** [#1]	< 0.00010	44.7	**0.697** [#1]	< 0.000020	0.000700	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00116	< 0.00010	< 0.0030
MW-12	10-Mar-2005	< 0.01	0.0008	0.0022	0.153	< 0.0005	< 0.00005	0.234	< 0.0001	0.0038	0.0008	< 0.0006	**2.78** [#1]	0.0004	27.9	**0.365** [#1]	< 0.0001	0.0015	< 0.0001	< 0.0004	< 0.0002	0.915	< 0.0005	< 0.0002	0.0011	0.001	< 0.0001	0.01
	16-Nov-2005	< 0.01	0.0005	0.0026	0.182	< 0.0005	0.00006	0.282	< 0.0001	< 0.0004	0.001	0.0008	**3.37** [#1]	< 0.0001	28.5	**0.402** [#1]	< 0.0001	0.0013	< 0.0001	< 0.0004	< 0.0002	0.903	< 0.0001	< 0.0002	0.0008	0.0011	< 0.0001	< 0.002
	16-Jun-2006	< 0.01	0.0006	0.0023	0.178	< 0.0005	< 0.00005	0.251	< 0.00012	0.0016	0.0007	< 0.0006	**3.76** [#1]	< 0.0001	29.1	**0.436** [#1]	< 0.0001	0.0012	< 0.0001	< 0.0004	< 0.0002	0.925	< 0.00005	< 0.0002	0.0008	0.001	< 0.0001	0.007
	11-Jul-2007	< 0.01	0.0005	0.0025	0.146	< 0.0005	< 0.00005	0.233	< 0.001	0.0015	0.0012	< 0.0006	**3.77** [#1]	< 0.0001	29.2	**0.422** [#1]	< 0.0001	0.0017	0.0033	< 0.0004	< 0.0002	0.972	< 0.00005	< 0.0002	0.0007	0.0009	0.0004	0.004
	18-Dec-2007	< 0.001	< 0.0002	0.002	0.1	< 0.001	---	0.22	< 0.0002	< 0.001	0.0007	< 0.0002	< 0.06	< 0.0002	23	**0.4** [#1]	0.00007	0.0014	0.0021	< 0.001	< 0.0001	0.84	< 0.0002	< 0.001	0.002	0.0011	< 0.001	< 0.003
	22-Apr-2009	< 0.001	< 0.0002	0.0026	---	< 0.001	---	---	0.000006	< 0.001	0.0006	0.0008	**4.1** [#1]	< 0.0002	29	**0.45** [#1]	0.000001	0.0012	0.0012	< 0.0002	< 0.0001	---	< 0.0002	< 0.001	< 0.001	0.0008	< 0.001	< 0.003
	06-May-2010	< 0.0050	< 0.00040	0.00285	0.143	< 0.00050	---	0.242	< 0.00010	< 0.0050	0.00065	< 0.0010	**4.24** [#1]	< 0.00010	30.2	**0.456** [#1]	< 0.00010	0.00115	0.0022	< 0.00040	< 0.00010	---	< 0.000050	---	0.00081	0.00083	< 0.00010	< 0.0020
	02-Jun-2011	< 0.0050	< 0.00040	0.00199	0.130	< 0.00050	---	0.244	< 0.00010	< 0.0050	0.00043	< 0.0010	**3.34** [#1]	< 0.00010	30.9	**0.450** [#1]	< 0.000020	0.00102	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00087	< 0.00010	0.0021
	30-May-2012	0.0146	< 0.00040	0.00267	0.112	< 0.00050	---	0.219	< 0.00010	< 0.0050	0.00046	< 0.0010	**4.14** [#1]	< 0.00010	25.6	**0.435** [#1]	< 0.000020	0.00121	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00085	< 0.00010	< 0.0030
	10-Jul-2013	< 0.0050	< 0.00040	0.00285	0.143	< 0.00050	---	0.227	< 0.00010	< 0.0050	0.00045	< 0.0010	**3.99** [#1]	< 0.00010	28.9	**0.457** [#1]	< 0.000020	0.00115	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00094	< 0.00010	< 0.0030
MW-13	10-Mar-2005	< 0.01	0.0008	0.0012	0.389	< 0.0005	< 0.00005	0.258	< 0.0001	0.0048	0.0008	< 0.0006	**0.818** [#1]	0.0002	16.5	**0.263** [#1]	< 0.0001	0.0023	0.0009	< 0.0004	< 0.0002	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	0.0007	0.0033	0.0007	**1.08** [#1]	0.0002	16.2	**0.243** [#1]	0.0001	0.0027	0.0015	0.0005	< 0.0002	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	0.0011	0.0007	< 0.0006	**1.19** [#1]	< 0.0001	17.1	**0.256** [#1]	< 0.0001	0.0021	< 0.0001	< 0.0004	< 0.0002	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	0.0016	0.0009	< 0.0006	**1.26** [#1]	< 0.0001	16.9	**0.252** [#1]	< 0.0001	0.0023	0.0022	< 0.0004	< 0.0002	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	< 0.001	0.0009	< 0.0002	< 0.06	< 0.0002	14	**0.25** [#1]	0.00007	0.0028	0.0016	< 0.001	< 0.0001	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	< 0.001	0.0007	0.0003	**1.3** [#1]	< 0.0002	17	**0.26** [#1]	< 0.000001	0.0022	0.0012	< 0.0002	< 0.0001	---	< 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	< 0.0050	0.00092	< 0.0010	**1.45** [#1]	< 0.00010	16.4	**0.249** [#1]	< 0.00010	0.00219	0.0021	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00062	< 0.0010	**1.25** [#1]	< 0.00010	15.3	**0.231** [#1]	< 0.000020	0.00194	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00065	< 0.0010	**1.33** [#1]	< 0.00010	14.4	**0.238** [#1]	< 0.000020	0.00180	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	0.00128	< 0.0010	**1.17** [#1]	< 0.00010	16.2	**0.252** [#1]	< 0.000020	0.00484	0.0112	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00075	< 0.00010	< 0.0030
QA/QC																													
FIELD BLANK	05-May-2010	< 0.0050	< 0.00040	< 0.00040	< 0.0050	< 0.00050	---	< 0.050	< 0.00010	< 0.0050	< 0.00010	< 0.0010	< 0.020	< 0.00010	< 0.10	< 0.0050	< 0.00010	< 0.00010	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 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	< 0.0050	< 0.00010	< 0.0010	< 0.020	< 0.00010	< 0.10	< 0.0050	< 0.000020	< 0.00010	< 0.0020	< 0.00040	< 0.00010	---	< 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	< 0.0050	< 0.00010	< 0.0010	< 0.010	< 0.00010	< 0.10	< 0.0020	< 0.000020	< 0.000050	< 0.0020	< 0.00040	< 0.00010	---	< 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 [#1] 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 [#2] 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)

Table 6

Groundwater Analytical Results: Volatile Organic Compounds (VOCs)

PROJECT No.: 307076-06086		Styrene	Phenols
Monitoring Station	Date (dd-mmm-yyyy)	Styrene (mg/L)	Phenols (mg/L)
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	< 0.0010
	25-May-2011	< 0.0010	< 0.0010
	29-May-2012	---	< 0.0010
	10-Jul-2013	---	< 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	< 0.0010
	25-May-2011	< 0.0010	< 0.0010
	30-May-2012	---	< 0.0010
	10-Jul-2013	---	< 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	< 0.0010
	02-Jun-2011	< 0.0010	< 0.0010
	29-May-2012	---	< 0.0010
	10-Jul-2013	---	< 0.0010
MW-04	08-Mar-2005	---	< 0.001
	17-Nov-2005	---	< 0.001
(Duplicate)	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	< 0.0010
	07-Jun-2011	< 0.0010	< 0.0010
	30-May-2012	---	< 0.0010
(Duplicate)	30-May-2012	---	< 0.0010
	09-Jul-2013	---	< 0.0010
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

Table 6

Groundwater Analytical Results: Volatile Organic Compounds (VOCs)

PROJECT No.: 307076-06086		Styrene	Phenols
Monitoring Station	Date (dd-mmm-yyyy)	Styrene (mg/L)	Phenols (mg/L)
	29-Apr-2010	< 0.0010	< 0.0010
	25-May-2011	< 0.0010	< 0.0010
	29-May-2012	---	< 0.0010
	08-Jul-2013	---	< 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	< 0.0010
	07-Jun-2011	< 0.0010	< 0.0010
	29-May-2012	---	< 0.0010
	08-Jul-2013	---	< 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	< 0.0010
	08-Jun-2011	< 0.0010	0.0020
	28-Jul-2011	< 0.0010	< 0.0010
	30-May-2012	---	< 0.0010
	11-Jul-2013	---	0.0017
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	< 0.0010
	07-Jun-2011	< 0.0010	0.0016
	30-May-2012	---	< 0.0010
	09-Jul-2013	---	< 0.0010
MW-09	09-Mar-2005	---	< 0.001
(Duplicate)	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	< 0.0010
(Duplicate)	06-May-2010	< 0.0010	< 0.0010
	02-Jun-2011	< 0.0010	< 0.0010
(Duplicate)	02-Jun-2011	< 0.0010	< 0.0010
	29-May-2012	---	< 0.0010
	10-Jul-2013	---	< 0.0010
MW-10	09-Mar-2005	---	< 0.001

Table 6

Groundwater Analytical Results: Volatile Organic Compounds (VOCs)

PROJECT No.: 307076-06086		Styrene	Phenols
Monitoring Station	Date (dd-mmm-yyyy)	Styrene (mg/L)	Phenols (mg/L)
	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	< 0.0010
	02-Jun-2011	< 0.0010	0.0018
	30-May-2012	---	< 0.0010
	09-Jul-2013	---	< 0.0010
(Duplicate)	09-Jul-2013	---	< 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	< 0.0010
	02-Jun-2011	< 0.0010	< 0.0010
	30-May-2012	---	< 0.0010
	10-Jul-2013	---	< 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	< 0.0010
	02-Jun-2011	< 0.0010	< 0.0010
	30-May-2012	---	< 0.0010
	10-Jul-2013	---	< 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	< 0.0010
	02-Jun-2011	< 0.0010	< 0.0010
	30-May-2012	---	< 0.0010
	10-Jul-2013	---	< 0.0010
QA/QC			
FIELD BLANK	05-May-2010	< 0.0010	< 0.0010
	25-May-2011	< 0.0010	< 0.0010
	09-Jul-2013	---	< 0.0010

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

Figures

340000 360000 380000

5960000

Twp. 57 Twp. 56 Twp. 55 Twp. 54

N

Bon Accord
Gibbons
Goose Hummock Golf Resort
STURGEON COUNTY
Range Road 215
Range Road 216
Astotin Creek
Broederheim
Star
LAMONT COUNTY
Lamont
743 m
Dow Chemical Industrial Complex
EDMONTON INTERNATIONAL AIRPORT
STRATHCONA COUNTY
Fort Saskatchewan
Range Road 210A
I. D. NO. 13 (ELK ISLAND)
Manning Dr
Range Road 222
28
38
45
15

EDMONTON
STUDY AREA
CALGARY

National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, iPC

Rge. 25 Rge. 24 Rge. 23 Rge. 22 Rge. 21 Rge. 20 Rge. 19

Study Area
County Boundaries

0 5 10 15
Kilometres
1:150,000
NAD 1983 UTM Zone 12N

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

SITE LOCATION

OneWay to zero harm

Date: 28-AUG-13	Drawn by: P.K.	Edited by: .	App'd by: .

WorleyParsons resources & energy

WorleyParsons Project No. 307076 - 06086 - 100

FIG No 1 REV A

PLOT DATE & TIME: never never
SAVE DATE & TIME: 28/08/2013 10:11:02 AM
USER NAME: peter.kasanchuk
ISSUING OFFICE: EDMONTON GIS

FILE LOCATION: Q:\GBS\NCIA\307076_06086\MXDs\307076_06086-WR-FIG-1_site_location.mxd

FILE LOCATION: Q:\GBS\NCIA\307076_06086\MXDs\307076_06086-WR-FIG-2_well_locations.mxd

PLOT DATE & TIME: never never
SAVE DATE & TIME: 14/08/2013 11:31:18 AM
USER NAME: peter.kasianchuk
ISSUING OFFICE: EDMONTON GIS

360000

6080000

5960000

5940000

Twp. 57

Twp. 56

Twp. 55

Twp. 54

Twp. 53

Rge. 23

Rge. 22

Rge. 21

Rge. 20

N

MW-12
MW-13
MW-11
MW-10
MW-09
MW-08
MW-07
MW-06
MW-05
MW-04
MW-03
MW-01
MW-02

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

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

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

MONITORING WELL LOCATIONS

OneWay to zero harm

Date:	Drawn by:	Edited by:	App'd by:
14-AUG-13	P.K.	.	.

WorleyParsons resources & energy

WorleyParsons Project No.: 307076 - 06086 - 100

FIG No: 2

REV: A

FILE LOCATION: Q:\GBS\NCIA\307076_06086\MXDs\307076_06086-WR-FIG-3_flow_contours.mxd

PLOT DATE & TIME: never never
SAVE DATE & TIME: 28/08/2013 10:14:36 AM
USER NAME: peter.kasianchuk
ISSUING OFFICE: EDMONTON GIS

360000
6000000
5980000
5960000
5940000
Twp. 57
Twp. 56
Twp. 55
Twp. 54
Twp. 53
Rge. 23
Rge. 22
Rge. 21
Rge. 20
N

MW-13 (593.79)
MW-12 (593.25)
MW-11 (594.90)
MW-10 (597.94)
MW-09 (596.56)
MW-08 (598.81)
MW-07 (597.42)
MW-06 (598.22)
MW-05 (599.83)
MW-04 (602.25)
MW-03 (602.19)
MW-02 (604.26)
MW-01 (603.63)

594
595
596
597
598
599
600
601
602
603
604

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

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

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

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

GROUNDWATER SURFACE ELEVATIONS, JULY 2013

Date: 28-AUG-13	Drawn by: P.K.	Edited by: .	App'd by: .

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WorleyParsons Project No. 307076 - 06086 - 100

FIG No 3

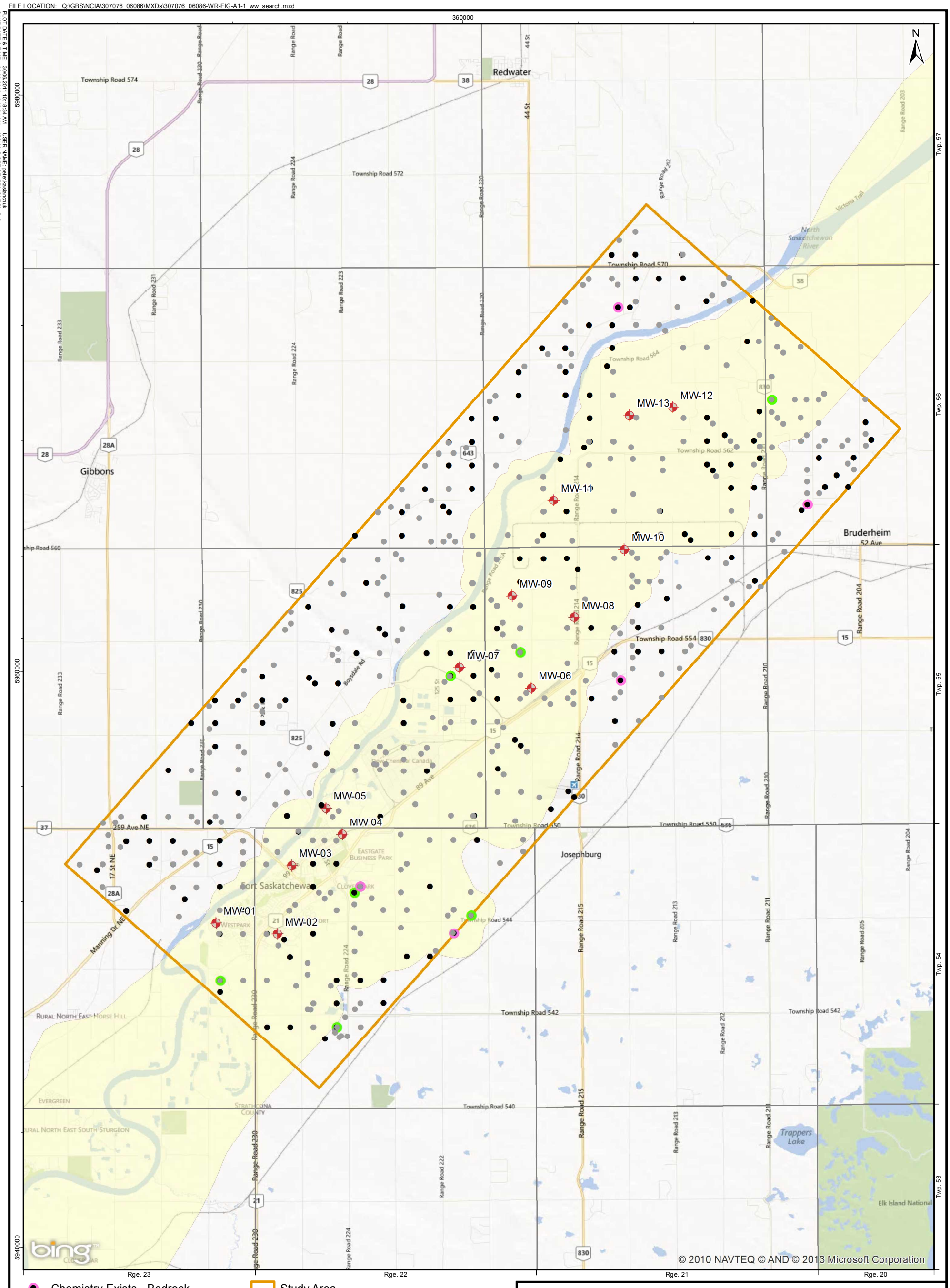
REV A

Appendices

Appendix 1 Water Well Records

FILE LOCATION: Q:\GBS\NCIA\307076_06086\MXDs\307076_06086-WR-FIG-A1-1_ww_search.mxd

PLOT DATE & TIME: 30/08/2011 10:18:34 AM USER NAME: peter.kasianchuk
SAVE DATE & TIME: 28/08/2013 10:12:24 AM ISSUING OFFICE: EDMONTON GIS



- 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
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

WATER WELL RECORDS WITHIN THE STUDY AREA

Date: 28-AUG-13	Drawn by: P.K.	Edited by: .	App'd by: .

OneWay to zero harm

WorleyParsons resources & energy

WorleyParsons Project No. 307076 - 06086 - 100

FIG No A1 - 1 | REV A

WorleyParsons
resources & energy

Appendix 1

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
		LSD	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																Unknown	Unknown	No Chemistry
3	0261198	SE	07	055	22	4	1.8													HERDER, H		Chemistry	Hand Dug	Chemistry Exists
4	0261609	10	18	055	22	4	792.5											11/08/1953		MID-WESTERN #10-18		Oil Exploratory	Unknown	No Chemistry
5	0261734	04	27	055	22	4	256.3											22/05/1953		IMPERIAL OIL LTD #AO282-6		Oil Exploratory	Unknown	No Chemistry
6	0261824	04	34	055	22	4	295.7											22/05/1953		IMPERIAL OIL LTD #AO282 4		Oil Exploratory	Unknown	No Chemistry
7	0261829	01	03	056	22	4	268.2											13/05/1953		IMPERIAL OIL LTD #AO190-173		Oil Exploratory	Unknown	No Chemistry
8	0261847	04	36	055	22	4	299.0											21/05/1953		IMPERIAL OIL LTD		Oil Exploratory	Unknown	No Chemistry
9	0263716	16	12	056	21	4	42.7							34.1	35.7			17/11/1975		BRUDERHEIM, TOWN OF #15-75		Unknown	Unknown	No Chemistry
10	0268139	SE	01	055	23	4	0.0															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														TOTAL E& P CANADA LTD				No Chemistry
15	2093231	1	35	56	21	4														AMEC EARTH & ENVIRONMENTAL				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														AMEC EARTH & ENVIRONMENTAL				No Chemistry
21	0261191	SE	07	055	22	4	6.1													HERDER, H	Contamination Invest.	Chemistry	Hand Dug	Chemistry Exists
22	1270077	07	10	055	22	4	21.6							17.1	20.1			25/05/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Drilled	No Chemistry
23	1270078	07	10	055	22	4	24.7							19.2	22.3			25/05/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Drilled	No Chemistry
24	1270079	07	10	055	22	4	27.1							20.7	23.8			26/05/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
25	1270080	07	10	055	22	4	24.4							18.9	21.9			27/05/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
26	1270081	07	10	055	22	4	29.6							22.3	25.3			27/05/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
27	1270082	07	10	055	22	4	28.3							22.6	25.6			28/05/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
28	1270083	07	10	055	22	4	28.0							22.6	25.6			23/06/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
29	1270084	07	10	055	22	4	30.5							24.1	27.4			25/06/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
30	1270085	07	10	055	22	4	24.7							20.7	23.8			24/06/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
31	1270086	07	10	055	22	4	13.4							10.1	11.6			29/09/1998		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
32	1320051	1	35	56	21	4	11.9							8.5	10.1			04/11/2008		AMEC EARTH & ENVIRONMENTAL	Dewatering	New Well	Bored	No Chemistry
33	0040488	SE	19	055	21	4	13.4											02/02/1970		HEARTLAND PROPERTIES	Domestic	Old Well-Abandoned	Not Applicable	No Chemistry
34	0040835	NW	03	057	21	4	18.3	12.2	18.3									22/08/2001		LANE, COLLEEN	Domestic	New Well	Rotary	No Chemistry
35	0083363	06	05	055	21	4	35.1													WESTMAN, F.W.	Domestic	Chemistry	Drilled	Chemistry Exists
36	0083364	12	05	055	21	4	24.4											01/01/1920		COATTA, E.J.	Domestic	Federal Well Survey	Bored	No Chemistry
37	0083365	09	05	055	21	4	4.3													PICKETT, JACK	Domestic	Chemistry	Unknown	Chemistry Exists
38	0083367	NW	06	055	21	4	64.0											03/08/1979		GAUF, ROD	Domestic	New Well	Rotary	No Chemistry
39	0083368	NE	06	055	21	4	18.3													SCHNEIDER, EARL A.	Domestic	Chemistry	Bored	Chemistry Exists
40	0083372	SW	07	055	21	4	39.6													NEWMAN, WILBERT	Domestic	Chemistry	Drilled	Chemistry Exists
41	0083373	09	07	055	21	4	30.5													MELTON, OTIS	Domestic	Chemistry	Drilled	Chemistry Exists
42	0083374	12	07	055	21	4	24.4											01/01/1920		THORNE, A.	Domestic	Federal Well Survey	Drilled	No Chemistry
43	0083375	NW	07	055	21	4	54.9	48.8	54.9									12/09/1987		FINCH, E.	Domestic	New Well	Cable Tool	No Chemistry
44	0083376	NW	07	055	21	4	9.1													FINCH, EDWARD	Domestic	Chemistry	Drilled	Chemistry Exists
45	0083377	NE	07	055	21	4	9.1													ENGLISH, LESLIE	Domestic	Chemistry	Unknown	Chemistry Exists
46	0083379	15	07	055	21	4	81.1													GEISLINGER, W.	Domestic	Chemistry	Unknown	Chemistry Exists
47	0083383	NE	09	055	21	4	0.0													EDE, W.	Domestic	Chemistry	Unknown	No Chemistry
48	0083417	SW	15	055	21	4	54.9	48.8	54.9									08/06/1989		WHELAN, JAMES	Domestic	New Well	Rotary	No Chemistry
49	0083418	NE	15	055	21	4	91.4													ANWEILER, SAL	Domestic	Chemistry	Unknown	Chemistry Exists
50	0083419	NW	16	055	21	4	56.4													KREBS, BERNARD	Domestic	Chemistry	Unknown	Chemistry Exists
51	0083423	11	17	055	21	4	21.3							20.1	21.3			09/04/1985		CNR	Domestic	New Well	Rotary	No Chemistry
52	0083425	NE	17	055	21	4	82.3	70.1	82.3									17/08/1983		SCOTFORD COLONY	Domestic	New Well	Rotary	No Chemistry
53	0083426	NE	17	055	21	4	79.2													SCOTFORD HUTTERITE BRETHREN	Domestic	Chemistry	Unknown	Chemistry Exists
54	0083428	NE	17	055	21	4	36.6													SCOTFORD COLONY	Domestic	Chemistry	Unknown	Chemistry Exists
55	0083439	SW	18	055	21	4	45.7													DUECK, MICHAEL	Domestic	Chemistry	Unknown	No Chemistry
56	0083440	NW	18	055	21	4	5.5													MAGEE, GARY	Domestic	Chemistry	Unknown	Chemistry Exists
57	0083447	05	19	055	21	4	46.9													DZURNY, EMIL	Domestic	Chemistry	Unknown	Chemistry Exists
58	0083448	NW	19	055	21	4	6.1												01/01/2001	BACHLEITNER, CATHY	Domestic	Chemistry	Hand Dug	Chemistry Exists
59	0083449	NE	19	055	21	4	39.6							36.6	38.1			23/07/1975	01/01/2001	EDE, WILLAM	Domestic	New Well	Rotary	Chemistry Exists
60	0083450	NE	19	055	21	4	61.0													OLSON, FRED	Domestic	Chemistry	Unknown	Chemistry Exists
61	0083451	NE	19	055	21	4	40.2							34.7	40.2			10/10/1981		EDE, W.J.	Domestic	New Well	Rotary	No Chemistry
62	0083452	NE	19	055	21	4	48.8													ENOS, AL	Domestic	Chemistry	Drilled	Chemistry Exists
63	0083453	NE	19	055	21	4	39.0													NEBEL, ROBERT	Domestic	Chemistry	Drilled	Chemistry Exists
64	0083455	15	19	055	21	4	11.6							10.1	11.3			11/05/1978		NEBEL, ROBERT	Domestic	New Well	Rotary	No Chemistry
65	0083458	NE	19	055	21	4	18.3													NYHUIS, ALBERT	Domestic	Chemistry	Hand Dug	Chemistry Exists
66	0083460	NE	19	055	21	4	9.1													DOIGE, J.F.	Domestic	Chemistry	Unknown	Chemistry Exists
67	0083461	NE	19	055	21	4	50.3													CAMERON, ED	Domestic	Chemistry	Unknown	Chemistry Exists
68	0083462	SE	20	055	21	4	99.4													CNR#BEAMER SPUR	Domestic	Chemistry	Unknown	Chemistry Exists
69	0083463	SE	20	055	21	4	0.0													CNR#SCOTFORD YARD	Domestic	Chemistry	Unknown	No Chemistry
70	0083467	NE	21	055	21	4	76.2													SCOTFORD HUTTERITE COLONY	Domestic	Chemistry	Unknown	Chemistry Exists
71	0083470	NW	22	055	21	4	64.0													LARSEN, SVEND	Domestic	Chemistry	Drilled	Chemistry Exists
72	0083471	NW	22	055	21	4	54.9													LARSEN, HELEN	Domestic	Chemistry	Unknown	Chemistry Exists
73	0083473	NE	22	055	21	4	18.3													CHERNICHAN, JOHN	Domestic	Chemistry	Bored	Chemistry Exists
74	0083500	SW	27	055	21	4	0.0													CHOLOWSKI, ALBERT	Domestic	Chemistry	Unknown	No Chemistry
75	0083501	SW	27	055	21	4	67.1													CHIPCHASE, G.	Domestic	Chemistry	Unknown	Chemistry Exists
76	0083502	NW	27	055	21	4	42.7													MILLWARD, DONALD	Domestic	Chemistry	Unknown	Chemistry Exists
77	0083503	NW	27	055	21	4	42.7													MILLWARD, DONALD	Domestic	Chemistry	Unknown	Chemistry Exists
78	0083505	SE	28	055	21	4	38.7													ROYCE, SIDNEY	Domestic	Chemistry	Drilled	Chemistry Exists
79	0083506	SE	28	055	21	4	24.4													ROYCE, SIDNEY	Domestic	Chemistry	Unknown	No Chemistry
80	0083510	SE	30	055	21	4	9.8													WATERS, DEAN	Domestic	Chemistry	Unknown	Chemistry Exists
81	0083511	SE	30	055	21	4	7.6												01/01/2001	DOCKSTEADER, ILEF	Domestic	Chemistry	Hand Dug	Chemistry Exists

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
82	0083512	SE	30	055	21	4	9.1													HARBOWAY, M.	Domestic	Chemistry	Hand Dug	Chemistry Exists
83	0083513	SE	30	055	21	4	14.3											15/02/1970		BALIMORE, WESLY	Domestic	New Well	Bored	No Chemistry
84	0083514	SE	30	055	21	4	6.1													ORDELL, RICHARD	Domestic	Chemistry	Unknown	Chemistry Exists
85	0083516	SE	30	055	21	4	12.2													WATERS, DEAN	Domestic	Chemistry	Drilled	Chemistry Exists
86	0083517	SE	30	055	21	4	45.7													WOUDENBURG, MARY	Domestic	Chemistry	Unknown	Chemistry Exists
87	0083518	SW	30	055	21	4	6.1											12/12/1968		DAYTON, GEORGE	Domestic	Chemistry	Bored	Chemistry Exists
88	0083519	SW	30	055	21	4	6.7													DEMEULE, LORETTA	Domestic	Chemistry	Hand Dug	Chemistry Exists
89	0083520	06	30	055	21	4	41.1							39.6	41.1			08/08/1984		MOSER, GEORGETTE	Domestic	New Well	Rotary	No Chemistry
90	0083521	03	30	055	21	4	13.4											02/02/1970		YARSHUK, PETE	Domestic	New Well	Bored	No Chemistry
91	0083522	SW	30	055	21	4	10.7													WIEBE, G.	Domestic	Chemistry	Unknown	Chemistry Exists
92	0083523	SW	30	055	21	4	9.1													DEMEULE, N.E.	Domestic	Chemistry	Drilled	Chemistry Exists
93	0083524	NW	30	055	21	4	6.7													BAKER, I.H.	Domestic	Chemistry	Drilled	Chemistry Exists
94	0083525	NW	30	055	21	4	7.3													LINING, DALE	Domestic	Chemistry	Bored	Chemistry Exists
95	0083526	NW	30	055	21	4	7.3													FRANCOUER, LARRY	Domestic	Chemistry	Unknown	Chemistry Exists
96	0083527	NW	30	055	21	4	9.1													BECK, LINDA	Domestic	Chemistry	Unknown	Chemistry Exists
97	0083528	NW	30	055	21	4	12.2													FRANCOUER, LARRY	Domestic	Chemistry	Drilled	Chemistry Exists
98	0083529	NW	30	055	21	4	9.8											30/11/1965		YANCHUK, PETE	Domestic	New Well	Bored	No Chemistry
99	0083531	NW	30	055	21	4	12.2											06/02/1970		YARSHUK, PETER	Domestic	New Well	Bored	No Chemistry
100	0083532	13	30	055	21	4	8.5											12/02/1970	01/01/2001	YARSHUK, PETER	Domestic	New Well	Bored	No Chemistry
101	0083533	SE	31	055	21	4	41.1													PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
102	0083534	NE	31	055	21	4	39.6													PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
103	0083536	NW	32	055	21	4	39.6													PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
104	0083537	NW	32	055	21	4	39.6													PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
105	0083538	NW	32	055	21	4	45.7													PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
106	0083544	NE	32	055	21	4	46.3													VISSCHER, D.	Domestic	Chemistry	Unknown	Chemistry Exists
107	0083548	SW	34	055	21	4	15.2													RADKE, JAMES	Domestic	Chemistry	Drilled	Chemistry Exists
108	0083549	04	34	055	21	4	12.2											26/08/1975		RADKE, BEN	Domestic	New Well	Bored	No Chemistry
109	0083551	SW	34	055	21	4	0.0													RADKE	Domestic	Chemistry	Unknown	No Chemistry
110	0083552	05	34	055	21	4	35.1							32.0	35.1			09/02/1986		RADKE, J./ R.	Domestic	New Well	Rotary	No Chemistry
111	0083554	NW	34	055	21	4	18.3													PICKARD, WAYNE	Domestic	Chemistry	Drilled	Chemistry Exists
112	0083556	NW	34	055	21	4	39.6							34.4	36.0			01/10/1970		FISHER, GEORGE P.	Domestic	New Well	Rotary	No Chemistry
113	0083560	NW	34	055	21	4	42.7							36.6	42.7			14/08/1989		DAOUST, C.	Domestic	New Well	Rotary	No Chemistry
114	0083561	NE	34	055	21	4	30.5							28.3	29.9			05/06/1968		BERG, ALFRED	Domestic	New Well	Rotary	No Chemistry
115	0083564	NE	35	55	21	4	12.8													CHARBONNEAU, MARCEL	Domestic	Chemistry	Drilled	Chemistry Exists
116	0083570	SE	36	055	21	4	18.3													NAVRATIL, JOHN	Domestic	Chemistry	Bored	Chemistry Exists
117	0083571	SE	36	055	21	4	15.2													WIENS, LORI	Domestic	Chemistry	Unknown	Chemistry Exists
118	0083572	SW	36	055	21	4	39.6	37.8	39.6									07/04/1988		UNITED GRAIN GROWERS LTD	Domestic	New Well	Cable Tool	No Chemistry
119	0083573	NW	36	055	21	4	12.2													PROKOPCZAK, DAVID	Domestic	Chemistry	Unknown	Chemistry Exists
120	0083656	SE	16	055	21	4	48.2													RIETVELD, LEENDERT	Domestic	Chemistry	Drilled	Chemistry Exists
121	0090354	SE	27	055	21	4	54.9	39.0	42.7									01/08/1972		CHOLOWSKI, ALBERT	Domestic	New Well	Rotary	No Chemistry
122	0091494	04	06	056	20	4	6.1													SAMPERT, T.	Domestic	Federal Well Survey	Hand Dug	No Chemistry
123	0091496	SW	06	056	20	4	3.0													THORNE, KEITH	Domestic	Chemistry	Unknown	No Chemistry
124	0091498	NE	06	056	20	4	91.4													SCHRAM, GEORGE	Domestic	Chemistry	Unknown	Chemistry Exists
125	0091502	09	07	056	20	4	9.1													DRIESNER, D.	Domestic	Federal Well Survey	Bored	No Chemistry
126	0091504	SW	08	056	20	4	23.8													SCHRAM, ED	Domestic	Chemistry	Unknown	Chemistry Exists
127	0091506	16	08	056	20	4	75.0											15/11/1961		FREY, BERT W.	Domestic	New Well	Rotary	Chemistry Exists
128	0091507	NE	08	056	20	4	5.5													FREY, B.	Domestic	Chemistry	Unknown	No Chemistry
129	0091508	09	08	056	20	4	12.2											01/01/1920		FREY, J.	Domestic	Federal Well Survey	Bored	No Chemistry
130	0091550	SW	16	056	20	4	6.1													ROSNAU, N.	Domestic	Chemistry	Unknown	Chemistry Exists
131	0091553	12	16	056	20	4	19.5											20/03/1985		NEAVE, JOHN	Domestic	New Well	Bored	Chemistry Exists
132	0091554	02	17	056	20	4	34.1											06/05/1981		SAMPERT, RAY	Domestic	New Well	Bored	No Chemistry
133	0091558	SE	18	056	20	4	5.8													MCLELLAN, ARTHUR	Domestic	Chemistry	Unknown	Chemistry Exists
134	0091559	SE	18	056	20	4	6.7													MCLELLAN, ARTHUR	Domestic	Chemistry	Hand Dug	Chemistry Exists
135	0091561	SE	18	056	20	4	33.5											17/12/1981		MCLELLAN, ARTHUR L.	Domestic	New Well	Cable Tool	No Chemistry
136	0091562	SE	18	56	20	4	67.1											07/10/2000		HELMER, MURIEL/ABNER	Domestic	Old Well-Test	Not Applicable	Chemistry Exists
137	0091562	SE	18	56	20	4	67.1	61.0	67.1									31/12/1981		MCLELLAN, ARTHUR	Domestic	New Well	Rotary	Chemistry Exists
138	0091564	04	18	056	20	4	0.0													STELTER, A.	Domestic	Federal Well Survey	Hand Dug	No Chemistry
139	0091565	NW	18	056	20	4	12.2													SERINK, W.	Domestic	Chemistry	Bored	Chemistry Exists
140	0091566	11	18	056	20	4	14.9											17/06/1979		SERINK, W.	Domestic	New Well	Bored	No Chemistry
141	0091572	04	19	056	20	4	44.2											23/09/1978		SERINK, BILL	Domestic	New Well	Rotary	No Chemistry
142	0091573	12	19	056	20	4	10.4											01/07/1974		MATTHEWS, BILL	Domestic	New Well	Bored	Chemistry Exists
143	0100929	SW	08	056	20	4	7.9													SCHRAM, ED	Domestic	Chemistry	Hand Dug	Chemistry Exists
144	0100930	SE	08	056	20	4	9.1													KRAUSE, F.	Domestic	Chemistry	Unknown	Chemistry Exists
145	0100931	00	08	056	20	4	17.1													INKSTER, COLIN	Domestic	Chemistry	Unknown	Chemistry Exists
146	0100932	NE	08	056	20	4	19.5											14/07/1973		INKSTER, COLIN	Domestic	New Well	Bored	No Chemistry
147	0100943	SW	16	056	20	4	62.5	56.4	62.5									01/11/1973		ROSNAU, NEIL	Domestic	New Well	Cable Tool	Chemistry Exists
148	0100944	SW	16	056	20	4	93.0													ROSNAU, NEIL	Domestic	Chemistry	Unknown	Chemistry Exists
149	0100945	SW	16	056	20	4	24.7													BOWES, GEORGE	Domestic	Chemistry	Unknown	Chemistry Exists
150	0100946	SW	16	056	20	4	28.7											18/10/1977		ROSNAU, WESLEY	Domestic	New Well	Bored	Chemistry Exists
151	0100947	SW	20	056	20	4	45.7													BETTAC, E.	Domestic	Chemistry	Unknown	Chemistry Exists
152	0100948	SW	20	056	20	4	45.7													WATSON, D.	Domestic	Chemistry	Unknown	No Chemistry
153	0150309	SE	29	055	22	4	91.4											25/01/1990		GROOT, DON	Domestic	New Well	Combination	No Chemistry
154	0152373	WH	08	056	21	4	25.0											26/06/1990		MASCHMEYER, RAY	Domestic	New Well	Rotary	No Chemistry
155	0153167	SE	22	055	21	4	48.8							41.1	42.7			20/07/1990		POULIN, RODGER	Domestic	New Well	Rotary	No Chemistry
156	0154895	NW	16	055	21	4	48.8	42.7	48.8									13/10/1990		KREBS, BERNARD L.	Domestic	New Well	Rotary	No Chemistry
157	0156817	NW	07	054	22	4	67.1													ALLEN, GERALD	Domestic	Chemistry	Unknown	No Chemistry
158	0156870	NW	16	055	21	4	74.7													KREBS, BERNARD L.	Domestic	Chemistry	Rotary	Chemistry Exists
159	0156871	SE	30	055	21	4	9.8													HONISCH, VERNON	Domestic	Chemistry	Not Applicable	No Chemistry
160	0156872	SW	01	055	22	4	0.0													THEROUX, CHRIS	Domestic	Chemistry	Not Applicable	No Chemistry
161	0156874	00	20	055	22	4	8.5													LAMOUREUX, JOHN C./CRAIG, RAY	Domestic	Chemistry	Not Applicable	No Chemistry
162	0157040	NW	01	056	21	4	11.0													CHOLOWSKI, TOM	Domestic	Chemistry	Hand Dug	No Chemistry

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
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	8.2	14.6									10/07/1991		GODBOUT, 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													SOWDEN, HELEN	Domestic	Chemistry	Not Applicable	No Chemistry
170	0160801	SE	16	054	22	4	5.5													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	0166298	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	0169284	08	14	055	22	4	40.5							37.8	39.3			02/10/1992		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												01/01/2001	G&J 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	0196672	SE	08	056	20	4	6.1													ALEXANDER, BOB	Domestic	Chemistry	Unknown	No Chemistry
191	0208911	SE	16	056	21	4	11.9	4.6	11.3									25/09/1992		HENKELMAN, PERCY	Domestic	New Well	Bored	No Chemistry
192	0224564	SE	18	056	20	4	42.7							35.4	41.5			09/10/1993		MCLELLAN, ART	Domestic	New Well	Rotary	No Chemistry
193	0225468	10	08	054	22	4	14.9	7.3	8.5	10.1	14.6							26/08/1993		HESKE, GERRY	Domestic	New Well	Bored	No Chemistry
194	0225474	09	08	054	22	4	14.9	6.1	12.2									27/08/1993		CLARK, DARCY	Domestic	New Well	Bored	No Chemistry
195	0231919	NW	13	054	23	4	31.7							29.3	31.7			20/12/1977		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									26/01/1994	01/01/2001	LEUENG, DALE	Domestic	New Well	Rotary	No Chemistry
197	0240644	NE	08	054	22	4	64.0	57.9	64.0									16/03/1994		GETSON, DON	Domestic	New Well	Cable Tool	No Chemistry
198	0240722	09	08	054	22	4	14.9	4.6	10.7									22/10/1993		MRASEK, DAVID	Domestic	New Well	Bored	No Chemistry
199	0240723	09	08	054	22	4	14.9	5.5	11.6									01/10/1993		BALANKO, RON	Domestic	New Well	Bored	No Chemistry
200	0241116	10	08	054	22	4	14.9	4.9	12.2									13/05/1994		BOWES, MURRAY	Domestic	New Well	Bored	No Chemistry
201	0260033	NE	07	054	22	4	59.7											01/01/1958		GALLOWAY, K.	Domestic	New Well	Cable Tool	Chemistry Exists
202	0260035	NW	08	054	22	4	61.0	48.8	57.9									22/09/1983		CHIMERA, WALTER	Domestic	New Well	Cable Tool	Chemistry Exists
203	0260037	NE	08	054	22	4	73.5											01/10/1973		GYDISH, ROBERT	Domestic	New Well	Cable Tool	Chemistry Exists
204	0260038	NE	08	054	22	4	73.2	47.5	73.2									08/03/1974		RAFUSE, A.J.	Domestic	New Well	Cable Tool	No Chemistry
205	0260039	NE	08	054	22	4	8.5											01/04/1971		SWANSON, K.	Domestic	New Well	Bored	No Chemistry
206	0260045	NE	08	054	22	4	73.2	45.7	73.2									16/06/1972		KALISTA, M.J.	Domestic	New Well	Cable Tool	Chemistry Exists
207	0260046	NE	08	054	22	4	9.1											28/08/1978		TOMPLINS, D.	Domestic	New Well	Bored	Chemistry Exists
208	0260048	NE	08	054	22	4	8.8											06/09/1979		THOME, MIKE	Domestic	New Well	Bored	No Chemistry
209	0260052	NE	08	054	22	4	9.1											27/10/1980		KROENTING, GREG	Domestic	New Well	Bored	Chemistry Exists
210	0260054	NE	08	054	22	4	10.1											30/04/1984		KENSON HLDG	Domestic	New Well	Bored	No Chemistry
211	0260058	NE	08	054	22	4	11.9											28/05/1986		HESKE, GERRY	Domestic	New Well	Bored	Chemistry Exists
212	0260171	SE	16	054	22	4	61.0	54.9	61.0									03/11/1988		BONOWICZ, JOE	Domestic	New Well	Cable Tool	Chemistry Exists
213	0260194	NW	21	054	22	4	70.1	61.0	68.6									03/04/1985		GRAYMAN, LYLE	Domestic	New Well	Cable Tool	No Chemistry
214	0260203	NW	23	054	22	4	46.9	22.6	46.0									17/04/1984		MCEACHERN, MEL	Domestic	New Well	Rotary	Chemistry Exists
215	0260225	SW	27	54	22	4	50.3	33.5	47.2									20/12/1969		SHAREK, TONY	Domestic	New Well	Rotary	No Chemistry
216	0260227	NE	27	054	22	4	61.9	24.4	61.0									11/04/1967		SIMMONS, HECTOR	Domestic	New Well	Rotary	Chemistry Exists
217	0260229	NW	28	054	22	4	47.5											29/02/1960		DAVIS, DON	Domestic	New Well	Rotary	No Chemistry
218	0260230	NW	28	054	22	4	73.2	67.1	71.9									12/08/1976		ROBERT, VICTOR	Domestic	New Well	Rotary	Chemistry Exists
219	0260232	NW	28	054	22	4	27.4											20/08/1960		SNEDSTEAD	Domestic	New Well	Drilled	No Chemistry
220	0260233	NW	28	054	22	4	30.5											25/09/1960		STARK, R.	Domestic	New Well	Drilled	No Chemistry
221	0260234	NW	28	054	22	4	60.0											06/05/1970		PIERCE, E.	Domestic	New Well	Rotary	Chemistry Exists
222	0260235	NW	28	054	22	4	30.5											17/09/1959		BOHNET, HANS	Domestic	New Well	Rotary	Chemistry Exists
223	0260236	NW	28	054	22	4	30.5											07/10/1960		PETROSKI CONTRACTING	Domestic	New Well	Drilled	No Chemistry
224	0260237	NW	28	054	22	4	30.5											19/01/1961		WETZTREN, M.	Domestic	New Well	Cable Tool	Chemistry Exists
225	0260366	NW	28	054	22	4	76.8											26/10/1977		SHEPPARD, JOHN	Domestic	New Well	Rotary	No Chemistry
226	0260369	12	28	054	22	4	32.3							28.3	29.3			02/07/1959		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											30/05/1968		KREBS, DON	Domestic	New Well	Rotary	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													BARTELL, RICHARD	Domestic	Chemistry	Unknown	Chemistry Exists
233	0260447	NW	35	054	22	4	48.2											01/01/1912		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			01/10/1977		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			23/03/1978		PESKLEVIS, ALBERT	Domestic	New Well	Rotary	Chemistry Exists
239	0260972	NW	13	054	23	4	32.0							29.3	32.0			29/05/1979		KIEL, RUDY	Domestic	New Well	Rotary	Chemistry Exists
240	0260980	NW	13	054	23	4	31.7											04/07/1979		SIGURDSON, HOWARD	Domestic	New Well	Rotary	Chemistry Exists
241	0260987	NW	13	054	23	4	42.7							29.9	31.4			04/11/1980		MITCHELL, DOUGLAS B.	Domestic	New Well	Rotary	No Chemistry
242	0260996	NW	13	054	23	4	36.6													BERG, AARON	Domestic	Chemistry	Unknown	Chemistry Exists
243	0261001	NW	13	054	23	4	32.0							29.0	32.0			24/04/1980		BERG, AARON	Domestic	New Well	Rotary	No Chemistry

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
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	79.2													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	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	0261368	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, RALPH/TABLER, PAUL	Domestic	New Well	Cable Tool	No Chemistry
289	0261567	SE	25	054	23	4	6.4													FT SASK LANDFILL #OBS 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		FYITH, 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	03	21	055	22	4	91.4	79.2	91.4									08/04/1986		COURCHESNE, L E	Domestic	New Well	Rotary	Chemistry Exists
311	0261646	16	21	055	22	4	61.0											18/12/1962		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									26/11/1981		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	30.5													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

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
325	0261716	NE	25	055	22	4	61.0													GAUMONT, M	Domestic	Chemistry	Unknown	Chemistry Exists
326	0261726	NW	26	055	22	4	54.9											01/01/1963		JIGOLYK, L.	Domestic	Chemistry	Unknown	Chemistry Exists
327	0261729	SE	27	055	22	4	6.1													BELAIR, R	Domestic	Chemistry	Unknown	Chemistry Exists
328	0261731	SE	27	055	22	4	96.0	50.3	96.0									14/10/1986		BELAIR, R	Domestic	New Well	Rotary	No Chemistry
329	0261737	SE	28	055	22	4	0.0													SAWCHUK, J	Domestic	Chemistry	Unknown	Chemistry Exists
330	0261738	NW	28	055	22	4	50.9											30/04/1965		GOUTBECK, P.	Domestic	New Well	Rotary	Chemistry Exists
331	0261742	SE	01	055	23	4	0.0													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
332	0261744	SE	01	055	23	4	0.0													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
333	0261745	SE	01	055	23	4	15.2													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
334	0261746	NW	28	055	22	4	30.5													BOHNET, H	Domestic	Chemistry	Drilled	Chemistry Exists
335	0261748	SE	01	055	23	4	15.2													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
336	0261750	NW	28	055	22	4	0.0													VAN BOOM, H.	Domestic	Chemistry	Unknown	Chemistry Exists
337	0261752	SE	01	055	23	4	94.5	61.0	94.5									01/09/1984		SERNA, VICTOR	Domestic	New Well	Rotary	Chemistry Exists
338	0261757	SE	01	055	23	4	48.8											21/08/1984		SERNA, VICTOR	Domestic	Dry Hole	Rotary	No Chemistry
339	0261759	SE	01	055	23	4	80.5											20/08/1984		SERNA, VICTOR	Domestic	Dry Hole	Rotary	No Chemistry
340	0261764	SW	01	055	23	4	24.4													PARADIS, F.	Domestic	Chemistry	Drilled	Chemistry Exists
341	0261769	SE	02	055	23	4	24.4													PARADIS, NORMAN	Domestic	Chemistry	Unknown	Chemistry Exists
342	0261771	SE	02	055	23	4	22.9													PARADIS, NORMAN	Domestic	Chemistry	Drilled	Chemistry Exists
343	0261813	SE	33	055	22	4	42.7													ALLISON, G	Domestic	Chemistry	Unknown	Chemistry Exists
344	0261820	SE	34	055	22	4	9.4													JIGOLYK, H.	Domestic	Chemistry	Unknown	Chemistry Exists
345	0261823	SH	34	055	22	4	9.8													CARROLL, T	Domestic	Chemistry	Unknown	Chemistry Exists
346	0261827	NE	34	055	22	4	45.7													HOLMES, S	Domestic	Chemistry	Drilled	Chemistry Exists
347	0261828	NE	34	055	22	4	39.6	27.4	39.6											HOLMES, R	Domestic	New Well	Cable Tool	No Chemistry
348	0261830	NW	35	055	22	4	49.7													DOSHEWNEK, G	Domestic	Chemistry	Drilled	Chemistry Exists
349	0261845	NW	35	055	22	4	51.8							24.4	42.7			12/05/1983		SYVENKY, P.	Domestic	New Well	Rotary	No Chemistry
350	0262011	02	33	054	23	4	37.5													STRAUSS, HOWARD	Domestic	Chemistry	Unknown	Chemistry Exists
351	0262057	SE	34	054	23	4	29.6													BLOWER, JERRY	Domestic	Chemistry	Bored	Chemistry Exists
352	0262061	SE	34	054	23	4	22.6											20/06/1975		NEWMAN, NELSON	Domestic	New Well	Bored	Chemistry Exists
353	0262070	SE	34	054	23	4	0.0													THIMER, ERIC	Domestic	Chemistry	Unknown	Chemistry Exists
354	0262074	SE	34	054	23	4	61.0													MARSH, JEROME L	Domestic	Chemistry	Rotary	Chemistry Exists
355	0262083	NW	34	054	23	4	76.2													MELNYCHUK, GEORGE G	Domestic	Chemistry	Drilled	Chemistry Exists
356	0262104	NW	34	054	23	4	24.4													PARADIS, GILBERT	Domestic	Chemistry	Unknown	Chemistry Exists
357	0262109	NE	34	054	23	4	61.0													MELNYCHUK, GEORGE G	Domestic	Chemistry	Unknown	Chemistry Exists
358	0262113	SE	35	054	23	4	76.2													DEVEREUX, J.R.	Domestic	Chemistry	Unknown	Chemistry Exists
359	0262141	SW	01	055	23	4	19.8											10/07/1920		PARDIS, W.	Domestic	Federal Well Survey	Backhoe	No Chemistry
360	0262261	SW	35	054	23	4	30.5													GAUMONT, P	Domestic	Chemistry	Unknown	Chemistry Exists
361	0262265	SW	35	054	23	4	28.3													KJENNER, GEORGE	Domestic	Chemistry	Drilled	Chemistry Exists
362	0262271	SW	35	054	23	4	16.8													L. PETERSON DEV LTD	Domestic	Chemistry	Hand Dug	Chemistry Exists
363	0262278	SW	35	054	23	4	21.3													L. PETERSON DEV LTD	Domestic	Chemistry	Hand Dug	Chemistry Exists
364	0262285	SW	35	054	23	4	36.6													HANES, ALBERT	Domestic	Chemistry	Unknown	Chemistry Exists
365	0262292	SW	35	054	23	4	42.7													HOFFSTETER, B.	Domestic	Chemistry	Unknown	Chemistry Exists
366	0262296	SW	35	054	23	4	25.9													HOFFSTETER, BEN	Domestic	Chemistry	Bored	Chemistry Exists
367	0262305	SW	35	054	23	4	31.1													FEDORAK, J	Domestic	Chemistry	Unknown	Chemistry Exists
368	0262314	SW	35	054	23	4	30.5													PALTZAT, MARVIN	Domestic	Chemistry	Bored	Chemistry Exists
369	0262324	SW	35	054	23	4	25.0											09/09/1980		BURAK, FRED	Domestic	New Well	Bored	Chemistry Exists
370	0262332	SW	35	054	23	4	54.9	42.7	54.9									07/06/1978		HORNES, ALBERT	Domestic	New Well	Rotary	No Chemistry
371	0262356	NW	35	054	23	4	19.8											01/08/1976		L. PETERSON DEV LTD	Domestic	Chemistry	Bored	Chemistry Exists
372	0262366	00	35	054	23	4	16.8													PALZAT, M.	Domestic	Chemistry	Drilled	No Chemistry
373	0262369	SE	36	054	23	4	80.5	73.2	79.2									03/11/1977		MAYRHUT, JAMES	Domestic	New Well	Rotary	No Chemistry
374	0262385	NW	36	054	23	4	20.1													NYHUIS, ALBERT	Domestic	Chemistry	Unknown	Chemistry Exists
375	0262393	NE	36	054	23	4	13.1											15/08/1986		GAUMONT, EMIL	Domestic	New Well	Bored	No Chemistry
376	0262397	NE	36	054	23	4	12.2													SEVNE, GEORGE	Domestic	Chemistry	Unknown	No Chemistry
377	0262468	SW	12	055	23	4	21.3											01/05/1968		STRAUSS, L.	Domestic	New Well	Rotary	Chemistry Exists
378	0262511	SE	13	055	23	4	13.4													COURCHESNE, RAY	Domestic	Chemistry	Drilled	Chemistry Exists
379	0263303	SE	01	056	21	4	12.2													GUENETTE, D	Domestic	Chemistry	Bored	Chemistry Exists
380	0263308	SW	01	056	21	4	14.0													TARON, D.E.	Domestic	Chemistry	Drilled	Chemistry Exists
381	0263315	SW	01	056	21	4	36.6													OLD, R/C	Domestic	Chemistry	Unknown	Chemistry Exists
382	0263327	SW	02	056	21	4	10.7													HALABEY, A	Domestic	Chemistry	Bored	Chemistry Exists
383	0263334	03	02	056	21	4	118.9											09/07/1965		HALABEY, ALEX	Domestic	New Well	Drilled	Chemistry Exists
384	0263375	SW	03	056	21	4	6.4											01/01/1973		HANNERMAN, R	Domestic	Chemistry	Unknown	Chemistry Exists
385	0263380	NE	03	056	21	4	39.6													VELTMAN, H	Domestic	Chemistry	Unknown	Chemistry Exists
386	0263474	SW	05	056	21	4	16.8													REED, D	Domestic	Chemistry	Drilled	Chemistry Exists
387	0263484	04	05	056	21	4	8.5											28/01/1970		YARSHUK, P	Domestic	New Well	Bored	No Chemistry
388	0263489	NW	13	054	23	4	33.5							30.8	32.3			05/02/1987		DOREJKO, GERRY	Domestic	New Well	Rotary	No Chemistry
389	0263492	NW	05	056	21	4	42.7											12/01/1961	28/02/1974	CHOLOWSKI, R.	Domestic	Old Well-Abandoned	Drilled	No Chemistry
390	0263502	NW	13	054	23	4	34.1							32.3	33.8			05/05/1981		NISBET, BOB	Domestic	New Well	Rotary	No Chemistry
391	0263525	NE	05	056	21	4	6.1													CHOLOWSKI, R.	Domestic	Chemistry	Bored	Chemistry Exists
392	0263543	NE	05	056	21	4	4.9													CHOLOWSKI, R.	Domestic	Chemistry	Unknown	Chemistry Exists
393	0263560	SW	08	056	21	4	48.8											01/04/1973		KOFLUK, D	Domestic	New Well	Rotary	Chemistry Exists
394	0263579	SW	08	056	21	4	25.0							22.9	24.4			11/11/1966		MASCHMEYER, R	Domestic	New Well	Rotary	No Chemistry
395	0263583	15	08	056	21	4	11.6													BRODIE, H.L.	Domestic	Chemistry	Unknown	Chemistry Exists
396	0263592	SW	09	056	21	4	0.0													LECHENKO #3 DRINKING WELL	Domestic	Chemistry	Unknown	Chemistry Exists
397	0263595	NE	11	056	21	4	64.6													NAURATIL, J	Domestic	Chemistry	Drilled	Chemistry Exists
398	0263633	09	11	056	21	4	10.7													NAVRATIL, J	Domestic	Chemistry	Bored	Chemistry Exists
399	0263640	NE	11	056	21	4	43.3							41.1	42.4			17/08/1984		ANDRUCHOW, E	Domestic	New Well	Rotary	Chemistry Exists
400	0263645	NE	11	056	21	4	36.6													O'BRIEN, N	Domestic	Chemistry	Unknown	Chemistry Exists
401	0263651	NE	11	056	21	4	18.0											20/06/1986		BREIT, E	Domestic	New Well	Backhoe	Chemistry Exists
402	0263676	SE	12	056	21	4	7.9													ESCH, G	Domestic	Chemistry	Hand Dug	Chemistry Exists
403	0263683	SE	12	056	21	4	91.4	79.2	91.4									05/11/1981		ESCH, G	Domestic	New Well	Rotary	No Chemistry
404	0263697	SE	12	056	21	4	0.0													MIZERA, T.	Domestic	Chemistry	Unknown	Chemistry Exists
405	0263707	SW	12	056	21	4	61.0													GABERT, M.	Domestic	Chemistry	Unknown	Chemistry Exists

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		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	56	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	56	22	4	54.9													MELENKA, 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	6.7													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											20/06/1984		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											12/05/1978		DEBAAN, J	Domestic	New Well-Abandoned	Rotary	No Chemistry
441	0264203	SE	21	056	21	4	57.9							12.8	14.3			12/09/1978		DEBAAN, J	Domestic	New Well	Rotary	No Chemistry
442	0264255	07	25	056	21	4	14.6											20/08/1984		ESSO RES	Domestic	New Well	Bored	Chemistry Exists
443	0264258	SE	26	056	21	4	39.0											12/05/1987		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	12.2									31/03/1988		SAWATZKI, W	Domestic	New Well	Bored	No Chemistry
446	0264277	09	27	056	21	4	61.0	50.3	56.4									24/07/1979		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													GODBOUT, VIVIAN	Domestic	Chemistry	Unknown	No Chemistry
450	0264293	SE	05	055	22	4	0.0													GAUMONT, GILBERTE	Domestic	Chemistry	Unknown	Chemistry Exists
451	0264297	NE	28	056	21	4	18.3													SHIPLEY, J.	Domestic	Chemistry	Auger	Chemistry Exists
452	0264298	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											02/09/1961		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											24/09/1958		PUCHALIK, S.	Domestic	New Well	Bored	Chemistry Exists
462	0264392	SW	29	056	21	4	0.0													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		YAKIMETES, O J	Domestic	New Well	Rotary	No Chemistry
467	0264466	01	33	056	21	4	19.5							17.7	18.9			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									12/06/1985		WOLANSKY, W	Domestic	New Well	Backhoe	Chemistry Exists
470	0264531	SW	34	056	21	4	61.0	15.2	24.4									30/03/1974		WOLANSKI, W.	Domestic	New Well	Rotary	Chemistry Exists
471	0264630	NW	34	056	21	4	24.4													MAHONEY, 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	56	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	56	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, ELAINE	Domestic	Chemistry	Bored	Chemistry Exists
482	0264913	NE	08	054	22	4	11.6													SPALLIN, K./L.	Domestic	Chemistry	Drilled	Chemistry Exists
483	0264915	NE	08	054	22	4	13.1											08/06/1979		LEVERSEDGE, DAN	Domestic	New Well	Bored	Chemistry Exists
484	0264921	NE	08	054	22	4	10.4													KENNEDY, C.A.	Domestic	Chemistry	Unknown	Chemistry Exists
485	0264923	NE	08	054	22	4	14.9											11/06/1979		KENNEDY, KEN	Domestic	New Well	Bored	Chemistry Exists
486	0265801	SW	02	057	21	4	27.4													MCCULLOUGH, DAVID	Domestic	Chemistry	Hand Dug	Chemistry Exists

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
487	0265802	SW	02	057	21	4	74.7											05/10/1981		ROMANIUK, ELI	Domestic	New Well	Rotary	No Chemistry
488	0265804	SW	02	057	21	4	3.0													MCCULLOUGH, DAVE	Domestic	Chemistry	Unknown	Chemistry Exists
489	0265805	SW	03	057	21	4	10.4											01/01/1940		LIBBEY, KATHERINE	Domestic	Chemistry	Drilled	Chemistry Exists
490	0265811	SE	04	057	21	4	30.5							25.0	27.4			03/08/1979		SCHWING, ROMAN	Domestic	New Well	Rotary	Chemistry Exists
491	0266031	SE	13	056	22	4	12.2													SCHROTER, RON	Domestic	Chemistry	Unknown	Chemistry Exists
492	0267205	SW	01	055	23	4	64.0	57.9	64.0									06/09/1976		ROLF, RON	Domestic	New Well	Rotary	No Chemistry
493	0271650	SE	05	055	22	4	59.4							57.0	58.5			13/07/1978		GODBOUT, ROMEO	Domestic	New Well	Rotary	No Chemistry
494	0271736	SW	36	054	23	4	39.3													SMITH, B.B.	Domestic	Chemistry	Drilled	Chemistry Exists
495	0273997	NW	36	054	23	4	24.4													BISSON, R	Domestic	Chemistry	Unknown	Chemistry Exists
496	0274006	EH	36	054	23	4	0.0													GAUMONT, E	Domestic	Chemistry	Unknown	Chemistry Exists
497	0274171	SE	05	055	22	4	14.9	8.2	12.8									19/08/1991		GILLARD, R	Domestic	New Well	Bored	No Chemistry
498	0274184	16	31	054	22	4	14.6											08/05/1989		BANDURA, E	Domestic	New Well	Bored	No Chemistry
499	0274248	SE	05	055	22	4	12.2											20/06/1985		LAMOUREUX, C	Domestic	New Well	Bored	Chemistry Exists
500	0274249	SE	05	055	22	4	14.6	9.1	12.8									24/03/1988		LAMOUREAX, R.	Domestic	New Well	Bored	No Chemistry
501	0274956	NE	05	055	21	4	41.1											05/09/1978		PICKETT, J	Domestic	New Well	Rotary	Chemistry Exists
502	0280645	NW	31	054	22	4	10.7											18/09/1980		LAMOUREUX HALL	Domestic	New Well	Bored	No Chemistry
503	0280650	SW	28	055	21	4	9.1													VISSCHER, D.	Domestic	Chemistry	Unknown	Chemistry Exists
504	0280651	00	04	055	22	4	15.2													FLEMING, E.B.	Domestic	Chemistry	Unknown	Chemistry Exists
505	0280653	SE	16	055	22	4	6.1													RANDON, J.R.	Domestic	Chemistry	Unknown	Chemistry Exists
506	0280654	SE	16	055	22	4	39.6													RANDON, J.R.	Domestic	Chemistry	Unknown	Chemistry Exists
507	0280657	SE	16	055	22	4	7.6													GEM SOD FARMS	Domestic	Chemistry	Hand Dug	Chemistry Exists
508	0280703	SE	09	055	22	4	17.4	7.6	15.2									26/04/1994		LAMOUREUX, ROBERT	Domestic	New Well	Bored	No Chemistry
509	0282099	NW	18	055	21	4	24.4													MAGEE, KEN	Domestic	Chemistry	Hand Dug	Chemistry Exists
510	0285787	NE	17	055	21	4	18.6							12.2	18.3			04/06/1996		HUTTERIAN BRETHREN	Domestic	New Well	Rotary	No Chemistry
511	0285789	NW	30	055	21	4	51.8							46.3	47.9			30/05/1995	01/01/2001	BENFELD, BILL	Domestic	New Well	Rotary	No Chemistry
512	0285792	SE	12	055	23	4	21.9	9.8	11.9	18.6	19.5							24/10/1996		PICKUNYK, NICK	Domestic	New Well	Bored	No Chemistry
513	0286113	WH	17	055	22	4	22.9											30/04/1968		READNER, HENRY #400-H	Domestic	New Well	Auger	No Chemistry
514	0286990	NE	08	054	22	4	85.3	43.9	85.3									07/01/1997		MARSHALL, RANDY	Domestic	New Well	Rotary	No Chemistry
515	0286991	SE	31	054	22	4	16.2	9.8	14.9									27/07/1996		GAUMONT, LARRAINE	Domestic	New Well	Bored	No Chemistry
516	0287800	NE	08	054	22	4	82.3	70.1	82.3									11/09/1996		RICE, LYALL	Domestic	New Well	Rotary	No Chemistry
517	0287802	NE	28	054	23	4	61.0											10/07/1997	10/07/1997	NORTH COUNTRY CATTLE CO	Domestic	Test Hole-Abandoned	Rotary	No Chemistry
518	0289102	NE	28	054	23	4	48.8	36.6	45.7									11/07/1997		NORTH COUNTRY CATTLE CO	Domestic	New Well	Rotary	No Chemistry
519	0289381	SE	09	055	22	4	73.2	61.0	73.2									19/05/1998		NANAKSAR, GURDWARA	Domestic	New Well	Rotary	No Chemistry
520	0290926	SE	12	055	23	4	23.8	6.7	9.1	16.2	17.1							20/05/1998		PICHUNYH, JACK	Domestic	New Well	Bored	No Chemistry
521	0290974	SE	28	054	22	4	39.6	33.5	39.6									07/10/1998		ROBERTSON, DALE	Domestic	New Well	Rotary	No Chemistry
522	0290979	SE	21	056	21	4	18.3	3.7	4.3	13.1	14.3	16.2	16.8					14/07/1998		MARQUARDT, BRENT	Domestic	New Well	Bored	No Chemistry
523	0292191	SE	33	055	22	4	47.2	39.6	45.7									26/04/1999		WESTRA, MARTIN/WESTRALIA FARM	Domestic	New Well	Rotary	No Chemistry
524	0293392	NW	31	055	21	4	24.4							19.8	21.3			13/09/1999		MCKAY, BRIAN	Domestic	New Well	Rotary	No Chemistry
525	0293774	SW	17	056	20	4	85.3	72.2	74.7	77.7	80.8							17/10/1999		SCHRAM, BARRY	Domestic	New Well	Rotary	No Chemistry
526	0293775	SW	17	056	20	4	123.4											12/10/1999	12/10/1999	SCHRAM, BARRY	Domestic	Dry Hole-Abandoned	Rotary	No Chemistry
527	0294342	SE	21	056	21	4	24.4	10.1	12.5	15.5	20.1	23.2	23.5					08/08/1998		SOOREE, DICK	Domestic	New Well	Bored	No Chemistry
528	0295164	SW	30	056	20	4	37.2	31.1	37.2									18/05/2000		SHILOH REBMAN YOUTH CAMP	Domestic	New Well	Rotary	No Chemistry
529	0297082	SE	33	054	23	4	36.6											21/06/2001	21/06/2001	STRAUSS, HOWARD #1	Domestic	Test Hole-Abandoned	Rotary	No Chemistry
530	0297083	SE	33	054	23	4	36.6	25.9	32.0									22/06/2001		STRAUSS, HOWARD	Domestic	New Well	Rotary	No Chemistry
531	0297115	NE	18	056	20	4	18.3											07/10/2000		MARTIN, BONNIE	Domestic	Old Well-Test	Unknown	No Chemistry
532	0297409	SW	30	056	20	4	82.3											18/05/2000	18/05/2001	SHILOH REBMAN YOUTH CAMP	Domestic	Dry Hole-Abandoned	Rotary	No Chemistry
533	0297410	SW	30	056	20	4	85.3	36.6	42.7	48.8	54.9	61.0	67.1					15/05/2000	16/05/2000	SHILOH REBMAN YOUTH CAMP #2	Domestic	New Well	Rotary	No Chemistry
534	0297411	SW	30	056	20	4	36.6	26.8	32.9									17/05/2000		SHILOH REBMAN YOUTH CAMP #3	Domestic	New Well	Rotary	No Chemistry
535	0297579	SE	21	56	21	4	18.3												26/07/2007	MARQUARDT, BRENT & CINDY	Domestic	Old Well-Abandoned	Bored	No Chemistry
536	0297579	SE	21	56	21	4	21.0	13.7	16.8									18/09/2001		MARQUARDT, B.	Domestic	New Well	Bored	No Chemistry
537	0297580	NE	21	056	21	4	21.0	13.7	16.8									19/09/2001		LEICHNER, WALTER	Domestic	New Well	Bored	No Chemistry
538	0299631	NW	07	055	21	4	71.0	63.1	69.2									17/05/2001		CHARTRAND, LOUIE/MARY	Domestic	New Well	Rotary	No Chemistry
539	1130470	NW	34	055	21	4	35.4	29.3	35.4									19/07/2007		HALLS AUTO PARTS	Domestic	New Well	Rotary	No Chemistry
540	1130875	11	13	54	23	4	41.1							27.4	33.5			08/11/2010		OYAMA, ROSE-ANN & SONNIE	Domestic	New Well	Combination	No Chemistry
541	1165524	SE	13	54	1	5	97.5	57.6	76.5	81.1	84.7	88.7	93.6					21/12/2009		GERBETH, PETER & ANNA	Domestic	New Well	Combination	No Chemistry
542	1300079	NW	23	054	22	4	42.7	25.0	42.7									24/02/2005		MCEACHERN, MEL	Domestic	New Well	Rotary	No Chemistry
543	1370431	1	36	55	22	4	43.9							39.6	42.7			06/10/2010		YOUNG, CARL	Domestic	New Well	Combination	No Chemistry
544	1420100	SW	26	055	22	4	30.5											18/01/2005	18/01/2005	NCIA	Domestic	Unknown	Rotary	No Chemistry
545	1420106	SE	36	055	22	4	12.2											19/01/2005	19/01/2005	NCIA	Domestic	Unknown	Rotary	No Chemistry
546	1640316	16	14	54	23	4	15.2							12.2	15.2			05/11/2010		MOIZARD, ANDRE	Domestic	New Well	Rotary - Mud	No Chemistry
547	1690074	SE	01	055	22	4	59.4	51.8	57.9									13/05/1999		RASMUSSEN, RON	Domestic	New Well	Rotary	No Chemistry
548	1690085	NE	36	054	23	4	17.7	12.2	17.4									28/09/1999		NYHUIS, DAVE	Domestic	New Well	Rotary	No Chemistry
549	1690122	NE	24	55	22	4	18.0	4.6	12.2									17/10/2008		AUX-SABLE CANADA LTD	Domestic	New Well	Bored	No Chemistry
550	1690124	16	31	54	22	4	17.4	8.5	14.9									05/06/2008		LAMOUREUX, ART	Domestic	New Well	Bored	No Chemistry
551	1690164	SE	1	55	22	4														SCHOENLEBER TIM	Domestic	New Well	Rotary - Mud	No Chemistry
552	1755005	SW	02	057	21	4	18.3	4.0	5.8									22/10/2002		SUDAYKO, MIKE	Domestic	New Well	Bored	No Chemistry
553	1755094	11	25	54	23	4	25.0	15.8	18.6									08/09/2009		KAM, IAN	Domestic	New Well	Bored	No Chemistry
554	1755120	SE	35	56	21	4	36.6	29.3	33.2									08/07/2011		BADRY, RICK	Domestic	New Well	Bored	No Chemistry
555	1795056	NE	08	054	22	4	93.0	67.1	93.0									18/07/2003		SUPINA, NICK	Domestic	New Well	Rotary	No Chemistry
556	1795213	NE	25	054	23	4														KAM, IAN	Domestic	New Well	Rotary	No Chemistry
557	1795249	NW	25	54	23	4	74.7	48.8	73.2									21/04/2009		KAM, IAN	Domestic	New Well	Combination	No Chemistry
558	1888906	11	28	54	22	4	31.4							28.3	29.9			21/07/2009		KROHMAN, KURT	Domestic	New Well	Rotary	No Chemistry
559	1888958	1	36	54	23	4	73.2	61.0	73.2									24/06/2010		FIVE STAR POULTRY	Domestic	New Well	Rotary - Mud	No Chemistry
560	0264494	09	33	056	21	4	23.5											16/08/1961		SCURRY RAINBOW OIL LTD	Domestic & Industrial	New Well	Rotary	Chemistry Exists
561	0083010	13	25	055	21	4	27.4													HOFFMAN	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
562	0083265	14	31	055	20	4	24.1											01/01/1915		FISHER, J.	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
563	0083366	02	06	055	21	4	16.5													BRICK, A.W.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
564	0083378	09	07	055	21	4	12.2													MAGEE, H.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
565	0083420	NE	16	055	21	4	51.8											23/04/1965		MOHR, GUS	Domestic & Stock	New Well	Jet	No Chemistry
566	0083433	NE	17	055	21	4	109.7	91.4	109.7									19/03/1986		SCOTFORD COLONY	Domestic & Stock	Deepened	Rotary	No Chemistry
567	0083435	NE	17	055	21	4	97.5	85.3	97.5									18/06/1985		SCOTFORD COLONY	Domestic & Stock	New Well	Rotary	No Chemistry

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
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			02/07/1968		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		WIKEHLERK	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		BORYS, 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, BEN/GERALD	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	0208867	SW	06	056	20	4	16.5	4.6	13.7									12/03/1993		YAWORSKI, MICHEAL	Domestic & Stock	New Well	Bored	No Chemistry
604	0220716	NE	17	055	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		GALLOWY, 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														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		MCIASSIC, 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	055	22	4	60.0											01/01/1926		LA CHAPPELLE	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
642	0261822	SE	34	055	22	4	54.9	42.7	53.3									19/03/1984		JIGOLYK, H.	Domestic & Stock	New Well	Cable Tool	No Chemistry
643	0261844	13	35	055	22	4	22.9											01/01/1935		LECLAIRE, L	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
644	0261886	09	01	056	21	4	4.6													SCHULTZ, E	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
645	0262005	SE	33	054	23	4	42.7											03/11/1988	03/11/1988	STRAUSS, HOWARD #TEST HOLE	Domestic & Stock	Test Hole	Rotary	No Chemistry
646	0262018	SW	33	054	23	4	45.7											02/11/1988	02/11/1988	STRAUSS, HOWARD #TEST HOLE 2	Domestic & Stock	Test Hole	Rotary	No Chemistry
647	0262076	08	34	054	23	4	18.3											01/01/1928		PARRIDY, C.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
648	0262102	12	34	054	23	4	35.1											01/01/1921		SPEER, C.R.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
649	0262130	SE	35	054	23	4	79.2	67.1	79.2									22/11/1988		DEVEREUX, W	Domestic & Stock	New Well	Rotary	No Chemistry
650	0262341	SW	35	054	23	4	48.8	36.6	48.8									13/10/1981		HANES, ALBERT R	Domestic & Stock	New Well	Rotary	No Chemistry
651	0262348	SW	35	054	23	4	42.7	30.5	42.7									26/09/1988		HANES, ALBERT	Domestic & Stock	New Well	Rotary	No Chemistry
652	0262432	04	02	055	23	4	0.0													SPEER, C.R.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
653	0262523	SE	13	055	23	4	103.6	82.3	103.6									19/03/1983		KOZAK, NICK	Domestic & Stock	New Well	Rotary	Chemistry Exists
654	0263732	SE	13	056	21	4	42.1													WAGNER, J	Domestic & Stock	New Well	Cable Tool	No Chemistry
655	0263735	08	13	056	21	4	4.9											01/01/1927		WAGNER, J	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
656	0263820	SW	13	056	21	4	47.2	35.1	47.2									09/05/1988		PROCHNAU, E.	Domestic & Stock	New Well	Rotary	No Chemistry
657	0263834	04	01	056	22	4	64.0											01/01/1929		MORROW, E.	Domestic & Stock	New Well	Drilled	No Chemistry
658	0263841	NW	01	056	22	4	34.4											10/12/1987		LAMOUREUX, RENALD	Domestic & Stock	New Well	Bored	Chemistry Exists
659	0263856	14	02	056	22	4	54.9											01/01/1924		TROTTER, J.	Domestic & Stock	New Well	Drilled	No Chemistry
660	0263863	10	02	056	22	4	10.7											01/01/1900		MCPIKE, T.	Domestic & Stock	New Well	Hand Dug	No Chemistry
661	0263896	NE	14	056	21	4	48.8							42.4	43.9			04/11/1988		HODGSON, G	Domestic & Stock	New Well	Rotary	No Chemistry
662	0263966	06	18	056	21	4	42.7											01/01/1922		MATHIEU, A	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
663	0263979	04	19	056	21	4	15.2											01/01/1921		TAYLOR, J	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
664	0264014	16	19	056	21	4	7.3											01/01/1930		SMOLSKI, D.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
665	0264143	SW	12	056	22	4	26.8											22/08/1985		SERINK, MIKE	Domestic & Stock	New Well	Bored	Chemistry Exists
666	0264170	02	13	056	22	4	10.7											01/01/1916		BERWICK, C.D.	Domestic & Stock	New Well	Hand Dug	No Chemistry
667	0264301	SE	22	055	22	4	14.3											25/06/1985		GODBOUT, N.	Domestic & Stock	New Well	Bored	No Chemistry
668	0264335	SE	29	056	21	4	70.1											02/06/1976		PUCHALIK, P.	Domestic & Stock	New Well	Cable Tool	Chemistry Exists
669	0264354	01	29	056	21	4	30.5													PUCHLUK, J.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
670	0264375	08	35	056	21	4	3.7													CONSARTO	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
671	0264387	03	29	056	21	4	5.5													PUCHALACH	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
672	0264395	09	29	056	21	4	12.2													KACHUK	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
673	0264486	12	33	056	21	4	24.4													PSYCH	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
674	0264503	04	34	056	21	4	3.7													MALOWNY	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
675	0264662	04	35	056	21	4	19.2													ROMANIUK, E.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
676	0264672	SE	36	056	21	4	42.7	27.4	42.7									12/05/1976		CORNELIUS	Domestic & Stock	New Well	Cable Tool	No Chemistry
677	0264716	12	36	056	21	4	4.0													TKACHUK	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
678	0265807	SE	04	057	21	4	30.5											02/12/1976		SAWKA, WALTER	Domestic & Stock	New Well	Cable Tool	Chemistry Exists
679	0266021	13	01	056	22	4	18.3											01/01/1934		YANCH, J.	Domestic & Stock	New Well	Bored	Chemistry Exists
680	0271540	NE	05	055	22	4	13.4											21/06/1985		GODBOUT, ROMEO	Domestic & Stock	New Well	Bored	No Chemistry
681	0274016	EH	36	054	23	4	17.7											25/04/1983		GAUMONT, C	Domestic & Stock	New Well	Bored	Chemistry Exists
682	0274028	EH	36	054	23	4	15.5	9.8	13.7									20/04/1989		GAUMONT, L	Domestic & Stock	New Well	Bored	No Chemistry
683	0280646	NE	36	054	23	4	14.3											19/10/1987		LAMOUREUX, JIM	Domestic & Stock	New Well	Bored	No Chemistry
684	0299620	SW	33	054	23	4	54.9	29.9	32.6	35.7	51.8							23/03/2002		HAZELAAR, HARVEY	Domestic & Stock	New Well	Rotary	No Chemistry
685	1911765	SW	02	057	21	4	79.2	71.0	77.1									27/02/2006	27/02/2006	SUNDAY KO, MIKE	Domestic & Stock	New Well	Rotary	No Chemistry
686	0083509	SE	29	055	21	4	45.7	41.8	44.8									24/06/1977		CF BRAUN CO	Industrial	New Well	Rotary	No Chemistry
687	0083539	NE	32	055	21	4	41.1							35.1	41.1			09/10/1981		PCL BRAUN SIMONS LTD #WELL4	Industrial	New Well	Rotary	Chemistry Exists
688	0083540	NE	32	055	21	4	41.1							35.7	41.1			06/10/1981		PCL BRAUN SIMONS LTD #HOLE5	Industrial	New Well	Rotary	No Chemistry
689	0083541	NE	32	055	21	4	42.7	40.2	42.7									20/08/1981		PCL BRAUN SIMONS LTD #HOLE1	Industrial	New Well	Rotary	No Chemistry
690	0083542	NE	32	055	21	4	42.7	40.2	42.7									02/09/1981		PCL BRAUN SIMONS LTD #HOLE2	Industrial	New Well	Rotary	No Chemistry
691	0083543	NE	32	055	21	4	42.7	40.5	42.7									25/08/1981		PCL BRAUN SIMONS LTD #HOLE3	Industrial	New Well	Rotary	No Chemistry
692	0083545	SE	34	055	21	4	54.9	0.3	54.9									19/10/1982		NORTHWESTERN UTILITIES	Industrial	New Well	Rotary	No Chemistry
693	0083546	SH	34	055	21	4	36.6													NORTHWESTERN UTILITIES	Industrial	Chemistry	Unknown	No Chemistry
694	0083565	01	36	055	21	4	24.4							18.0	22.6			15/11/1980		SHELL OIL	Industrial	New Well	Rotary	No Chemistry
695	0083566	01	36	055	21	4	24.4	20.4	21.9									16/11/1980		SHELL OIL	Industrial	New Well	Rotary	No Chemistry
696	0083567	01	36	055	21	4	45.7	40.2	41.5									17/11/1980		SHELL OIL	Industrial	New Well	Rotary	No Chemistry
697	0083568	02	36	055	21	4	15.2	11.9	13.1									18/11/1980		SHELL OIL	Industrial	New Well	Rotary	No Chemistry
698	0083569	01	36	055	21	4	30.5							13.1	18.9			06/11/1980		SHELL OIL	Industrial	New Well	Rotary	No Chemistry
699	0091601	03	30	056	20	4	954.0											21/12/1950		IMPERIAL OIL LTD	Industrial	Oil Exploratory	Rotary	No Chemistry
700	0152045	NW	10	055	22	4	37.8							34.7	37.8			08/12/1989		DOW CHEMICAL#MONITORING WELL	Industrial	New Well	Rotary	No Chemistry
701	0152046	NW	10	055	22	4	36.0							32.9	36.0			12/12/1989		DOW CHEMICAL#MONITORING WELL	Industrial	New Well	Rotary	No Chemistry
702	0152047	NW	10	055	22	4	41.1							38.1	41.1			10/12/1989		DOW CHEMICAL#MONITORING WELL	Industrial	New Well	Rotary	No Chemistry
703	0152048	NW	10	055	22	4	37.8							34.7	37.8			13/12/1989		DOW CHEMICAL#MONITORING WEL	Industrial	New Well	Rotary	No Chemistry
704	0260182	10	17	054	22	4	780.3											10/05/1954		TRIZONE OIL DEV CO LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
705	0260380	10	29	054	22	4	751.3											02/10/1953		MID-WESTERN IND GAS LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
706	0260402	NW	32	054	22	4	64.0											29/11/1956		PEACE RIVER GLASS	Industrial	New Well	Drilled	No Chemistry
707	0260408	NW	32	054	22	4	35.7	31.4	35.1									01/01/1955		PEACE RIVER GLASS	Industrial	New Well	Unknown	No Chemistry
708	0261083	00	02	055	22	4	44.2	33.5	39.6									24/02/1978		DOW CHEMICAL	Industrial	New Well	Unknown	No Chemistry
709	0261087	00	02	055	22	4	25.9	21.3	25.9									02/03/1978		DOW CHEMICALS	Industrial	New Well	Unknown	No Chemistry
710	0261092	00	02	055	22	4	42.7	39.6	42.7									08/03/1978		DOW CHEMICALS	Industrial	New Well	Unknown	No Chemistry
711	0261097	SE	03	055	22	4	64.0													CAN COMSTOCK LTD	Industrial	Chemistry	Unknown	Chemistry Exists
712	0261104	08	04	055	22	4	762.0											03/09/1962		MIDWESTERN IND GAS LTD #8-4	Industrial	New Well	Unknown	No Chemistry
713	0261247	06	09	055	22	4	765.0											03/12/1959		DOME PETRO LTD	Industrial	Oil Exploratory	Unknown	No Chemistry
714	0261344	10	10	055	22	4	1881.5											30/08/1966		DOW CHEMICAL #NACL	Industrial	Cathodic Protection	Unknown	No Chemistry
715	0261436	SW	13	055	22	4	4.9													DOW CHEMICAL	Industrial	Chemistry	Unknown	No Chemistry
716	0261496	11	14	055	22	4	39.6							33.2	35.1			14/09/1974		DOME PETRO	Industrial	New Well	Rotary	No Chemistry
717	0261535	10	17	055	22	4	967.7											12/06/1953		NORTHWESTERN UTILITIES LTD#5	Industrial	Unknown	Unknown	No Chemistry
718	0261682	04	36	055	22	4	299.0											21/05/1953		IMPERIAL OIL LTD #AO282-2	Industrial	Oil Exploratory	Unknown	No Chemistry
719	0261723	04	26	055	22	4	317.9											17/05/1953		IMPERIAL OIL LTD #AO282-1	Industrial	Oil Exploratory	Unknown	No Chemistry
720	0261736	16	27	055	22	4	304.5											21/05/1953		IMPERIAL OIL LTD #AO282-3	Industrial	Oil Exploratory	Unknown	No Chemistry
721	0261761	01	01	055	23	4	9.1													#SP. 1914497	Industrial	Flowing Shot Hole	Unknown	No Chemistry
722	0261825	12	34	055	22	4	304.5											13/05/1953		IMPERIAL OIL LTD #AO282 5	Industrial	Oil Exploratory	Unknown	No Chemistry
723	0261848	16	36	055	22	4	365.8											11/05/1946		IMPERIAL OIL LTD #615	Industrial	Oil Exploratory	Unknown	No Chemistry
724	0263838	03	01	056	22	4	1321.3											28/02/1951		LINGNORA GOLD MINES LTD	Industrial	Unknown	Drilled	No Chemistry
725	0263849	01	02	056	22	4	304.5											17/05/1953		IMPERIAL OIL LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
726	0263860	13	02	056	22	4	286.5											18/05/1953		IMPERIAL OIL LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
727	0263918	04	15	056	21	4	996.1											15/11/1950		SEABOARD OIL CO #4-15	Industrial	Oil Exploratory	Unknown	No Chemistry
728	0264108	01	11	056	22	4	286.5											14/05/1953		IMPERIAL OIL LTD	Industrial	Test Hole	Drilled	No Chemistry
729	0264153	04	13	056	22	4	0.0											11/08/1953		IMPERIAL OIL LTD	Industrial	Flowing Shot Hole	Unknown	No Chemistry

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
730	0264161	13	12	056	22	4	292.6											14/05/1953		IMPERIAL OIL LTD	Industrial	Test Hole	Drilled	No Chemistry
731	0264189	03	13	056	22	4	246.3														Industrial	Flowing Shot Hole	Drilled	No Chemistry
732	0280652	WH	11	055	22	4	29.0											19/07/1984		DOW CHEMICAL	Industrial	Cathodic Protection	Rotary	No Chemistry
733	0282100	NW	02	055	22	4	70.7											09/05/1984		DOW CHEMICAL#R-240-1	Industrial	New Well	Rotary	No Chemistry
734	0282101	SE	10	055	22	4	71.9											08/05/1984		DOW CHEMICAL#R-90-3	Industrial	New Well	Rotary	No Chemistry
735	0282102	SW	11	055	22	4	27.4											03/05/1984		DOW CHEMICAL #R-240-2	Industrial	New Well	Rotary	No Chemistry
736	0282103	NW	11	055	22	4	98.8											01/05/1984		DOW CHEMICAL #370-5	Industrial	New Well	Rotary	No Chemistry
737	0282104	NW	11	055	22	4	100.6											03/05/1984		DOW CHEMICAL #370-4	Industrial	New Well	Rotary	No Chemistry
738	0282105	NW	11	055	22	4	100.0											26/04/1984		DOW CHEMICAL #370-3	Industrial	New Well	Rotary	No Chemistry
739	0282106	NW	11	055	22	4	94.8											25/04/1984		DOW CHEMICAL #370-2	Industrial	New Well	Rotary	No Chemistry
740	0282117	SE	10	055	22	4	25.9											04/05/1984		DOW CHEMICAL #150-2	Industrial	New Well	Rotary	No Chemistry
741	0289172	EH	07	056	21	4	30.5											06/09/1997	06/09/1997	I.O.L. #1	Industrial	Test Hole-Abandoned	Rotary	No Chemistry
742	0289173	EH	17	056	21	4	15.2	11.9	13.4									09/09/1997	09/09/1997	I.O.L. #6	Industrial	Test Hole-Abandoned	Rotary	No Chemistry
743	0289174	EH	17	056	21	4	13.4											08/09/1997	08/09/1997	I.O.L. #5	Industrial	Test Hole-Abandoned	Rotary	No Chemistry
744	0289175	EH	17	056	21	4	14.9	11.9	14.9									06/09/1997	06/09/1997	I.O.L. #2	Industrial	Test Hole-Abandoned	Rotary	No Chemistry
745	0289176	EH	17	056	21	4	18.3	15.8	17.4									07/09/1997	07/09/1997	I.O.L. #3	Industrial	Test Hole-Abandoned	Rotary	No Chemistry
746	0289177	EH	17	056	21	4	15.2											08/09/1997	08/09/1997	I.O.L. #4	Industrial	Test Hole-Abandoned	Rotary	No Chemistry
747	0298284	SW	19	055	21	4	41.1														Industrial	Old Well-Abandoned	Not Applicable	No Chemistry
748	1575400	SE	18	56	21	4	47.2							16.8	47.2			25/10/2006		ACCESS PIPELINES	Industrial	New Well	Rotary	No Chemistry
749	0242397	SE	10	055	22	4	12.2											14/11/1978		DOW CHEMICAL	Investigation	Test Hole	Cable Tool	No Chemistry
750	0242398	NW	11	055	22	4	7.3	0.9	7.3									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
751	0242399	NW	11	055	22	4	7.6	0.9	7.6									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
752	0242400	NW	11	055	22	4	7.9	0.9	7.9									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
753	0242401	NW	11	055	22	4	8.5	0.9	8.5									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
754	0242402	NW	11	055	22	4	9.4	0.9	9.4									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
755	0242403	NW	11	055	22	4	9.8	0.9	9.8									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
756	0242404	NW	11	055	22	4	10.7	0.9	10.7									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
757	0242405	NW	11	055	22	4	11.6	0.9	11.6									22/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
758	0242406	SE	11	055	22	4	13.1											29/11/1978		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
759	0261846	NE	35	054	22	4	30.5											05/08/1976		ALTA ENV	Investigation	Test Hole	Unknown	No Chemistry
760	0281168	SH	06	056	21	4	36.6											11/05/1969		ALTA ENV #0294E	Investigation	Test Hole	Drilled	No Chemistry
761	0281169	09	33	056	21	4	19.8											18/04/1972		ALTA ENV #0792E	Investigation	Test Hole	Drilled	No Chemistry
762	0281170	09	32	055	21	4	47.2							40.5	42.1	45.1	46.3	09/05/1970		ALTA ENV #0499E	Investigation	Test Hole	Drilled	Chemistry Exists
763	0281173	SE	01	056	22	4	29.0											11/05/1969		ALTA ENV #0292E	Investigation	Test Hole	Drilled	No Chemistry
764	0042021	13	24	056	21	4	4.6							3.0	4.6			25/09/1991		ALTA ENV	Monitoring	New Well	Rotary	No Chemistry
765	0042022	SW	14	056	21	4	6.1							3.1	4.6			25/09/1991		ALTA ENV/CHMILIAR, W.	Monitoring	New Well	Rotary	No Chemistry
766	0261254	SE	10	055	22	4	8.5											08/11/1978		DOW CHEMICAL #MONCTOUNGWELL	Monitoring	New Well	Cable Tool	No Chemistry
767	0261261	08	10	055	22	4	7.9											14/11/1978		DOW CHEMICAL LTD #8	Monitoring	Test Hole	Cable Tool	No Chemistry
768	0261265	07	10	055	22	4	33.5											08/11/1978		DOW CHEMICAL #6 MONITORING	Monitoring	Test Hole	Cable Tool	No Chemistry
769	0261271	NW	10	055	22	4	16.8							13.4	16.5			24/10/1989		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
770	0261281	NW	10	055	22	4	18.0							13.7	16.8			21/10/1989		DOW CHEMICAL #1 MONITOR	Monitoring	Test Hole	Rotary	No Chemistry
771	0261285	NW	10	055	22	4	16.2							13.1	16.2			26/10/1989		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
772	0261294	NW	10	055	22	4	16.5							13.4	16.5			26/10/1989		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
773	0261297	NW	10	055	22	4	18.0							14.9	18.0			26/10/1989		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
774	0261302	10	10	055	22	4	5.2											09/04/1979		DOW CHEMICAL #21	Monitoring	Test Hole	Cable Tool	No Chemistry
775	0261321	10	10	055	22	4	4.9											09/04/1979		DOW CHEMICAL #22 MONITORING W	Monitoring	Test Hole	Cable Tool	No Chemistry
776	0261340	09	10	055	22	4	5.8											09/04/1979		DOW CHEMICAL	Monitoring	Test Hole	Cable Tool	No Chemistry
777	0261414	NW	11	055	22	4	36.6							34.1	35.7			27/08/1980		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
778	0261420	NW	11	055	22	4	39.6							36.0	37.5			25/08/1980		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
779	0261423	NE	11	055	22	4	39.6											27/11/1978		DOW CHEMICAL #10 MONITORING W	Monitoring	Test Hole	Cable Tool	No Chemistry
780	0261427	NE	11	055	22	4	7.3	0.9	7.3									22/11/1978		DOW CHEMICAL #12 MONITORING W	Monitoring	Test Hole	Cable Tool	No Chemistry
781	0261428	10	11	055	22	4	7.3	0.9	7.3									22/11/1978		DOW CHEMICAL #13 MONITORING W	Monitoring	Test Hole	Cable Tool	No Chemistry
782	0261460	SW	14	055	22	4	6.1							4.6	6.1					DOME PETRO#BRINE UGS PITSITE 1	Monitoring	Chemistry	Unknown	Chemistry Exists
783	0261475	SW	14	055	22	4	6.1							4.6	6.1					DOME PETRO#BRINE UGS PITSITE 2	Monitoring	Chemistry	Unknown	Chemistry Exists
784	0261485	SW	14	055	22	4	6.1							4.6	6.1					DOME PETRO#UGS@BRINEPITSITE	Monitoring	Chemistry	Unknown	Chemistry Exists
785	0261489	SW	14	055	22	4	6.1							4.6	6.1					DOME PETRO#UGS@BRINEPITSITE	Monitoring	Chemistry	Unknown	Chemistry Exists
786	0263387	01	05	056	21	4	42.1	39.3	42.1									27/04/1982		CAN BADGER CO LTD #7	Monitoring	New Well	Rotary	No Chemistry
787	0263397	01	05	056	21	4	45.7	38.1	39.6									30/03/1982	30/03/1982	CAN BADGER CO LTD	Monitoring	New Well-Abandoned	Rotary	No Chemistry
788	0263410	01	05	056	21	4	47.2	38.1	41.1									06/04/1982		CAN BADGER CO LTD #2	Monitoring	New Well	Rotary	No Chemistry
789	0263417	01	05	056	21	4	61.0	45.7	61.0									08/04/1982		CAN BADGER CO LTD #3	Monitoring	New Well	Rotary	No Chemistry
790	0263423	01	05	056	21	4	61.0	45.7	61.0									13/04/1982		CAN BADGER CO LTD #4	Monitoring	New Well	Rotary	No Chemistry
791	0263439	01	05	056	21	4	91.4	76.5	82.3									16/04/1982	16/04/1982	CAN BADGER CO LTD	Monitoring	New Well-Abandoned	Rotary	No Chemistry
792	0263447	01	05	056	21	4	76.2	64.0	73.2									22/04/1982	22/04/1982	CAN BADGER CO LTD	Monitoring	New Well-Abandoned	Rotary	No Chemistry
793	0263459	01	05	056	21	4	42.7							39.0	40.5			03/05/1982		CAN BADGER CO LTD #8	Monitoring	New Well	Rotary	No Chemistry
794	0263465	01	05	056	21	4	42.7											05/05/1982		CAN BADGER CO LTD #9	Monitoring	New Well	Rotary	No Chemistry
795	0264021	SE	20	056	21	4	5.2													IMPERIAL OIL #6A	Monitoring	Chemistry	Unknown	Chemistry Exists
796	0264030	SE	20	056	21	4	7.9													IMPERIAL OIL #6D	Monitoring	Chemistry	Unknown	Chemistry Exists
797	0264036	SE	20	056	21	4	21.9													IMPERIAL OIL #5B	Monitoring	Chemistry	Unknown	Chemistry Exists
798	0264045	SE	20	056	21	4	33.5													IMPERIAL OIL #6B	Monitoring	Chemistry	Unknown	Chemistry Exists
799	0264050	SE	20	056	21	4	43.0													IMPERIAL OIL #3B	Monitoring	Chemistry	Unknown	Chemistry Exists
800	0264054	SE	20	056	21	4	2.1													IMPERIAL OIL #5F	Monitoring	Chemistry	Unknown	Chemistry Exists
801	0264056	SE	20	056	21	4	43.3													IMPERIAL OIL #5A	Monitoring	Chemistry	Unknown	Chemistry Exists
802	0264061	SE	20	056	21	4	15.2													IMPERIAL OIL #6C	Monitoring	Chemistry	Unknown	Chemistry Exists
803	0264075	SE	20	056	21	4	7.3													IMPERIAL OIL #5D	Monitoring	Chemistry	Unknown	Chemistry Exists
804	0264078	SE	20	056	21	4	5.5													IMPERIAL OIL #7	Monitoring	Chemistry	Unknown	Chemistry Exists
805	0264081	SE	20	056	21	4	5.5													IMPERIAL OIL #10	Monitoring	Chemistry	Unknown	Chemistry Exists
806	0264086	SE	20	056	21	4	4.3													IMPERIAL OIL #8	Monitoring	Chemistry	Unknown	Chemistry Exists
807	0264089	SE	20	056	21	4	4.3													IMPERIAL OIL #5H	Monitoring	Chemistry	Unknown	Chemistry Exists
808	0264094	SE	20	056	21	4	4.3													IMPERIAL OIL #5E	Monitoring	Chemistry	Unknown	Chemistry Exists
809	0264096	SE	20	056	21	4	4.0													IMPERIAL OIL #4A	Monitoring	Chemistry	Unknown	Chemistry Exists
810	0264098	SE	20	056	21	4	4.0													IMPERIAL OIL #5G	Monitoring	Chemistry	Unknown	Chemistry Exists

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
811	0264103	SE	20	056	21	4	3.0													IMPERIAL OIL #9	Monitoring	Chemistry	Unknown	Chemistry Exists
812	1420288	NW	14	056	21	4	42.7							35.1	38.1			02/02/2005		NCIA	Monitoring	New Well	Rotary	No Chemistry
813	1420299	SW	31	054	22	4	32.0							25.0	29.6			25/01/2005		NCIA	Monitoring	New Well	Rotary	No Chemistry
814	1420305	NW	31	055	21	4	42.7							31.1	37.2			28/01/2005		NCIA	Monitoring	Test Hole	Rotary	No Chemistry
815	1420309	NE	33	055	21	4	44.8							35.7	41.8			27/01/2005		NCIA	Monitoring	New Well	Rotary	No Chemistry
816	1420313	SE	04	055	22	4	36.6							26.5	31.1			03/02/2005		NCIA	Monitoring	New Well	Rotary	No Chemistry
817	1420564	NW	19	054	22	4	38.1							27.7	34.4			24/01/2005		N C I A	Monitoring	New Well	Rotary	No Chemistry
818	2093187	1	35	56	21	4	8.4							4.6	7.6			10/11/2008		AMEC EARTH & ENVIRONMENT	Monitoring	New Well	Auger	No Chemistry
819	2093188	1	35	56	21	4	13.0							9.8	12.8			10/11/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
820	2093213	1	35	56	21	4	8.4							4.8	7.8			11/11/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
821	2093222	1	35	56	21	4	10.0							7.0	10.0			18/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
822	2093223	1	35	56	21	4	9.8							6.8	9.8			19/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
823	2093224	1	35	56	21	4	12.0							9.0	12.0			19/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
824	2093225	1	35	56	21	4	12.0							7.0	10.0			19/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
825	2093226	1	35	56	21	4	13.1							7.7	10.7			22/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
826	2093227	1	35	56	21	4	9.9							5.2	8.2			13/12/2007		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
827	2093228	1	35	56	21	4	13.1							8.5	11.5			22/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
828	2093229	1	35	56	21	4	13.0							7.1	10.1			10/11/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
829	2093230	1	35	56	21	4	12.0							7.0	10.0			19/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
830	2093232	1	35	56	21	4	8.4							5.0	8.0			18/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
831	2093233	1	35	56	21	4	8.4							5.2	8.2			13/12/2007		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
832	2093235	1	35	56	21	4	12.5							9.0	12.0			18/09/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
833	2093241	1	35	56	21	4	8.4							4.6	7.6			11/11/2008		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
834	2093243	1	35	56	21	4	11.5							7.1	10.1			13/12/2007		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
835	2093244	1	35	56	21	4	9.9							6.8	9.9			13/12/2007		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
836	2093249	1	35	56	21	4	8.4							5.2	8.2			14/12/2007		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
837	2093250	1	35	56	21	4	8.4							5.2	8.2			14/12/2007		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
838	0101384	NW	32	054	22	4	0.0													FT SASK, TOWN OF #WELL 1	Municipal	Unknown	Unknown	No Chemistry
839	0156873	NW	09	055	22	4	0.0													U.M.O.L.-C.R.N.E.W.S.	Municipal	Chemistry	Not Applicable	No Chemistry
840	0260180	04	17	054	22	4	29.0											22/04/1972		ALTA ENV/WATER RES	Municipal	Unknown	Drilled	No Chemistry
841	0260416	NH	32	054	22	4	18.6														Municipal	New Well	Drilled	No Chemistry
842	0263723	16	12	056	21	4	42.7							29.3	30.8			06/11/1975		BRUDERHEIM, TOWN OF#11-75	Municipal	New Well	Unknown	Chemistry Exists
843	0263728	16	12	056	21	4	42.7							35.7	37.2			03/10/1975		BRUDERHEIM, TOWN OF #9-75	Municipal	New Well	Unknown	Chemistry Exists
844	0263729	16	12	056	21	4	42.7							33.8	37.2			04/11/1975		BRUDERHEIM, TOWN OF#10-75	Municipal	New Well	Unknown	Chemistry Exists
845	0263738	01	13	056	21	4	43.6	30.8	38.4									16/07/1975		BRUDERHEIM, TOWN OF#6-75 PUMI	Municipal	New Well	Unknown	Chemistry Exists
846	0263821	05	13	056	21	4	48.8							41.8	43.0			11/11/1975		BRUDERHEIM, TOWN OF#14-75	Municipal	New Well	Unknown	Chemistry Exists
847	0263828	16	13	056	21	4	36.6							31.1	32.3			10/11/1975		BRUDERHEIM, TOWN OF#13-75	Municipal	New Well-Abandoned	Unknown	Chemistry Exists
848	0263912	09	14	056	21	4	49.4											16/07/1975		BRUDERHEIM, TOWN OF	Municipal	New Well	Unknown	No Chemistry
849	0264233	15	21	056	21	4	42.7							34.1	35.4			07/11/1975		BRUDERHEIM, TOWN OF#12-75	Municipal	New Well	Unknown	Chemistry Exists
850	0263789	01	13	56	21	4	35.7	34.4	35.7									16/07/1975		BRUDERHEIM, TOWN OF	Municipal & Observation	New Well	Unknown	No Chemistry
851	0083369	NE	06	055	21	4	15.2											08/04/1988		ALTA ENV	Observation	Test Hole	Auger	No Chemistry
852	0083370	SW	07	055	21	4	42.7											06/08/1976		ALTA ENV #1619BE	Observation	Test Hole	Rotary	No Chemistry
853	0083472	12	22	055	21	4	30.8											24/06/1969		ALTA AGRICULTURE	Observation	Test Hole	Rotary	No Chemistry
854	0215410	08	30	054	22	4	42.7	29.0	34.1									06/08/1976		ALTA ENV #1619E	Observation	Test Hole	Unknown	No Chemistry
855	0224185	SE	18	056	20	4	73.2											08/10/1993	08/10/1993	MCLELLAN, ART	Observation	Test Hole-Abandoned	Rotary	No Chemistry
856	0234510	NW	30	056	20	4	51.8											12/05/1969		ALTA ENV #0298E	Observation	Test Hole	Unknown	No Chemistry
857	0234526	SE	30	056	20	4	37.5											13/05/1969		ALTA ENV #0299E	Observation	Test Hole	Unknown	No Chemistry
858	0234530	13	30	056	20	4	10.1							8.5	10.1			27/03/1985		ALTA ENV #2342E	Observation	Test Hole	Rotary	Chemistry Exists
859	0234532	13	30	56	20	4	36.9							35.4	36.9			26/03/1985		ALTA ENV #2341E	Observation	Test Hole	Rotary	No Chemistry
860	0234538	13	30	056	20	4	10.1							8.5	10.1			27/03/1985		ALTA ENV #2343E	Observation	Test Hole	Rotary	Chemistry Exists
861	0234545	13	30	56	20	4	48.2							46.3	47.9			22/03/1985		ALTA ENV	Observation	Test Hole	Rotary	No Chemistry
862	0234548	13	30	056	20	4	78.9											19/03/1985		ALTA ENV #2339E	Observation	Test Hole	Rotary	Chemistry Exists
863	0234549	13	30	056	20	4	72.5											11/03/1985	11/03/1985	ALTA ENV #2334E	Observation	Test Hole-Abandoned	Rotary	No Chemistry
864	0260051	NE	08	054	22	4	38.1							6.4	12.8			14/04/1977		KENNEDY	Observation	New Well	Rotary	No Chemistry
865	0260458	SW	36	054	22	4	13.7											07/04/1988			Observation	Test Hole	Bored	No Chemistry
866	0262034	09	33	054	23	4	56.4											06/10/1972		ALTA ENV #0886E	Observation	Test Hole	Unknown	No Chemistry
867	0263831	SW	01	056	22	4	19.8													ALTA ENV/WATER RES #0293E	Observation	Test Hole	Rotary	No Chemistry
868	0286110	01	28	055	21	4	21.3											24/06/1969		#HOLE 670-H	Observation	Test Hole	Auger	No Chemistry
869	0286112	13	22	055	21	4	30.8											24/06/1969		#HOLE 671-H	Observation	Test Hole	Auger	No Chemistry
870	0286117	13	28	055	21	4	29.3											25/06/1969		#HOLE 669-H	Observation	Test Hole	Auger	No Chemistry
871	1420001	NE	10	055	22	4	19.2							16.2	19.2			10/02/2005		AGRIUM PLANT-FORT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
872	1420003	NW	05	056	21	4	44.2							38.1	44.2			24/09/2004		SHELL CANADA	Observation	New Well	Rotary	No Chemistry
873	1420007	SW	24	055	22	4	43.9							37.8	43.9			15/05/2005		NCIA	Observation	New Well	Rotary	No Chemistry
874	1420016	NE	10	055	22	4	17.4							14.3	17.4			10/02/2005		AGRIUM PLANT-FORT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
875	1420018	NE	03	056	21	4	48.8											20/01/2005	20/01/2005	NCIA	Observation	Test Hole-Abandoned	Rotary	No Chemistry
876	1420020	SE	29	055	21	4	33.5							30.5	33.5			03/02/2005		NICA	Observation	New Well	Rotary	No Chemistry
877	1420023	NE	18	055	21	4	38.7							34.1	38.7			31/01/2005		NCIA	Observation	New Well	Rotary	No Chemistry
878	1420030	NE	32	054	22	4	30.5							21.6	26.2			26/01/2005		NCIA	Observation	New Well	Rotary	No Chemistry
879	1420050	NW	24	054	23	4	19.8							15.5	19.8			24/01/2005		NCIA	Observation	New Well	Rotary	No Chemistry
880	1420097	09	10	056	21	4	36.6											24/03/2004	24/03/2004	STANTEC CONSULTING LTD	Observation	Test Hole-Abandoned	Unknown	No Chemistry
881	1420104	SW	10	055	22	4	15.8							12.8	15.8			10/11/2005		AGRIUM	Observation	New Well	Rotary	No Chemistry
882	1420115	NE	10	055	22	4	24.7							18.6	24.7			09/02/2005		AGRIUM PLANT -FT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
883	1420135	NE	10	055	22	4	18.3							15.2	18.3			10/02/2005		AGRIUM PLANT	Observation	New Well	Rotary	No Chemistry
884	1420143	NE	10	055	22	4	19.2							15.2	18.3			11/02/2005		AGRIUM PLANT-FT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
885	1420152	SW	25	055	22	4	48.8											21/01/2005	21/02/2005	NCIA	Observation	Test Hole-Abandoned	Rotary	No Chemistry
886	1420161	SW	15	055	22	4	36.6											18/01/2005	18/01/2005	NCIA	Observation	Dry Hole-Abandoned	Rotary	No Chemistry
887	1420165	NW	04	055	22	4	12.2											18/01/2005	18/01/2005	NCIA	Observation	Dry Hole-Abandoned	Rotary	No Chemistry
888	1420173	SW	26	055	22	4	30.5											18/01/2005	18/01/2005	NCIA	Observation	Dry Hole-Abandoned	Rotary	No Chemistry
889	1420174	SE	30	055	21	4	47.2											19/01/2005	19/01/2005	NCIA	Observation	Dry Hole-Abandoned	Rotary	No Chemistry
890	1420181	SE	36	055	22	4	12.2											19/01/2005	19/01/2005	NCIA	Observation	Dry Hole-Abandoned	Rotary	No Chemistry
891	1420190	SW	15	055	22	4	36.6											18/01/2005	18/01/2005	NCIA	Observation	Unknown	Rotary	No Chemistry

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
892	1420193	SW	25	055	22	4	48.8											21/01/2005	21/01/2005	NCIA	Observation	Test Hole	Rotary	No Chemistry
893	1420197	SW	34	055	21	4	54.9											20/01/2005	20/01/2005	NCIA	Observation	Test Hole-Abandoned	Rotary	No Chemistry
894	1420203	SE	30	055	21	4	47.2											19/01/2005	19/01/2005	NCIA	Observation	Unknown	Rotary	No Chemistry
895	1420207	SW	34	055	21	4	54.9											20/01/2005	20/01/2005	NCIA	Observation	Test Hole	Rotary	No Chemistry
896	1420210	15	09	056	21	4	48.8							32.0	53.3			22/03/2004		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
897	1420213	NE	32	054	22	4	30.5							21.6	26.2			26/01/2005		NCIA	Observation	New Well	Rotary	No Chemistry
898	1420217	13	10	056	21	4	48.8							38.7	44.8			23/03/2004		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
899	1420224	16	10	056	21	4	48.8							40.2	43.3			24/03/2004		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
900	1420228	04	10	056	21	4	36.6							33.5	36.6			23/03/2004		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
901	1420242	NW	15	056	21	4	42.7							36.0	40.5			02/02/2005		NCIA	Observation	New Well	Rotary	No Chemistry
902	1420259	SE	29	054	22	4	36.6											17/01/2005	17/01/2005	NCIA	Observation	Test Hole-Abandoned	Rotary	No Chemistry
903	1420418	NE	10	055	22	4	25.0							21.9	25.0			09/02/2005		AGRIUM PLANT, FT SASKATCHEWAI	Observation	New Well	Rotary	No Chemistry
904	1420419	NE	10	055	22	4	30.5							21.9	25.0			09/02/2005		AGRIUM PLANT, FT SASKATCHEWAI	Observation	New Well	Rotary	No Chemistry
905	1420432	SW	32	055	21	4	17.1							14.0	17.1			08/09/2006		SHELL SCOTTFORD REFINERY	Observation	Piezometer	Rotary	No Chemistry
906	1420433	SW	32	055	21	4	45.7							38.7	41.8			08/09/2006		SHELL SCOTTFORD REFINERY	Observation	Piezometer	Rotary	No Chemistry
907	1420565	SW	34	055	21	4	42.7											21/01/2005	21/01/2005	N C I A	Observation	New Well-Abandoned	Rotary	No Chemistry
908	1420578	SE	16	056	21	4	48.8							39.6	45.7			23/06/2006		SHELL SCOTFORD	Observation	New Well	Rotary	No Chemistry
909	1420579	NE	04	056	21	4	44.2							36.9	39.9			21/06/2006		SHELL SCOTFORD	Observation	New Well	Rotary	No Chemistry
910	1421030	SW	36	54	22	4	24.4							14.3	15.8	15.8	18.9	03/07/2010		REPERIO RESOURCES	Observation	New Well	Rotary - Mud	No Chemistry
911	1421033	NE	26	54	22	4	10.7							6.4	9.4			24/06/2010		REPERIO RESOURCES	Observation	New Well	Rotary - Mud	No Chemistry
912	1421034	NE	26	54	22	4	12.2							7.6	10.7			25/06/2010		REPERIO RESOURCES	Observation	New Well	Rotary - Mud	No Chemistry
913	1421035	SW	26	54	22	4	11.3							8.2	9.8			01/07/2010		REPERIO RESOURCES	Observation	New Well	Rotary - Mud	No Chemistry
914	1421038	SW	26	54	22	4	16.5							9.1	15.2			01/07/2010		REPERIO RESOURCES	Observation	New Well	Rotary - Mud	No Chemistry
915	1421039	NE	26	54	22	4	10.7							6.1	9.1			29/06/2010		REPERIO RESOURCES	Observation	New Well	Rotary - Mud	No Chemistry
916	1495324	NE	12	056	21	4	34.4							31.1	34.1			22/08/2007		STRATHCONA COUNTY / UMA	Observation	New Well	Rotary	No Chemistry
917	2058433	04	17	054	22	4	29.0											22/04/1972		ALTA ENV - #791E	Observation	Test Hole	Unknown	No Chemistry
918	0196962	08	22	054	22	4	150.9											29/05/1975		ARC# TH 3-75	Other	Coal Test Hole	Unknown	No Chemistry
919	0261523	12	17	055	22	4	10.7											01/01/1935		NORMANDEAU, J	Other	Federal Well Survey	Hand Dug	No Chemistry
920	1420070	SE	29	054	22	4	36.6											17/01/2005	17/01/2005	NCIA	Other	New Well	Rotary	No Chemistry
921	1420129	NE	10	055	22	4	25.0							21.9	25.0			09/02/2005		AGRIUM PLANT	Other	New Well	Rotary	No Chemistry
922	1420140	NE	10	055	22	4	24.7							18.6	24.7			09/02/2005		AGRIUM PLANT	Other	New Well	Rotary	No Chemistry
923	1421047	SW	36	54	22	4	10.1							7.6	9.1			25/06/2010		REPERIO RESOURCES	Other	New Well	Rotary - Mud	No Chemistry
924	1795266	SE	32	56	21	4	3.6												29/09/2010	TOTAL E & P CANADA LTD.	Other	Old Well - Abandoned	Other	No Chemistry
925	1795267	SE	32	56	21	4	12.5												28/09/2010	TOTAL E & P CANADA	Other	Old Well - Abandoned	Unknown	No Chemistry
926	1795268	SE	32	56	21	4	23.7												30/09/2010	TOTAL E & P CANADA LTD	Other	Old Well - Abandoned	Bored	No Chemistry
927	1795269	SE	32	56	21	4	14.5												30/09/2010	TOTAL E & P CANADA LTD	Other	Old Well - Abandoned	Unknown	No Chemistry
928	1795270	NW	33	56	21	4	13.7												01/10/2010	TOTAL E & P CANADA LTD.	Other	Old Well - Abandoned	Unknown	No Chemistry
929	1795271	NW	33	56	21	4	14.3												01/10/2010	TOTAL E & P CANADA LTD	Other	Old Well - Abandoned	Unknown	No Chemistry
930	1795277	NW	33	56	21	4	14.3												04/10/2010	TOTAL E & P CANADA LTD	Other	Old Well - Abandoned	Unknown	No Chemistry
931	1795278	SW	33	56	21	4	8.8												05/10/2010	TOTAL E & P CANADA LTD.	Other	Old Well - Abandoned	Bored	No Chemistry
932	1795279	SE	33	56	21	4	33.5							32.0	33.5				07/10/2010	TOTAL E & P CANADA LTD.	Other	Old Well - Abandoned	Unknown	No Chemistry
933	1795280	NE	33	56	21	4	28.0												12/10/2010	TOTAL E & P CANADA LTD.	Other	Old Well - Abandoned	Unknown	No Chemistry
934	1795281	NE	34	56	21	4	30.7												06/10/2010	TOTAL E & P CANADA LTD	Other	Old Well - Abandoned	Unknown	No Chemistry
935	1795282	SE	4	57	21	4	27.7												06/10/2010	TOTAL E & P CANADA LTD	Other	Old Well - Abandoned	Unknown	No Chemistry
936	1795283	NE	33	56	21	4	16.8												05/10/2010	TOTAL E& P CANADA LTD	Other	Old Well - Abandoned	Unknown	No Chemistry
937	1795285	SE	28	56	21	4	10.3												04/10/2010	TOTAL E & P CANADA LTD	Other	Old Well - Abandoned	Unknown	No Chemistry
938	1795286	15	34	56	21	4	13.3												07/10/2010	TOTAL E & P CANADA LTD.	Other	Old Well - Abandoned	Unknown	No Chemistry
939	1888893	4	18	56	21	4	48.8							30.5	33.5	33.5	36.6	29/06/2009		ACCESS PIPELINES	Other	New Well	Rotary	No Chemistry
940	0083371	03	07	055	21	4	50.3	39.6	50.3									11/09/1981		MOYSEY, FRANK	Stock	New Well	Rotary	No Chemistry
941	0083421	16	16	055	21	4	14.0											01/01/1934		MANZ, A.	Stock	Federal Well Survey	Bored	No Chemistry
942	0083422	NW	17	055	21	4	39.6											01/11/1973		SCOTFORD COLONY	Stock	New Well	Cable Tool	No Chemistry
943	0083424	NE	17	055	21	4	85.3	73.2	85.3									07/12/1983		SCOTFORD COLONY	Stock	New Well	Rotary	Chemistry Exists
944	0083427	16	17	055	21	4	82.3											02/07/1974		SCOTFORD COLONY	Stock	New Well	Cable Tool	No Chemistry
945	0083429	09	17	055	21	4	45.7											01/08/1973		SCOTFORD COLONY	Stock	New Well	Cable Tool	No Chemistry
946	0083430	16	17	055	21	4	73.2	71.6	73.2									23/06/1978		SCOTFORD COLONY	Stock	New Well	Rotary	No Chemistry
947	0083431	16	17	055	21	4	85.3													MANN, A.A.	Stock	Federal Well Survey	Drilled	No Chemistry
948	0083432	16	17	055	21	4	134.1											02/12/1983		SCOTFORD COLONY	Stock	New Well	Rotary	No Chemistry
949	0083434	NE	17	055	21	4	21.3							17.7	19.2			27/08/1986		SCOTFORD COLONY	Stock	New Well	Rotary	No Chemistry
950	0083441	16	18	055	21	4	12.2											01/01/1928		BARCLEY, E.H.	Stock	Federal Well Survey	Bored	No Chemistry
951	0083442	SW	19	55	21	4	2.4													WING, H.S.	Stock	Chemistry	Hand Dug	Chemistry Exists
952	0083443	SW	19	055	21	4	3.0													WING, GERRY	Stock	Chemistry	Hand Dug	Chemistry Exists
953	0083444	SW	19	055	21	4	4.3													BLACKLOCK, BRIAN	Stock	Chemistry	Hand Dug	Chemistry Exists
954	0083454	15	19	055	21	4	7.3											10/05/1968	01/01/2001	NEBEL, ROBERT	Stock	New Well	Bored	Chemistry Exists
955	0083456	15	19	055	21	4	8.5	1.8	7.9									07/01/1980		HENDERSON, GARTH	Stock	New Well	Bored	No Chemistry
956	0083457	15	19	055	21	4	12.2	5.5	7.6									02/01/1980	01/01/2001	HENDERSON, GARTH	Stock	New Well	Bored	No Chemistry
957	0083464	01	21	055	21	4	38.1	31.7	36.6									03/04/1980		KRIBS, ROBERT	Stock	New Well	Rotary	Chemistry Exists
958	0083466	04	21	055	21	4	18.3											14/09/1983		WAKARYK, ANDREW	Stock	New Well	Bored	No Chemistry
959	0083475	05	23	055	21	4	54.9											01/01/1926		PENELTON, J.	Stock	Federal Well Survey	Drilled	No Chemistry
960	0083478	14	23	055	21	4	13.4											01/01/1926		ARNDT, G.	Stock	Federal Well Survey	Bored	No Chemistry
961	0083498	SE	27	055	21	4	56.4	40.2	51.2									30/11/1962		CHOLOWSKI, ALBERT	Stock	New Well	Rotary	No Chemistry
962	0083504	16	27	55	21	4	26.8											05/07/1974		HEINRICHS, ED	Stock	New Well	Cable Tool	Chemistry Exists
963	0083515	SE	30	055	21	4	9.8	3.7	9.8									20/08/1975	01/01/2001	GODBOUT, STAN	Stock	New Well	Bored	No Chemistry
964	0083530	13	30	055	21	4	42.7											01/05/1974		LIVING, DALE	Stock	New Well	Cable Tool	Chemistry Exists
965	0083547	04	34	055	21	4	32.0											13/04/1982		RADKE, BEN	Stock	New Well	Cable Tool	No Chemistry
966	0083550	SW	34	055	21	4	94.5	85.3	94.5									28/09/1977		RADKE, BEN	Stock	New Well	Rotary	Chemistry Exists
967	0083553	04	34	055	21	4	14.6											06/11/1981		RADKE, BEN	Stock	New Well	Bored	No Chemistry
968	0083557	13	34	055	21	4	36.6											09/09/1981		HALL'S AUTO	Stock	New Well	Cable Tool	No Chemistry
969	0083558	13	34	055	21	4	40.5											19/10/1978		DAOUST, CHARLES	Stock	New Well	Cable Tool	No Chemistry
970	0083559	13	34	055	21	4	42.7							36.6	42.7			14/07/1987		DAOUST, C.	Stock	New Well	Rotary	No Chemistry
971	0083562	16	34	055	21	4	53.3											01/05/1982		BERG, RON	Stock	New Well	Cable Tool	No Chemistry
972	0083574	12	36	55	21	4	12.2											01/01/1936		PROKOPCZAK, J.	Stock	Federal Well Survey	Bored	No Chemistry

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
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	Chemistry Exists
979	0154375	NE	03	056	22	4	59.4	45.7	57.9									17/04/1985		KUGLER, IRWIN	Stock	New Well	Rotary	No Chemistry
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	15.2											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		GABERT, M.	Stock	New Well	Rotary	No Chemistry
1009	0263818	03	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		MEDAK, 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	55	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	HEINRICHS, 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	23/09/1992	HENKELMAN, P.R.	Unknown	New Well-Abandoned	Rotary	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	36.6											07/08/1976		ALTA ENV #1620E	Unknown	Test Hole	Rotary	No Chemistry
1048	0240770	NW	29	054	22	4	42.7											08/08/1976		ALTA ENV #1622E	Unknown	Test Hole	Rotary	No Chemistry
1049	0260032	NW	07	054	22	4	45.7													HOPKIN, JIM	Unknown	Chemistry	Drilled	Chemistry Exists
1050	0260036	NE	08	054	22	4	21.3													TUCKER, CHARLES	Unknown	Chemistry	Bored	Chemistry Exists
1051	0260040	NE	08	054	22	4	20.7											28/10/1974		KREBS, CLIFF	Unknown	Chemistry	Drilled	Chemistry Exists
1052	0260041	NE	08	054	22	4	23.8													WILKINSON, J.P.	Unknown	Chemistry	Bored	Chemistry Exists
1053	0260042	NE	08	054	22	4	0.0													GIDYCH, R.T.	Unknown	Chemistry	Unknown	Chemistry Exists

	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
		LSD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
1054	0260043	NE	08	054	22	4	8.2													STEVENSON, R.C.	Unknown	Chemistry	Hand Dug	Chemistry Exists
1055	0260044	NE	08	054	22	4	7.9													LIVINGSTON, BRIAN	Unknown	Chemistry	Bored	Chemistry Exists
1056	0260047	NE	08	054	22	4	67.1													MCKINLAY, R.L.	Unknown	Chemistry	Drilled	Chemistry Exists
1057	0260049	NE	08	054	22	4	12.2													KENSON HLDG	Unknown	Chemistry	Bored	Chemistry Exists
1058	0260050	NE	08	054	22	4	12.2													KENSON HLDG	Unknown	Chemistry	Bored	Chemistry Exists
1059	0260053	NE	08	054	22	4	0.0													SUPINA, NICK	Unknown	Chemistry	Unknown	Chemistry Exists
1060	0260055	NE	08	054	22	4	7.9													BECKER, MARK	Unknown	Chemistry	Unknown	Chemistry Exists
1061	0260056	NE	08	054	22	4	24.4													HENDRICKSON, CONNIE	Unknown	Chemistry	Unknown	Chemistry Exists
1062	0260057	NE	08	054	22	4	3.0													SPALLIN, LYNNE	Unknown	Chemistry	Unknown	Chemistry Exists
1063	0260059	NE	08	054	22	4	16.8													KENNEDY, KENNETH	Unknown	Chemistry	Unknown	Chemistry Exists
1064	0260060	NE	08	054	22	4	9.1													GROTEN, HELEN	Unknown	Chemistry	Unknown	Chemistry Exists
1065	0260061	00	08	054	22	4	10.7													DIRKS, G.A.	Unknown	Chemistry	Unknown	Chemistry Exists
1066	0260067	NW	09	054	22	4	61.0													VAN CAMP, ERIC	Unknown	Chemistry	Drilled	Chemistry Exists
1067	0260173	NW	16	054	22	4	27.4													THOMAS, ALFRED	Unknown	Chemistry	Unknown	Chemistry Exists
1068	0260175	NW	16	054	22	4	29.6													MCKAY, A.A.	Unknown	Chemistry	Unknown	Chemistry Exists
1069	0260176	NE	16	054	22	4	24.1													GUY, F.E.	Unknown	Chemistry	Unknown	Chemistry Exists
1070	0260177	SE	17	054	22	4	6.1													TWIGGE, E.R.	Unknown	Chemistry	Drilled	Chemistry Exists
1071	0260178	SW	17	054	22	4	80.8													GALLOWAY, LLOYD	Unknown	Chemistry	Unknown	Chemistry Exists
1072	0260185	SE	19	054	22	4	54.9													RIVER BRAE FARM	Unknown	Chemistry	Unknown	Chemistry Exists
1073	0260186	SE	19	054	22	4	56.4													GALLOWAY, ROY	Unknown	Chemistry	Unknown	Chemistry Exists
1074	0260187	NW	19	054	22	4	57.9													LAMPRECHT, HENRY	Unknown	Chemistry	Unknown	Chemistry Exists
1075	0260188	NW	19	054	22	4	70.1													GABERT, DOUG	Unknown	Chemistry	Drilled	Chemistry Exists
1076	0260189	10	19	054	22	4	32.9														Unknown	Chemistry	Unknown	Chemistry Exists
1077	0260191	04	20	054	22	4	28.3											01/01/1915		PETERS, R.J.	Unknown	New Well	Drilled	No Chemistry
1078	0260197	SW	22	054	22	4	9.1													SHACKLETON, STV	Unknown	Chemistry	Unknown	Chemistry Exists
1079	0260218	02	26	054	22	4	22.9							12.2	13.4			18/09/1964		MID WESTERN INDUSTRIAL GAS LTI	Unknown	New Well	Unknown	No Chemistry
1080	0260220	SW	26	054	22	4	61.0													IRELAND, KEN	Unknown	Chemistry	Bored	Chemistry Exists
1081	0260221	SW	26	054	22	4	51.8													GALLOWAY, EDWARD	Unknown	Chemistry	Drilled	Chemistry Exists
1082	0260231	NW	28	054	22	4	61.0													RUDOLPH, MARJORIE	Unknown	Chemistry	Drilled	Chemistry Exists
1083	0260359	NW	28	054	22	4	32.0													KOVAC, JOE	Unknown	Chemistry	Unknown	Chemistry Exists
1084	0260361	NW	28	054	22	4	30.5													MCNIRNE, ROBERT	Unknown	Chemistry	Unknown	Chemistry Exists
1085	0260363	NW	28	054	22	4	29.9													HAMER, LYLE	Unknown	Chemistry	Unknown	Chemistry Exists
1086	0260364	NW	28	054	22	4	25.9													LEONHARDT, C.J.	Unknown	Chemistry	Drilled	Chemistry Exists
1087	0260371	00	28	054	22	4	24.4													FINDLAY, W.	Unknown	Chemistry	Unknown	No Chemistry
1088	0260372	NW	29	054	22	4	10.4													VAN DEN BERG	Unknown	Chemistry	Unknown	Chemistry Exists
1089	0260374	NW	29	054	22	4	35.1													VAN DEN BERG	Unknown	Chemistry	Unknown	Chemistry Exists
1090	0260381	00	29	054	22	4	15.5											01/05/1965		HANFORD, R.M.	Unknown	New Well	Bored	No Chemistry
1091	0260385	SE	30	054	22	4	67.1													LAINPRECHT, H.	Unknown	Chemistry	Unknown	Chemistry Exists
1092	0260389	NW	31	054	22	4	18.9													#TH 1	Unknown	Test Hole	Unknown	No Chemistry
1093	0260391	NW	31	054	22	4	16.2													#TH 2	Unknown	Test Hole	Unknown	No Chemistry
1094	0260392	NW	31	054	22	4	16.8													#TH 3	Unknown	Test Hole	Unknown	No Chemistry
1095	0260394	NW	31	054	22	4	15.8													#TH 4	Unknown	Test Hole	Unknown	No Chemistry
1096	0260395	NW	31	054	22	4	23.2													#TH 5	Unknown	Test Hole	Unknown	No Chemistry
1097	0260398	SW	32	054	22	4	71.6													SEWCHUK, S.	Unknown	Chemistry	Unknown	Chemistry Exists
1098	0260399	SW	32	054	22	4	0.0													SCOTFORD COLONY	Unknown	Chemistry	Unknown	No Chemistry
1099	0260400	SW	32	054	22	4	9.1													KOHUT, WM	Unknown	Chemistry	Drilled	Chemistry Exists
1100	0260401	SW	32	054	22	4	12.8													DONALDSON, ARTHUR	Unknown	Chemistry	Unknown	Chemistry Exists
1101	0260405	NW	32	054	22	4	15.8											01/01/1927		HOPPER#N SASK RIVER	Unknown	New Well	Drilled	No Chemistry
1102	0260413	NW	32	054	22	4	0.0													WALKER, L.	Unknown	Chemistry	Unknown	No Chemistry
1103	0260415	NW	32	054	22	4	0.0													SHERRITT GORDON MINES	Unknown	Chemistry	Unknown	No Chemistry
1104	0260431	SW	34	054	22	4	49.4											02/05/1955			Unknown	New Well	Drilled	No Chemistry
1105	0260436	SW	34	054	22	4	0.0													EMONTS, GERALD	Unknown	Chemistry	Unknown	No Chemistry
1106	0260462	EH	36	054	22	4	12.2													LAMOUREUX, JIM	Unknown	Chemistry	Unknown	No Chemistry
1107	0260942	NW	13	54	23	4	69.5											02/09/1930		ARMSTRONG, E.	Unknown	Other	Drilled	No Chemistry
1108	0261035	SE	01	055	22	4	69.5											01/09/1930		ATKINSON, H	Unknown	Well Inventory	Unknown	No Chemistry
1109	0261038	SE	01	055	22	4	54.9											19/07/1959		HANSEN, P E	Unknown	New Well	Unknown	No Chemistry
1110	0261055	NW	28	054	22	4	36.0														Unknown	New Well	Drilled	No Chemistry
1111	0261166	NW	06	055	22	4	57.9													JESKE, O	Unknown	Test Hole	Rotary	No Chemistry
1112	0261432	SE	13	055	22	4	56.4											01/09/1930		TATHAM, J	Unknown	New Well	Unknown	No Chemistry
1113	0261583	SW	25	054	23	4	39.6											12/10/1963		HANES, A	Unknown	New Well	Rotary	No Chemistry
1114	0261596	16	18	055	22	4	12.5											23/10/1964		LAMOUREUX, J A	Unknown	New Well	Bored	No Chemistry
1115	0261749	SE	01	055	23	4	4.6														Unknown	Unknown	Unknown	No Chemistry
1116	0261751	SE	01	055	23	4	29.6											28/08/1984	28/08/1984	SERNA, VICTOR	Unknown	New Well-Abandoned	Bored	No Chemistry
1117	0262042	SE	34	054	23	4	91.4	24.4	42.7									28/10/1974		BELYEA, A.F.	Unknown	New Well	Unknown	Chemistry Exists
1118	0262078	NW	34	054	23	4	67.1											01/07/1954		SPEER, A.	Unknown	New Well	Drilled	No Chemistry
1119	0262257	SW	35	054	23	4	21.0											12/11/1977	12/11/1977	YUSKIW, N	Unknown	Old Well-Abandoned	Bored	No Chemistry
1120	0262433	01	03	055	23	4	15.2													WILSON	Unknown	Federal Well Survey	Bored	No Chemistry
1121	0263525	NE	05	056	21	4													19/10/2007	SHELL CANAD LIMITED	Unknown	Old Well-Abandoned	Unknown	Chemistry Exists
1122	0263554	NW	07	056	21	4	56.7													VISSCHER, P.	Unknown	Unknown	Unknown	No Chemistry
1123	0263560	SW	08	056	21	4													01/11/2007	SHELL CANADA - OIL SANDS	Unknown	Old Well-Abandoned	Unknown	Chemistry Exists
1124	0263661	09	11	056	21	4	66.4	32.9	36.0	36.9	37.8							31/08/1973		ANURATIL, J.	Unknown	Unknown	Unknown	No Chemistry
1125	0263852	SW	2	56	22	4													07/12/2010	NOEL, MAURICE	Unknown	Old Well - Abandoned	Unknown	Chemistry Exists
1126	0263867	SW	3	56	22	4	54.9												24/07/2008	MELENKA, ALEX	Unknown	Old Well-Abandoned	Unknown	Chemistry Exists
1127	0264091	SE	11	056	22	4	64.0	51.8	64.0									10/10/1973		SERINK, MIKE	Unknown	New Well	Rotary	Chemistry Exists
1128	0264141	SE	12	056	22	4	61.0													SERINK, MIKE	Unknown	Chemistry	Unknown	Chemistry Exists
1129	0264168	SE	13	056	22	4	61.0													BLOOM, B.	Unknown	Chemistry	Unknown	Chemistry Exists
1130	0264193	NE	13	056	22	4	50.3													OOSTERHUIS, H.T.	Unknown	Chemistry	Unknown	Chemistry Exists
1131	0264390	SW	29	056	21	4	0.0													ESSO RES	Unknown	Chemistry	Unknown	Chemistry Exists
1132	0268135	SE	01	055	23	4	4.6														Unknown	Unknown	Unknown	No Chemistry
1133	0268141	SE	01	055	23	4	4.6														Unknown	Unknown	Unknown	No Chemistry
1134	0297579	SE	21	56	21	4													20/07/2007	MARQUAROT, BRENT	Unknown	Old Well-Abandoned	Unknown	No Chemistry

	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
		LSD	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												26/09/2011	OVIDENT ENERGY / WILLIAMS ENER	Unknown	Old Well - Abandoned	Unknown	No Chemistry
1137	1420003	NW	05	056	21	4													01/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1138	1420578	SE	16	056	21	4													01/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1139	1575400	SE	18	56	21	4													08/07/2009	ACCESS PIPELINES	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1140	1575427	SW	09	056	21	4													19/10/2007	SHELL CANADA LIMITED OIL SANDS	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1141	1575428	SW	09	056	21	4													19/10/2007	SHELL CANADA LIMITED OIL SANDS	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1142	1575581	NW	09	056	21	4													20/10/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1143	1575582	SW	16	056	21	4													20/10/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1144	1575583	SW	16	056	21	4													20/10/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1145	1575584	SE	16	056	21	4													01/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1146	1575585	SE	30	055	21	4													02/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1147	1575586	SE	30	055	21	4													02/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1148	1575587	SE	30	055	21	4													02/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1149	1575588	SE	30	055	21	4													02/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1150	1575589	NW	30	055	21	4													02/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1151	1575666	SW	12	056	22	4													08/12/2008	PETRO CANADA	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1152	1575667	SW	13	056	22	4													09/12/2008	PETRO CANADA	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1153	1575668	SW	13	056	22	4													09/12/2008	PETRO CANADA	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1154	1575669	SW	16	056	21	4													11/06/2008	SHELL CANADA LTD.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1155	1575670	SW	16	056	21	4													11/06/2008	SHELL CANADA LTD.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1156	1575671	SE	16	056	21	4													11/06/2008	SHELL CANADA LTD.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1157	1575697	NE	35	55	21	4	18.3												02/07/2009	CHICHAK, L.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1158	1575698	NE	35	55	21	4	4.9												01/07/2009	CHICHAK, L.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1159	1575699	NW	26	55	21	4	30.5												02/07/2009	PROKOPCZAK, L.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1160	1575700	NW	26	55	21	4	18.3												10/07/2009	PROKOPCZAK, L.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1161	1575701	NW	26	55	21	4	27.4												10/07/2009	PROKOPCZAK, L.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1162	1575702	SW	35	55	21	4	42.7												02/07/2009	HALLABEY, S.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1163	1575703	NW	30	55	21	4	5.5												01/07/2009	PROKOPCZAK, B.	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1164	1575880	SE	11	56	22	4													09/12/2008	PETRO CANADA	Unknown	Old Well - Abandoned	Unknown	No Chemistry
1165	1575882	NW	12	56	22	4													09/12/2008	PETRO CANADA	Unknown	Old Well - Abandoned	Unknown	No Chemistry
1166	1575883	SW	12	56	22	4													09/12/2008	PETRO CANADA	Unknown	Old Well - Abandoned	Unknown	No Chemistry
1167	1690056	NW	09	056	21	4													01/11/2007	SHELL CANADA LIMITED	Unknown	Old Well-Abandoned	Unknown	No Chemistry
1168	1795275	15	34	56	21	4	3.7											14/06/2011	14/06/2011	TOTAL E & P CANADA LTD.	Unknown	Old Well - Abandoned	Unknown	No Chemistry

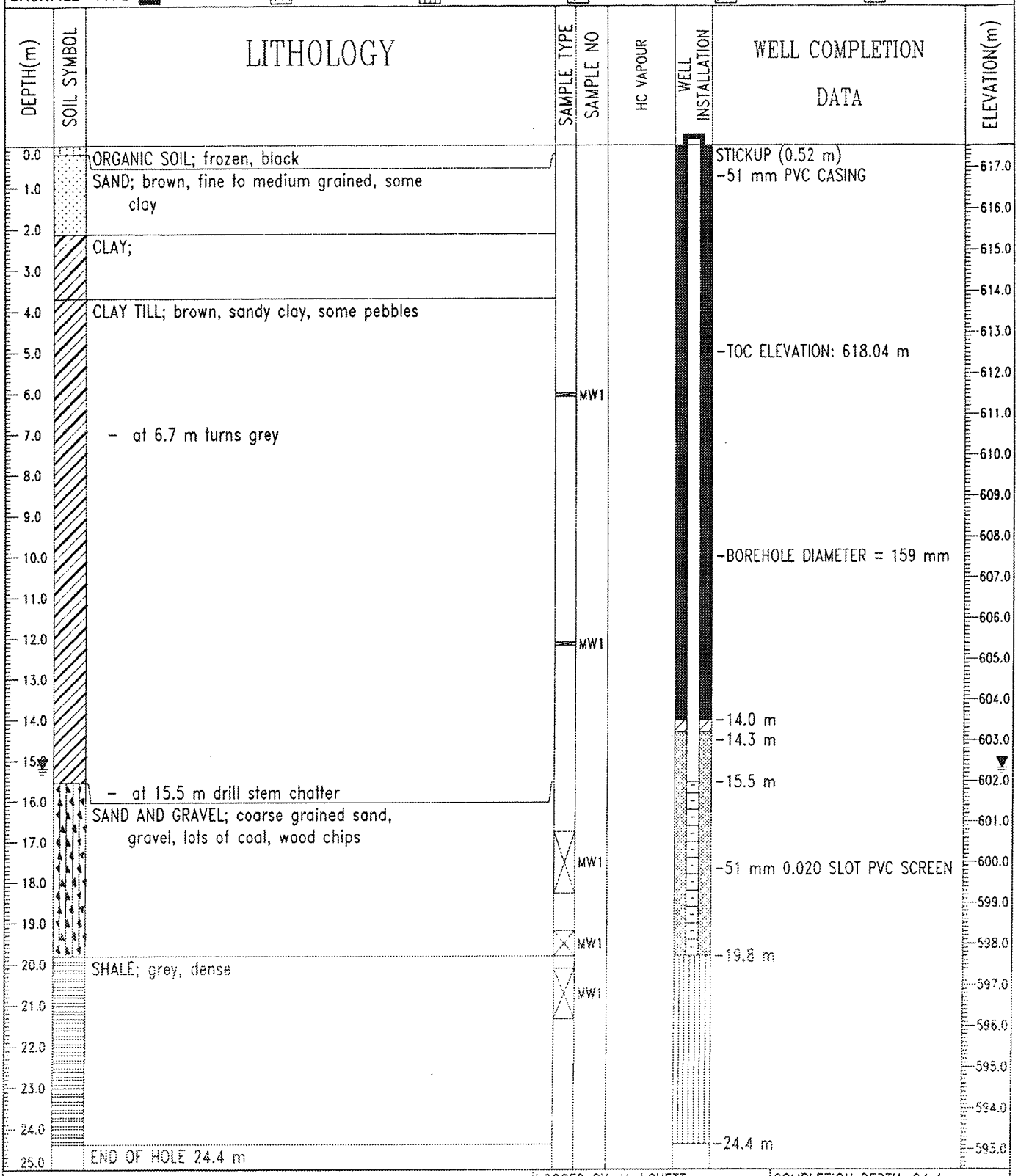
* Data Source: Alberta Environment and Water, Alberta Water Well Information Database. Retrieved April 3, 2012, via Alberta Environment and Water FTP site.
* Date of Search: April 11, 2012

Appendix 2 Borehole Logs

CLIENT: NCIA	FIELD PERSONNEL: H. LOVETT	BOREHOLE NO: MW-01
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)

SAMPLE TYPE: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



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

05/11/04 07:28PM (PETION-1)

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)

SAMPLE TYPE: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0		ORGANIC SOIL; frozen, black					STICKUP (0.60 m)	630.0
1.0		SAND; brown, medium grained					-51 mm PVC CASING	
2.0							-TOC ELEVATION: 631.31 m	629.0
3.0							-BOREHOLE DIAMETER = 159 mm	628.0
4.0								627.0
5.0								626.0
6.0								625.0
7.0		CLAY TILL; brown, sandy clay, silty, some pebbles, coal chips						624.0
8.0								623.0
9.0								622.0
10.0								621.0
11.0								620.0
12.0								619.0
13.0								618.0
14.0		SAND; brown, grey, speckled medium grained sand						617.0
15.0								616.0
16.0								615.0
17.0		CLAY; brown, sandy						614.0
18.0		SAND; grey, medium speckled sand		MW2				613.0
19.0								612.0
20.0								611.0
21.0								610.0
22.0								609.0
23.0								608.0
24.0				MW2				607.0
25.0								606.0

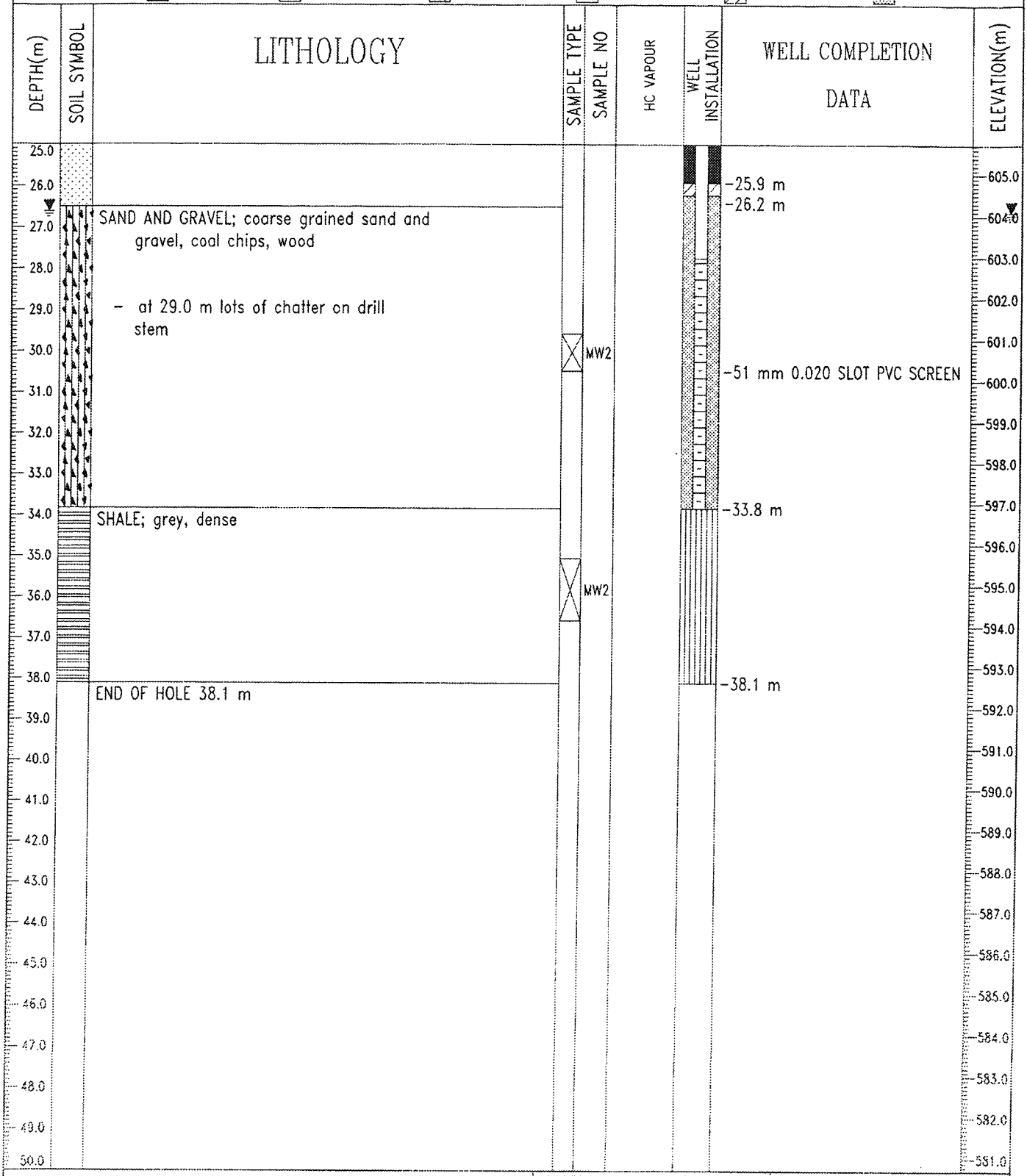
Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 38.1 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/24/05
	Fig. No: 17094	Page 1 of 2

05/11/04 02:28PM (PELTON-1)

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)

SAMPLE TYPE: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



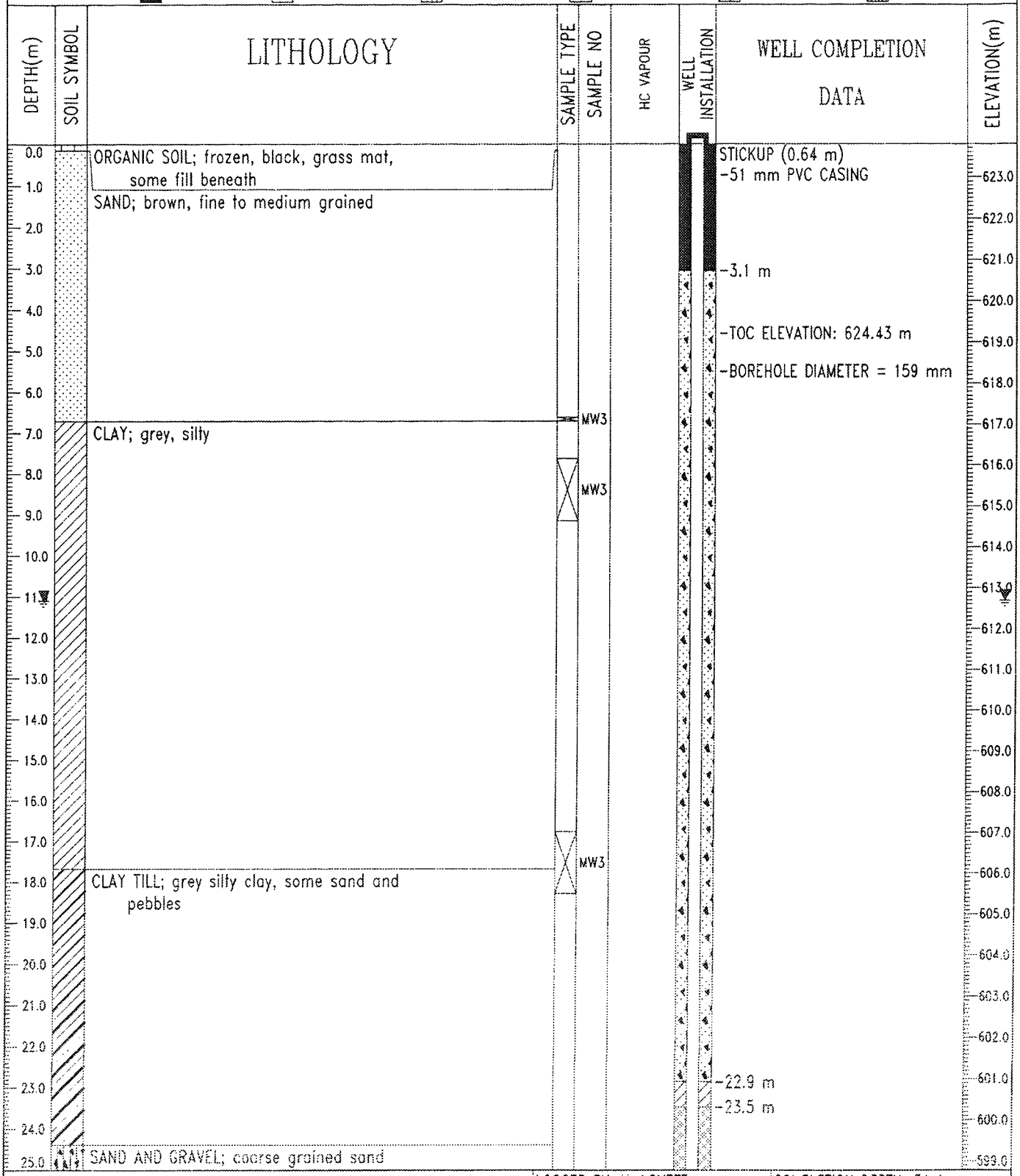
Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 38.1 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/24/05
	Fig. No: 17094	Page 2 of 2

05/11/04 02:28PM (PELTON-1)

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)

SAMPLE TYPE: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



Stantec Consulting Ltd.	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 31.4 m
Edmonton, Alberta	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/25/05
	Fig. No: 17094	Page 1 of 2

05/11/04 02:28PM (PETCH-1)

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)

SAMPLE TYPE: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0	with coal and gravel		MW3			-25.0 m	598.0
26.0			MW3				
27.0						-51 mm 0.020 SLOT PVC SCREEN	597.0
28.0							596.0
29.0							595.0
30.0	SHALE; grey, dense		MW3			-29.6 m	594.0
31.0						-31.4 m	593.0
32.0	END OF HOLE 31.4 m						592.0
33.0							591.0
34.0							590.0
35.0							589.0
36.0							588.0
37.0							587.0
38.0							586.0
39.0							585.0
40.0							584.0
41.0							583.0
42.0							582.0
43.0							581.0
44.0							580.0
45.0							579.0
46.0							578.0
47.0							577.0
48.0							576.0
49.0							575.0
50.0							574.0

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

05/11/04 02:26PM (PETION-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	LITHOLOGY	SAMPLE TYPE / SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0	ORGANIC SOIL; black, frozen				STICKUP (0.54 m)	620.0
1.0	CLAY; grey, sandy				-152 mm PVC CASING	619.0
2.0					-1.5 m	618.0
3.0					-TOC ELEVATION: 620.79 m	617.0
4.0					-BOREHOLE DIAMETER = 222 mm	616.0
5.0						615.0
6.0						614.0
7.0	SAND; brown, fine to coarse grained, pebbles, black speckles	MW4				613.0
8.0						612.0
9.0						611.0
10.0						610.0
11.0						609.0
12.0						608.0
13.0						607.0
14.0						606.0
15.0						605.0
16.0						604.0
17.0	- at 16.8 m finer grained brown sand					603.0
18.0 ▼					-18.3 m	602.0 ▼
19.0	- at 18.3 m back to medium to coarse grained grey/brown sand				-19.5 m	601.0
20.0	SHALE; grey, clay					600.0
21.0		MW4				599.0
22.0	SAND; grey, medium to coarse grained	MW4			-21.6 m	598.0
23.0	SAND AND GRAVEL; grey, coarse grained sand and gravel, wood fibers	MW4				597.0
24.0					-155 mm 0.020 SLOT PVC SCREEN	596.0
25.0						

Stantec Consulting Ltd.
Edmonton, Alberta

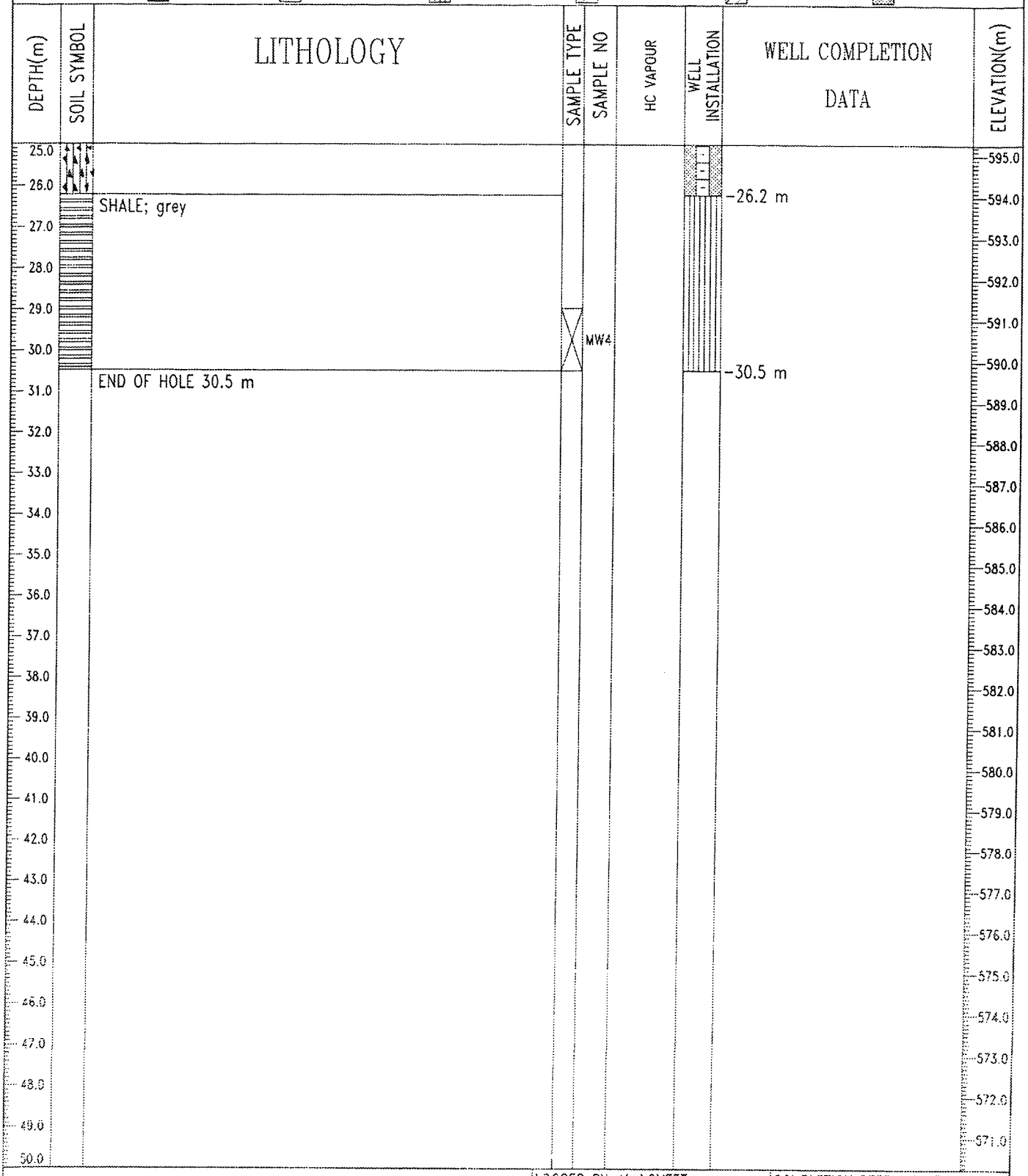
LOGGED BY: H. LOVETT	COMPLETION DEPTH: 30.5 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/25/05
Fig. No: 17094	Page 1 of 2

05/11/04 02:32PM (PETIOR-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



Stantec Consulting Ltd.	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 30.5 m
Edmonton, Alberta	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/25/05
	Fig. No: 17094	Page 2 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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	LITHOLOGY	SAMPLE TYPE / SAMPLE NO / HC VAPOUR / WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0	TOPSOIL; frozen, black, some organics		STICKUP (0.61 m)	624.0
1.0	SAND; brown, fine to medium grained		-51 mm PVC CASING	623.0
2.0				622.0
3.0			-3.1 m	621.0
4.0	CLAY; brown, soft, silty		-TOC ELEVATION: 624.89 m	620.0
5.0			-BOREHOLE DIAMTER = 159 mm	619.0
6.0				618.0
7.0	- from 7.3 to 10.7 m blue, silty clay			617.0
8.0				616.0
9.0				615.0
10.0				614.0
11.0	TILL; blue, silty clay, small gravel, multi colored			613.0
12.0				612.0
13.0				611.0
14.0				610.0
15.0				609.0
16.0	GRAVEL; large gravel, multi colored, tower shakes			608.0
17.0	TILL; sandy, sandy clay, fine grained, small gravel, grey			607.0
18.0	SAND AND GRAVEL; grey, medium to coarse grained sand, small gravel			606.0
19.0	CLAY TILL; sandy, grey, fine grained sandy clay till	MW5		605.0
20.0				604.0
21.0				603.0
22.0			-22.6 m	602.0
23.0	- well cemented from 23.2 to 25.0 m		-23.2 m	601.0
24.0				
25.0		MW5		600.0

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 1 of 2

05/11/04 02:29PM (PELTON-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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0				MW5				599.0
26.0		SAND; grey, salt and pepper color, fine to medium grained sand						598.0
27.0							-26.8 m	597.0
28.0		GRAVEL; small to large gravel, multi colored, sand and gravel mixed alot		MW			-28.4 m	596.0
29.0								595.0
30.0							-51 mm 0.020 SLOT PVC SCREEN	594.0
31.0							-31.4 m	593.0
32.0		SHALE; grey, dense						592.0
33.0								591.0
34.0								590.0
35.0								589.0
36.0								588.0
37.0							-37.5 m	587.0
38.0		END OF HOLE 37.5 m						586.0
39.0								585.0
40.0								584.0
41.0								583.0
42.0								582.0
43.0								581.0
44.0								580.0
45.0								579.0
46.0								578.0
47.0								577.0
48.0								576.0
49.0								575.0
50.0								

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

05/11/04 02:29PM (PELTON-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0		TOPSOIL; black/brown, frozen, organics					STICKUP (0.67 m)	629.0
1.0		CLAY; sandy, light brown, fine grained					-51 mm PVC CASING	
2.0								628.0
3.0		- at 3.1 m turns grey, silty					-3.1 m	627.0
4.0				MW6			-TOC ELEVATION: 630.28 m	626.0
5.0							-BOREHOLE DIAMETER = 159 mm	625.0
6.0								624.0
7.0				MW6				623.0
8.0		CLAY TILL; grey, silty, clay, some rocks and pebbles						622.0
9.0								621.0
10.0								620.0
11.0								619.0
12.0								618.0
13.0								617.0
14.0		- at 13.7 m becomes more sandy, firm						616.0
15.0								615.0
16.0								614.0
17.0								613.0
18.0								612.0
19.0								611.0
20.0								610.0
21.0								609.0
22.0								608.0
23.0		SAND; grey, black speckled, medium grained, some silt		MW6				607.0
24.0		CLAY; grey, sandy, silty						606.0
25.0		SAND;						605.0

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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

05/11/04 02:42PM (PELTON-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0								604.0
26.0								603.0
27.0		CLAY, grey, sandy, silty						602.0
28.0		SAND; grey, black speckled, some silt						601.0
29.0				MW6				600.0
30.0		CLAY; grey, sandy, silty						599.0
31.0		SAND;						598.0
32.0		CLAY; grey, sandy, silty					-32.3 m	597.0
33.0		SAND; grey, medium to coarse, speckled, some silt					-32.9 m	596.0
34.0				MW6			-34.4 m	595.0
35.0								594.0
36.0		SAND AND GRAVEL; coarse sand and gravel with coal					-51 mm 0.020 SLOT PVC SCREEN	593.0
37.0				MW6				592.0
38.0								591.0
39.0		SHALE; grey, dense					-39.0 m	590.0
40.0								589.0
41.0		SANDSTONE; hard, brown		MW6				588.0
42.0		SHALE; grey, dense						587.0
43.0				MW6				586.0
44.0								585.0
45.0							-45.7 m	584.0
46.0		END OF HOLE 45.7 m						583.0
47.0								582.0
48.0								581.0
49.0								580.0
50.0								

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Edmonton, Alberta

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

05/11/04 02:42PM (PELTON-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0		SAND; brown, medium to coarse grained sand and gravel					STICKUP (0.60 m)	630.0
1.0							-152 mm PVC CASING	629.0
2.0								628.0
3.0		CLAY; grey, sandy					-TOC ELEVATION: 631.01 m	627.0
4.0		SAND; grey, fine grained					-BOREHOLE DIAMETER = 222 mm	626.0
5.0								625.0
6.0								624.0
7.0								623.0
8.0								622.0
9.0								621.0
10.0		CLAY; grey, sandy						620.0
11.0								619.0
12.0								618.0
13.0		SAND; grey, fine grained						617.0
14.0								616.0
15.0								615.0
16.0								614.0
17.0		CLAY TILL; grey, sandy clay with pebbles						613.0
18.0								612.0
19.0								611.0
20.0								610.0
21.0								609.0
22.0								608.0
23.0								607.0
24.0								606.0
25.0								

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Edmonton, Alberta

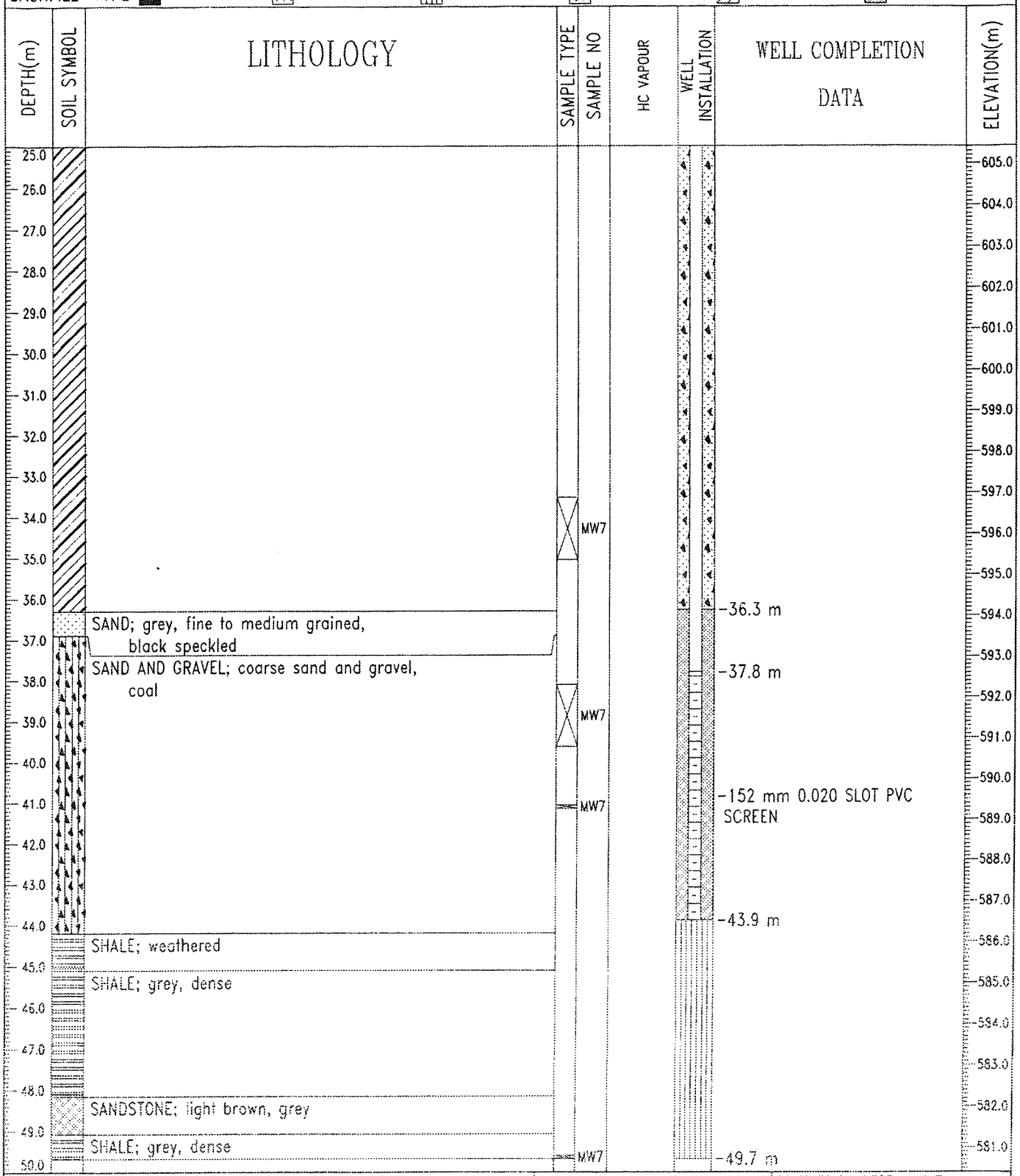
LOGGED BY: H. LOVETT | COMPLETION DEPTH: 49.7 m
REVIEWED BY: D. YOSHISAKA | COMPLETE: 02/14/05
Fig. No: 17094 |

05/11/04 02:47PM (PELTON-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



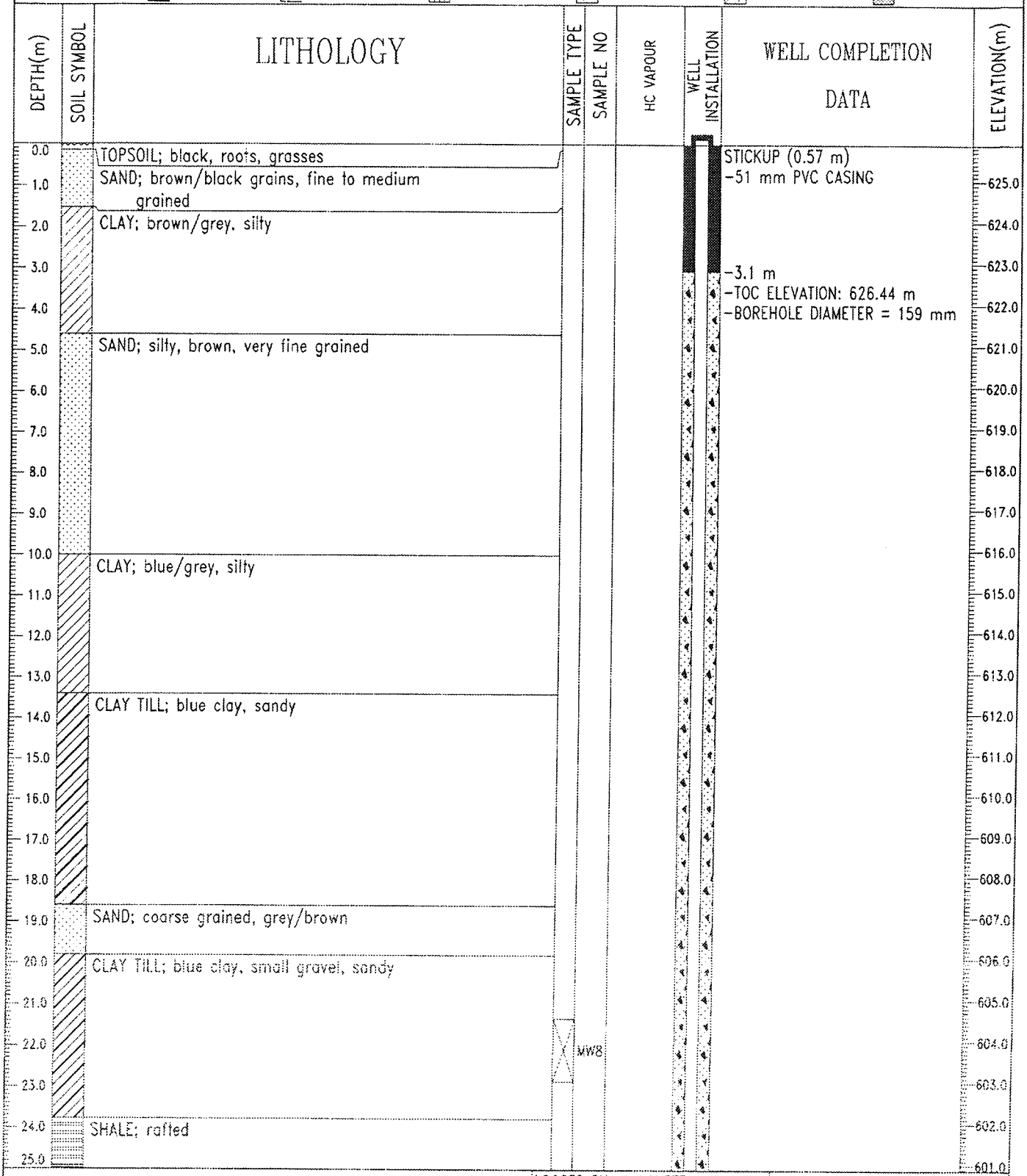
Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 49.7 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 02/14/05
	Fig. No: 17094	Page 2 of 2

05/11/04 02:47PM (PETION-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



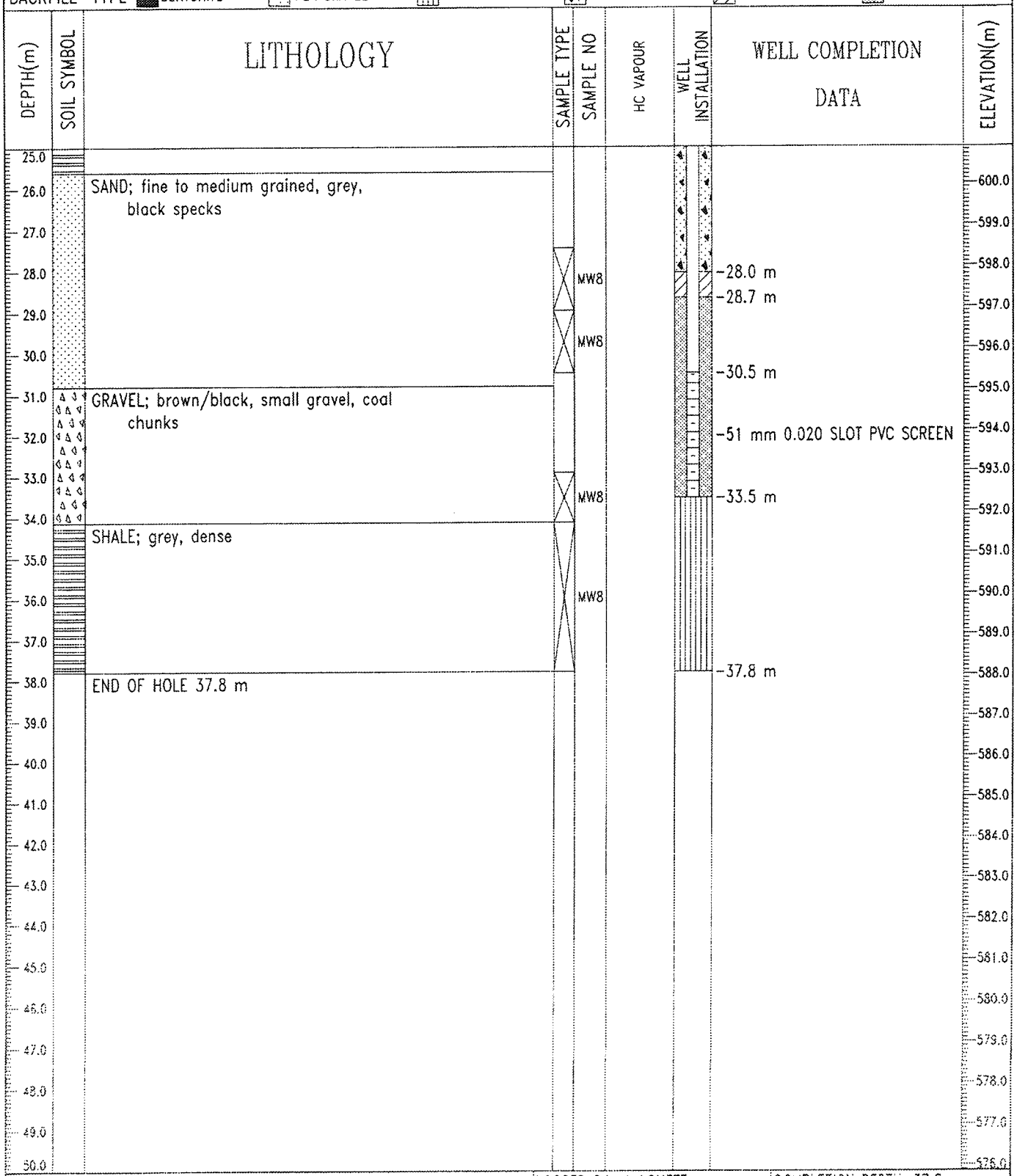
Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 37.8 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 02/03/05
	Fig. No: 17094	Page 1 of 2

05/11/04 02:28PM (PETIGN-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



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

05/11/24 02:29PM (PETIGR-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0		ORGANIC SOIL; frozen, black					STICKUP (0.67 m)	624.0
1.0		CLAY; silty, light brown, some sand, some pebbles					-51 mm PVC CASING	623.0
2.0								622.0
3.0		- at 3.1 m turns darker brown					-TOC ELEVATION: 624.73 m	621.0
4.0							-BOREHOLE DIAMETER = 159 mm	620.0
5.0								619.0
6.0								618.0
7.0								617.0
8.0								616.0
9.0								615.0
10.0								614.0
11.0		CLAY TILL; grey, silty, some pebbles						613.0
12.0								612.0
13.0								611.0
14.0								610.0
15.0		- at 14.6 m becomes sandy						609.0
16.0								608.0
17.0								607.0
18.0		SAND; grey, fine to medium grained, some clay and coal						606.0
19.0		CLAY TILL; grey, fine to medium grained sand and pebbles						605.0
20.0								604.0
21.0								603.0
22.0								602.0
23.0								601.0
24.0								600.0
25.0								

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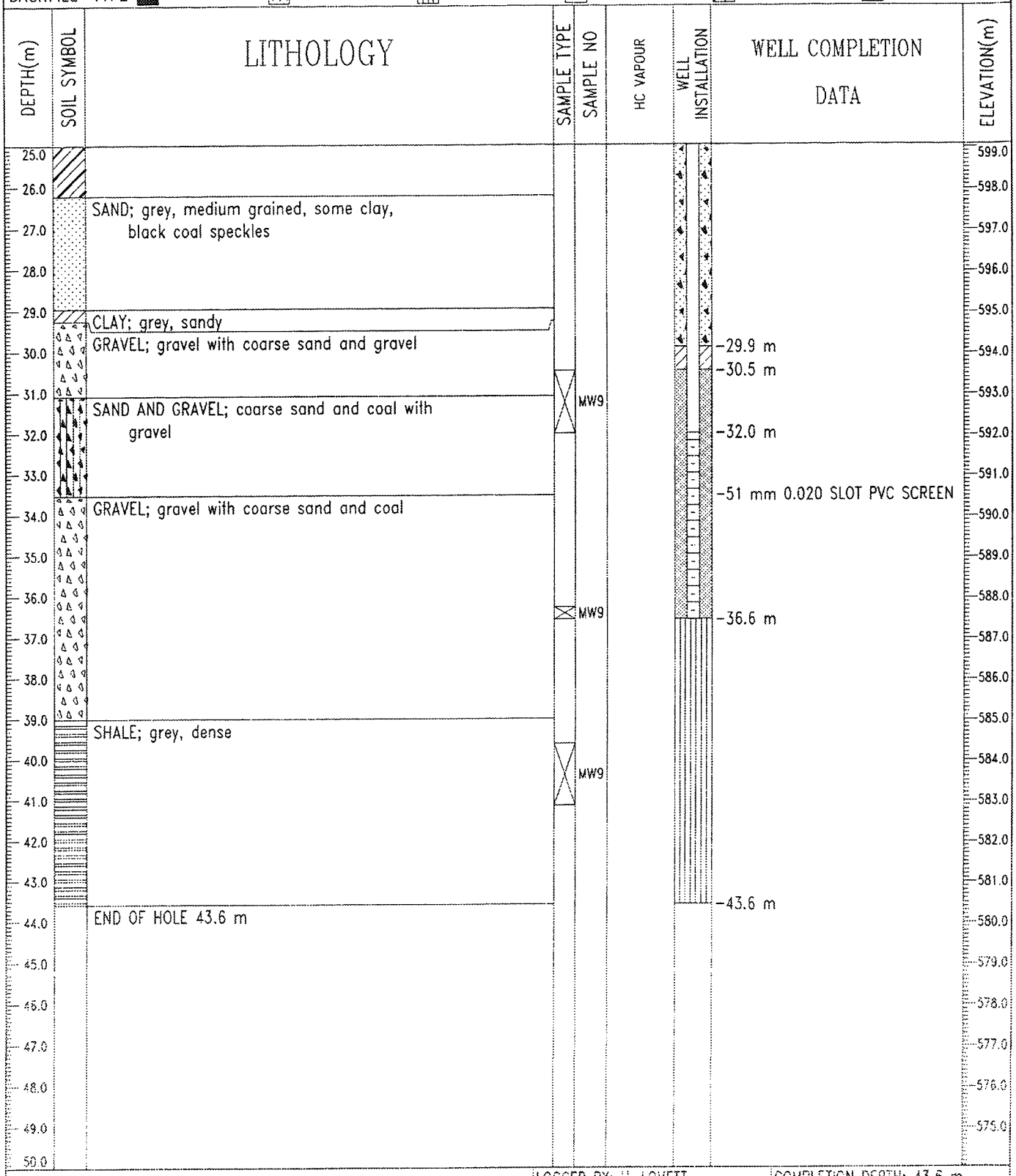
LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/28/05
Fig. No: 17094	Page 1 of 2

05/11/04 02:30PM (PETION-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



Stantec Consulting Ltd Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/28/05
	Fig. No: 17094	Page 2 of 2

05/11/04 02:50PM (PETGN-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0		TOPSOIL; brown, frozen, sandy					STICKUP (0.61 m)	624.0
1.0		SAND; brown, fine to medium grained					-152 mm PVC CASING	623.0
2.0								622.0
3.0		- at 3.1 m turns grey, some silt					-3.0 m	621.0
4.0							-TOC ELEVATION: 624.67 m	620.0
5.0							-BOREHOLE DIAMETER = 200 mm	619.0
6.0								618.0
7.0								617.0
8.0		CLAY; grey, silty						616.0
9.0								615.0
10.0								614.0
11.0								613.0
12.0		SAND; grey, fine grained						612.0
13.0								611.0
14.0								610.0
15.0								609.0
16.0		CLAY TILL; grey, silty						608.0
17.0		SILT; sandy, grey, fine grained sand and silt						607.0
18.0		CLAY TILL; grey, silty						606.0
19.0								605.0
20.0								604.0
21.0								603.0
22.0								602.0
23.0		SAND; grey, fine grained, some silt						601.0
24.0								600.0
25.0		CLAY; grey, silty, harder						

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LOGGED BY: H. LOVETT | COMPLETION DEPTH: 44.8 m
REVIEWED BY: D. YOSHISAKA | COMPLETE: 01/26/05
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: SHELBY TUBE, NO RECOVERY, GRAB, SPT, A-CASING, CORE

BACKFILL TYPE: BENTONITE, PEA GRAVEL, SLOUGH, GROUT, PELTONITE, SAND

DEPTH(m)	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	WELL COMPLETION DATA	ELEVATION(m)
25.0 – 33.8	SAND; cemented, grey, black speckled	GRAB (27.5–29.0)	MW10	-30.2 m -31.4 m	599.0 – 591.0
33.8 – 38.4	SAND AND GRAVEL; coarse grained sand and gravel, coal	GRAB (34.0–35.0) GRAB (36.3–37.8)	MW10 MW10	-SHALE BASKET -35.7 m -152 mm 0.020 SLOT PVC SCREEN	590.0 – 586.0
38.4 – 41.8	GRAVEL; mostly gravel, lots of drill stem chatter, some sand				585.0 – 583.0
41.8 – 44.8	SHALE; grey, dense	GRAB (42.5–44.0)	MW10	-41.8 m -44.8 m	582.0 – 580.0
44.8	END OF HOLE 44.8 m				579.0

Depth (m): 25.0, 25.0, 27.0, 28.0, 29.0, 30.0, 31.0, 32.0, 33.0, 34.0, 35.0, 36.0, 37.0, 38.0, 39.0, 40.0, 41.0, 42.0, 43.0, 44.0, 45.0, 46.0, 47.0, 48.0, 49.0, 50.0

Elevation (m): 599.0, 598.0, 597.0, 596.0, 595.0, 594.0, 593.0, 592.0, 591.0, 590.0, 589.0, 588.0, 587.0, 586.0, 585.0, 584.0, 583.0, 582.0, 581.0, 580.0, 579.0, 578.0, 577.0, 576.0, 575.0

HC VAPOUR

Stantec Consulting Ltd. Edmonton, Alberta	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 44.8 m
	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/26/05
	Fig. No: 17094	Page 2 of 2

05/06/23 11:08AM (PELTON-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL COMPLETION DATA	ELEVATION(m)
0.0	TOPSOIL; soft, black, organic silty soil				-STICKUP (0.67 m)	624.0
	SAND; loose, brown, fine to medium grained				-51 mm PVC CASING	
1.0	CLAY; firm, brown, orange, grey, silty, no pebbles					623.0
2.0	CLAY TILL; firm, brown, sandy clay, grey, silt strands, some orange oxidation, some coal, pebbles					622.0
3.0					-3.0 m	621.0
4.0						
5.0					-BOREHOLE DIAMETER 160 mm	620.0
	- at 5.5 m turns grey					619.0
6.0	- at 6.4 m damp to moist					618.0
7.0						617.0
8.0						616.0
9.0						615.0
10.0						614.0
11.0						613.0
12.0						612.0
13.0						611.0
14.0						610.0
15.0	- from 15.2 to 17.7 m lots of sand, coarse grained, speckled, larger rocks mixed with clay, wet					609.0
16.0						608.0
17.0						607.0
18.0	- at 17.7 m returns to firm, grey clay till					606.0
19.0	- at 18.9 m small band of coarse grained sand then returns to grey					605.0
20.0						

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Edmonton, Alberta

LOGGED BY: H. LOVETT | COMPLETION DEPTH: 44.2 m
REVIEWED BY: H. LOVETT | COMPLETE: 09/24/04
Fig. No: 17094

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	SLOTTED PIEZOMETER	WELL COMPLETION DATA	ELEVATION(m)
20.0		clay till						604.0
21.0								603.0
22.0								602.0
23.0								601.0
24.0								600.0
25.0								599.0
26.0								598.0
27.0		SAND; loose, fine to medium grained, wet						597.0
28.0								596.0
29.0								595.0
30.0								594.0
31.0								593.0
32.0								592.0
33.0								591.0
34.0								590.0
35.0							-35.1 m	589.0
36.0								588.0
37.0		SAND AND GRAVEL; loose, grey, wet, large gravel						587.0
38.0							-38.1 m	586.0
39.0								585.0
40.0								

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	SLOTTED PIEZOMETER	WELL COMPLETION DATA	ELEVATION(m)
40.0								584.0
41.0							-51 mm 0.010 SLOT PVC SCREEN	583.0
42.0								582.0
43.0								581.0
44.0							-44.2 m	580.0
45.0		SHALE; dark grey, dry						579.0
46.0								578.0
47.0							-47.2 m	577.0
48.0		END OF HOLE 47.2 m NOTE: ON COMPLETION -backfill borehole with 10/20 grade sand to 44.2 mBGL MONITOR WELL INSTALLED -blue steel casing protector with lock added -above ground PVC stickup (0.67 mAGL) ON SEPTEMBER 24, 2004 -water level at 29.84 mBGL ON SEPTEMBER 28, 2004 -water level at 29.83 mBGL LOCAL COORDINATES: N:5242.77 E:2786.27 NOTE: -Originally installed for Shell Scotford Upgrader 04-10-44						576.0
49.0								575.0
50.0								574.0
51.0								573.0
52.0								572.0
53.0								571.0
54.0								570.0
55.0								569.0
56.0								568.0
57.0								567.0
58.0								566.0
59.0								565.0
60.0								

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 3 of 3

08/08/29 11:13AM (PLOTTED)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	LITHOLOGY	SAMPLE TYPE / SAMPLE NO / HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0	MOSS; frozen, green, some organics			STICKUP (0.61 m)	625.0
1.0	SAND; brown, fine to medium grained			-51 mm PVC CASING	624.0
2.0					623.0
3.0				-3.1 m	622.0
4.0				-TOC ELEVATION: 626.07 m	621.0
5.0				-BOREHOLE DIAMETER = 159 mm	620.0
6.0					619.0
7.0					618.0
8.0	CLAY; grey, silty SILT; grey				617.0
9.0					616.0
10.0					615.0
11.0	CLAY; grey, silty				614.0
12.0					613.0
13.0	SILT; grey				612.0
14.0					611.0
15.0	CLAY; grey, silty				610.0
16.0					609.0
17.0					608.0
18.0					607.0
19.0	CLAY TILL; grey, sandy, clay, some silt,				606.0
20.0	some pebbles				605.0
21.0					604.0
22.0					603.0
23.0					602.0
24.0					601.0
25.0					

Stantec Consulting Ltd.
Edmonton, Alberta

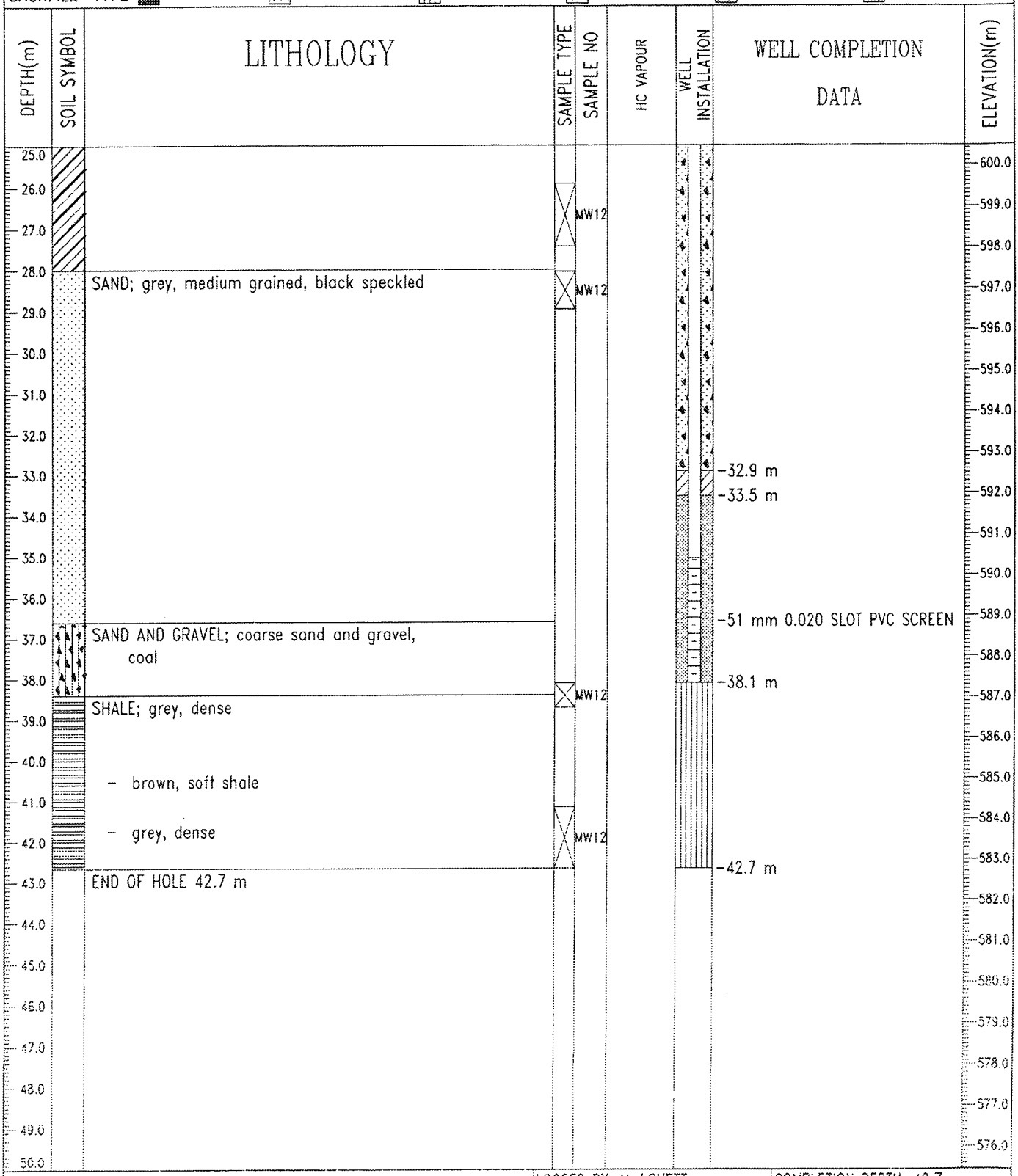
LOGGED BY: H. LOVETT	COMPLETION DEPTH: 42.7 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
Fig. No: 17094	Page 1 of 2

05/11/04 02:30PM (PELTON-1)

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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND



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

05/11/04 02:30PM (PETTEN-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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0		PEAT MOSS;					STICKUP (0.63 m)	625.0
1.0		SAND; brown, fine to medium grained					-51 mm PVC CASING	624.0
2.0								623.0
3.0							-3.1 m	622.0
4.0							-TOC ELEVATION: 626.28 m	621.0
5.0							-BOREHOLE DIAMETER = 159 mm	620.0
6.0								619.0
7.0								618.0
8.0		CLAY; brown grey, silty						617.0
9.0		SAND; brown, grey, fine to medium grained, some clay						616.0
10.0		CLAY; grey, silty						615.0
11.0								614.0
12.0								613.0
13.0								612.0
14.0								611.0
15.0								610.0
16.0								609.0
17.0								608.0
18.0								607.0
19.0								606.0
20.0		CLAY TILL; grey, sandy (fine to medium grained), clay with pebbles - at 19.8 m rock						605.0
21.0								604.0
22.0								603.0
23.0				MW13				602.0
24.0								601.0
25.0								

Stantec Consulting Ltd.
Edmonton, Alberta

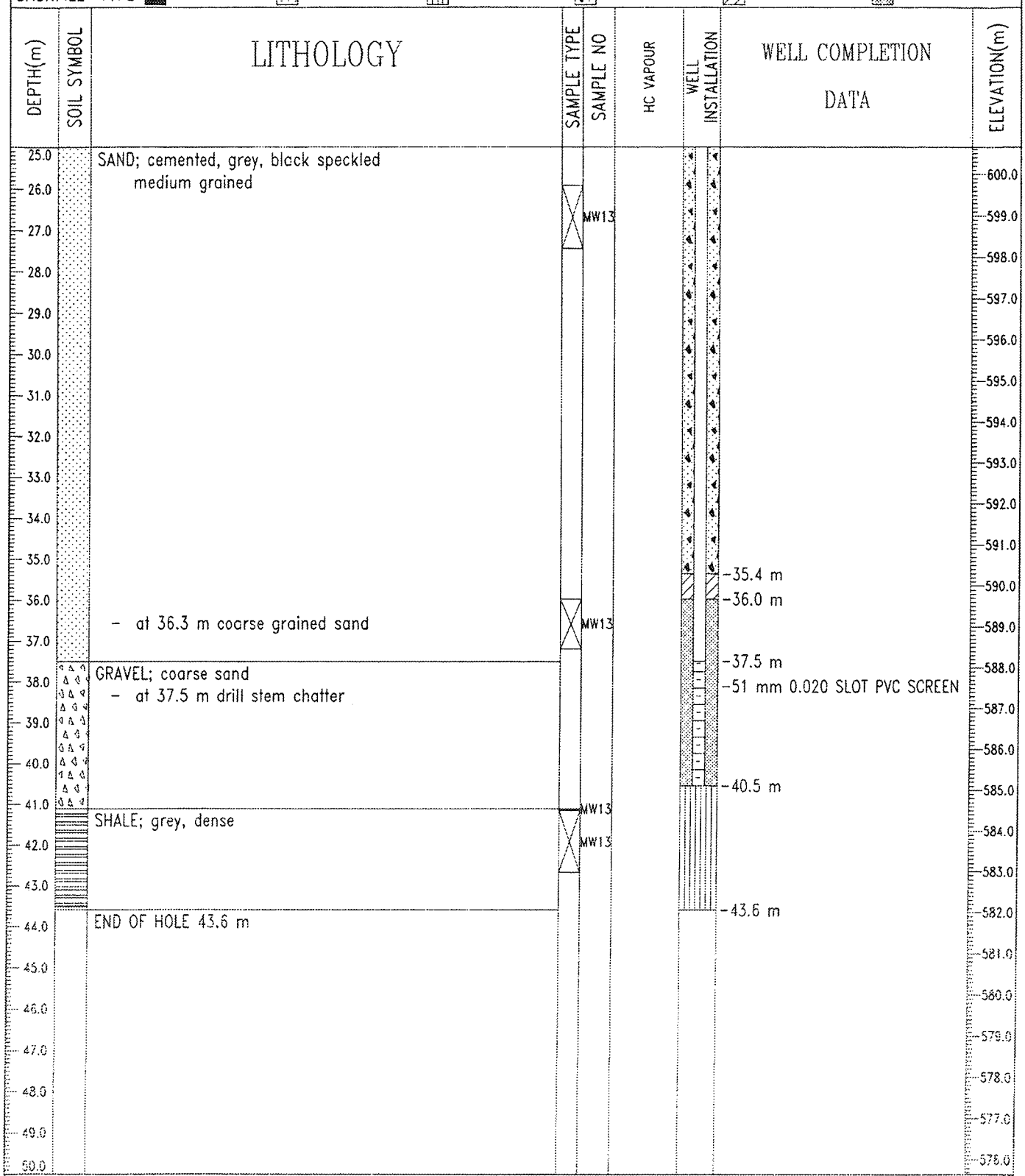
LOGGED BY: H. LOVETT | COMPLETION DEPTH: 43.6 m
REVIEWED BY: D. YOSHISAKA | COMPLETE: 01/02/05
Fig. No: 17094 | Page 1 of 2

05/11/04 02:48PM (FELTON-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: SHELBY TUBE | NO RECOVERY | GRAB | SPT | A-CASING | CORE

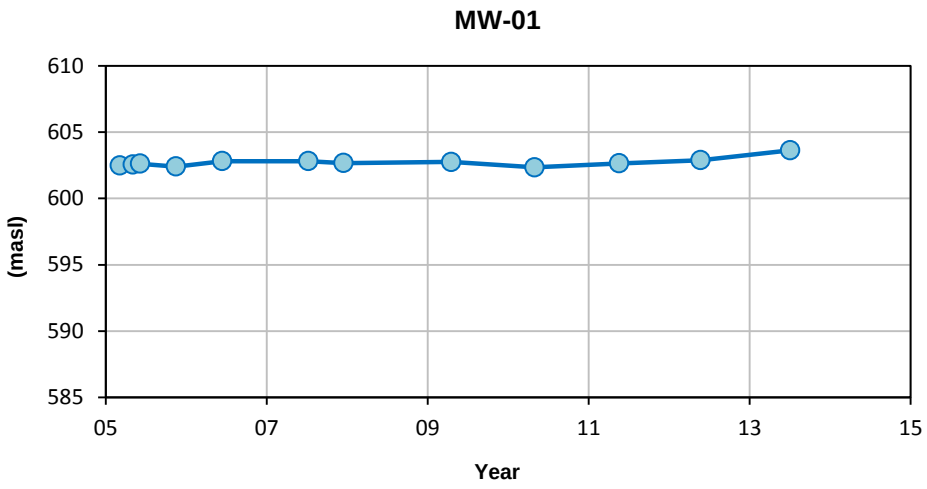
BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

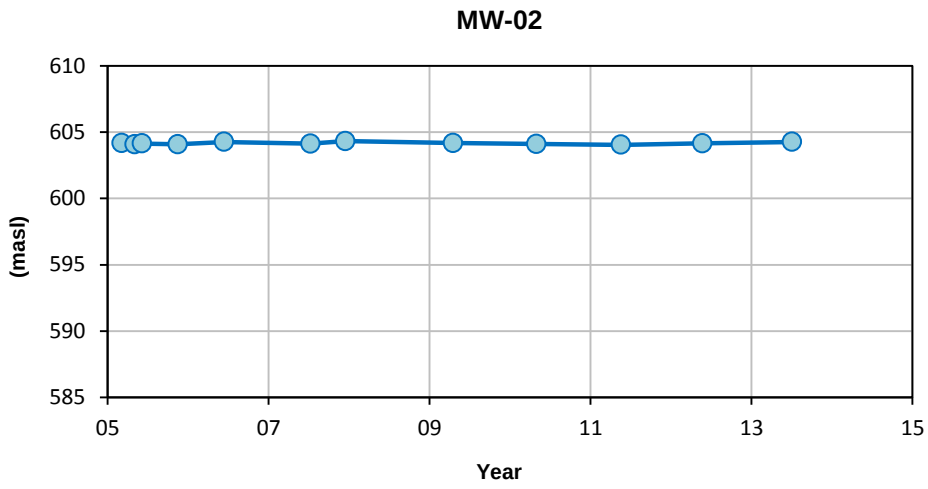


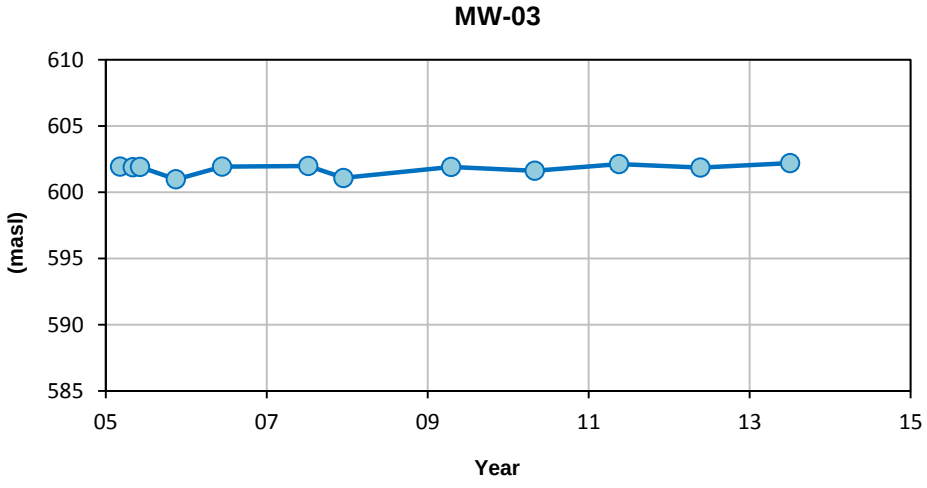
Stantec Consulting Ltd.	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
Edmonton, Alberta	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
	Fig. No: 17094	Page 2 of 2

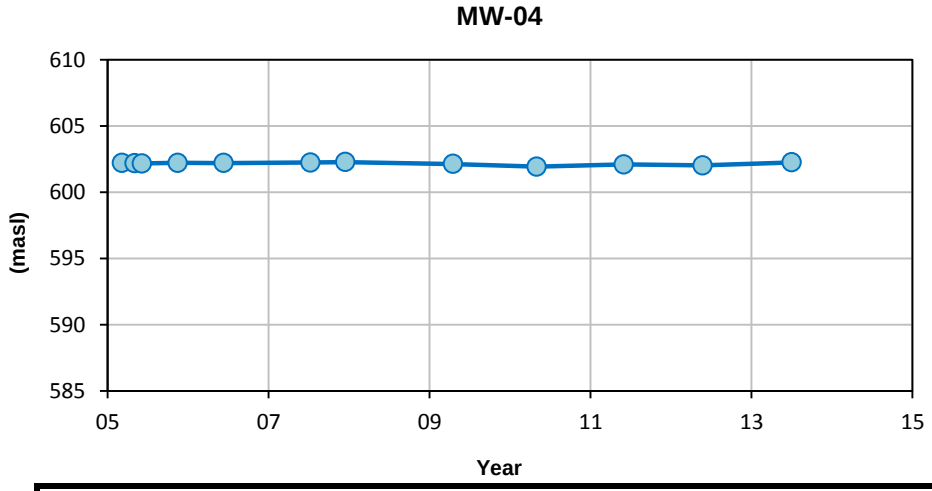
05/11/04 02:48PM (PELTON-1)

Appendix 3 Groundwater Hydrographs









Notes:

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

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

GROUNDWATER HYDROGRAPHS

Date:	Drawn by:	Edited by:	App'd by:
07-Aug-13	SG		

OneWay to zero harm

WorleyParsons resources & energy

WorleyParsons Project No. 307076-06086

FIG No. A3-1

REV A

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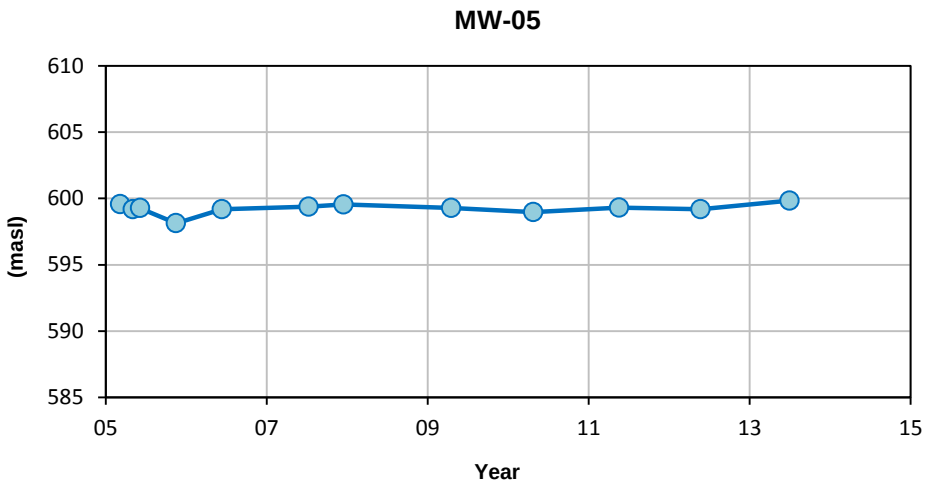
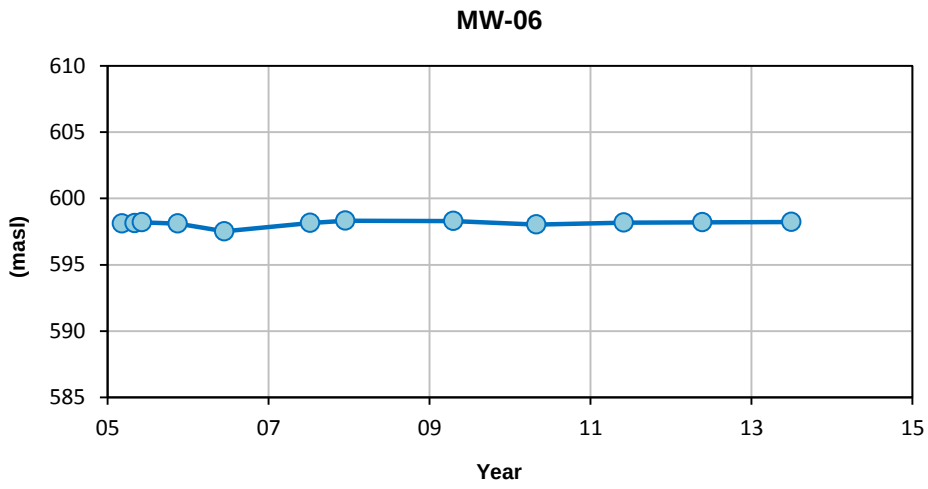
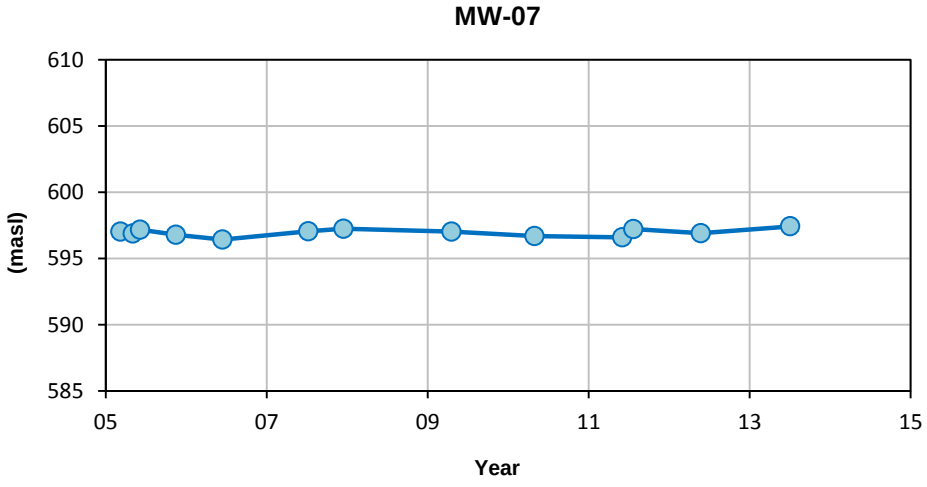
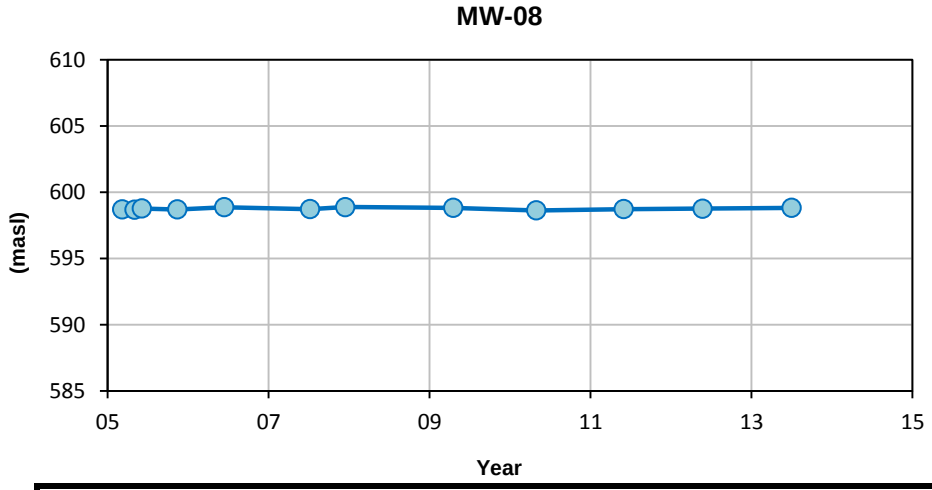
FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\HYDROGRAPHS\WORKING FILES\









Notes:

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

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

GROUNDWATER HYDROGRAPHS

Date:	Drawn by:	Edited by:	App'd by:
07-Aug-13	SG		

WorleyParsons Project No.: 307076-06086

FIG No.: A3-2

REV: A

OneWay to zero harm

WorleyParsons resources & energy

FILE LOCATION: EDMONTON

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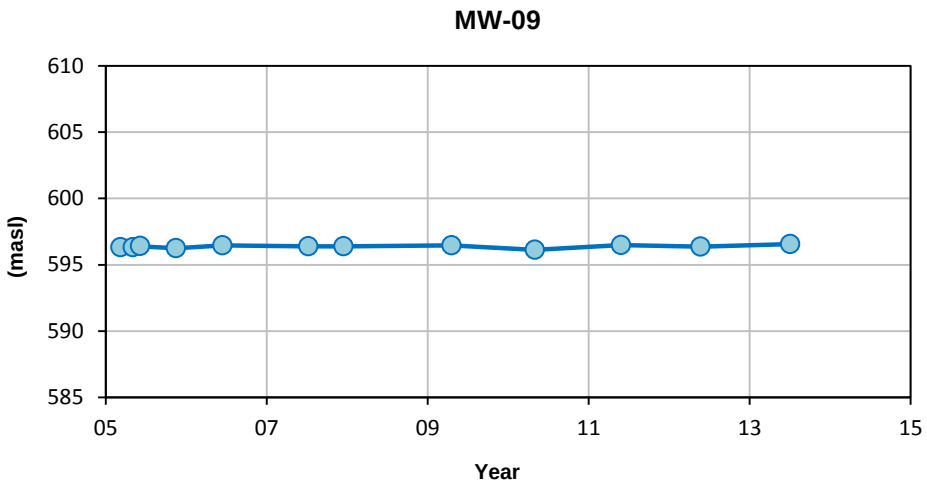
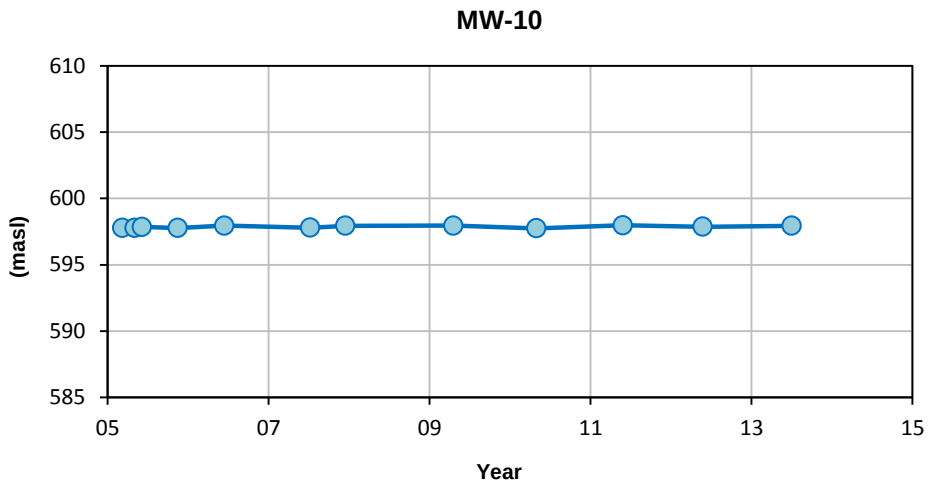
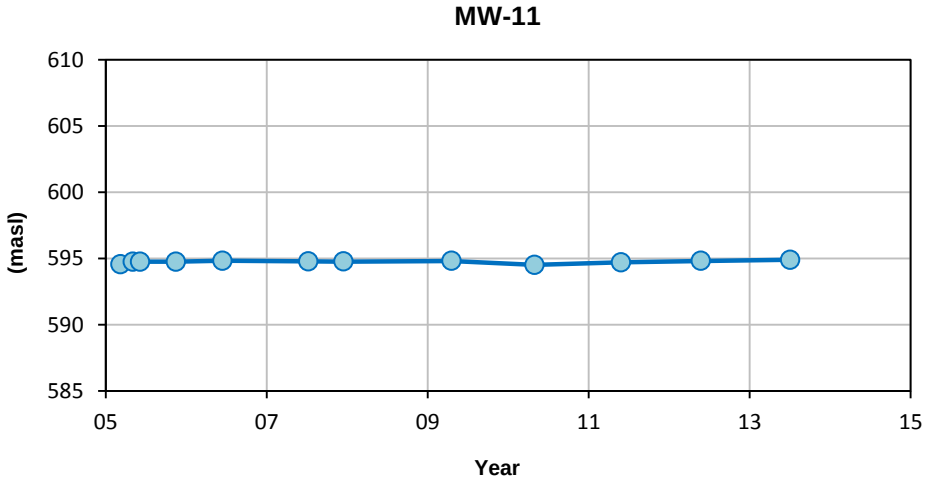
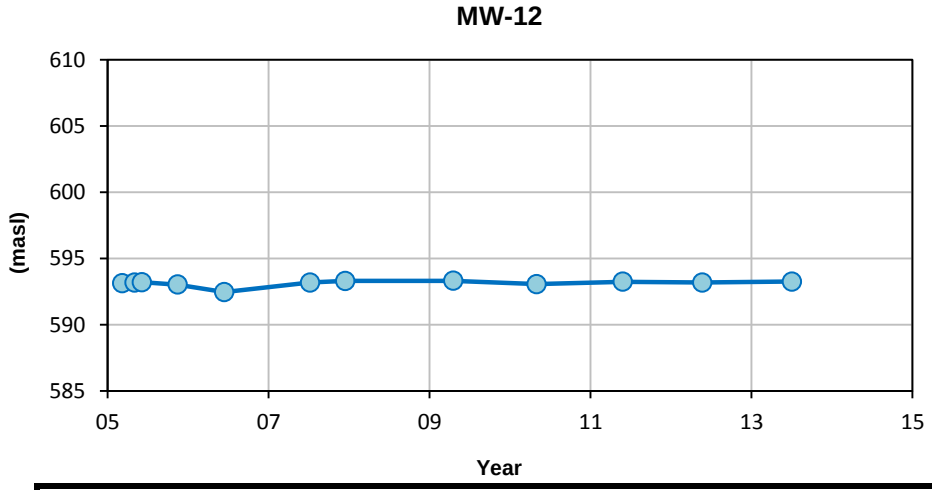








Notes:

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

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

GROUNDWATER HYDROGRAPHS

Date:	Drawn by:	Edited by:	App'd by:
07-Aug-13	SG		

WorleyParsons Project No.: 307076-06086

FIG No.: A3-3

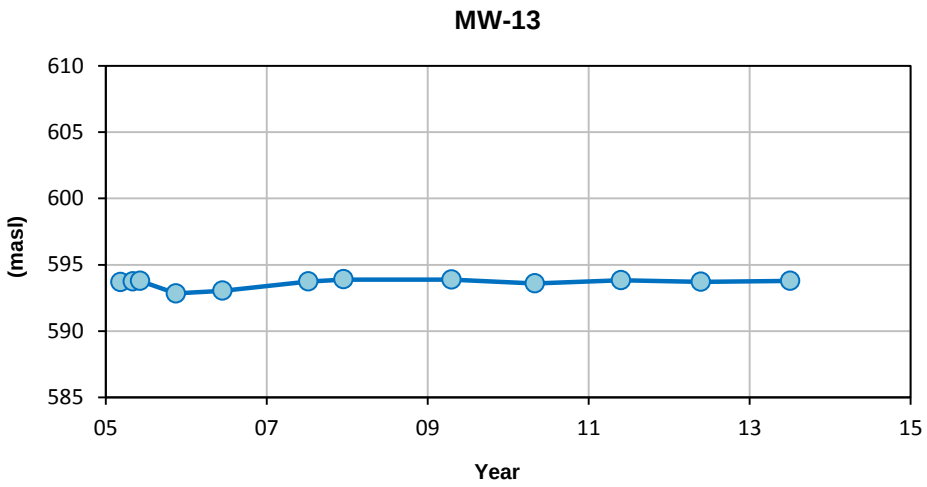
REV: A

OneWay to zero harm

WorleyParsons resources & energy

FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\HYDROGRAPHS\WORKING FILES\



Notes:

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

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

GROUNDWATER HYDROGRAPHS

Date:	Drawn by:	Edited by:	App'd by:
07-Aug-13	SG		

OneWay to zero harm

WorleyParsons resources & energy

WorleyParsons Project No.: 307076-06086

FIG No.: A3-4

REV: A

FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\HYDROGRAPHS\WORKING FILES\

Appendix 4 Laboratory Analytical Data

WORLEYPARSONS CANADA
ATTN: TREVOR BUTTERFIELD
700 - 4445 Calgary Trail
Terrace Plaza
EDMONTON AB T6H 5R7

Date Received: 08-JUL-13
Report Date: 16-JUL-13 15:56 (MT)
Version: FINAL

Client Phone: 780-496-9055

Certificate of Analysis

Lab Work Order #: L1328833

Project P.O. #: NOT SUBMITTED
Job Reference: 307076-06086
C of C Numbers: 10-214497
Legal Site Desc:

Maureen Olinek
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1328833-1 MW05							
Sampled By: STUART/GARY on 08-JUL-13 @ 12:20							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
Toluene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
EthylBenzene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
m+p-Xylene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
Styrene	<0.0010		0.0010	mg/L		10-JUL-13	R2646599
F1(C6-C10)	<0.10		0.10	mg/L		10-JUL-13	R2646599
F1-BTEX	<0.10		0.10	mg/L		10-JUL-13	R2646599
Xylenes	<0.00071		0.00071	mg/L		10-JUL-13	R2646599
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	10-JUL-13	10-JUL-13	R2647654
Surrogate: 2-Bromobenzotrifluoride	95.9		65-135	%	10-JUL-13	10-JUL-13	R2647654
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.234		0.050	mg/L		11-JUL-13	R2647531
Dissolved Organic Carbon	4.1		1.0	mg/L		12-JUL-13	R2648447
Fluoride (F)	0.092		0.020	mg/L		09-JUL-13	R2646572
Phenols (4AAP)	<0.0010		0.0010	mg/L		15-JUL-13	R2649572
Total Dissolved Solids	614	DLA	20	mg/L		11-JUL-13	R2647476
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	36.3		0.50	mg/L		09-JUL-13	R2646572
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650282
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650282
Arsenic (As)-Dissolved	0.00136		0.00040	mg/L		16-JUL-13	R2650282
Barium (Ba)-Dissolved	0.0547		0.0050	mg/L		16-JUL-13	R2650282
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		16-JUL-13	R2650282
Boron (B)-Dissolved	0.050		0.050	mg/L		16-JUL-13	R2650282
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650282
Calcium (Ca)-Dissolved	118		0.50	mg/L		16-JUL-13	R2650282
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650282
Cobalt (Co)-Dissolved	0.00082		0.00010	mg/L		16-JUL-13	R2650282
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		16-JUL-13	R2650282
Iron (Fe)-Dissolved	3.17		0.010	mg/L		16-JUL-13	R2650282
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650282
Magnesium (Mg)-Dissolved	33.5		0.10	mg/L		16-JUL-13	R2650282
Manganese (Mn)-Dissolved	0.754		0.0020	mg/L		16-JUL-13	R2650282
Molybdenum (Mo)-Dissolved	0.000414		0.000050	mg/L		16-JUL-13	R2650282
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		16-JUL-13	R2650282
Potassium (K)-Dissolved	8.61		0.10	mg/L		16-JUL-13	R2650282
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650282
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650282
Sodium (Na)-Dissolved	42.9		1.0	mg/L		16-JUL-13	R2650282
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		16-JUL-13	R2650282
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		16-JUL-13	R2650282
Uranium (U)-Dissolved	0.00060		0.00010	mg/L		16-JUL-13	R2650282
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650282
Zinc (Zn)-Dissolved	0.0049		0.0030	mg/L		16-JUL-13	R2650282
Ion Balance Calculation							
Ion Balance	95.3			%		16-JUL-13	

* 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
L1328833-1 MW05							
Sampled By: STUART/GARY on 08-JUL-13 @ 12:20							
Matrix: WATER							
Ion Balance Calculation							
TDS (Calculated)	599			mg/L		16-JUL-13	
Hardness (as CaCO3)	433			mg/L		16-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		13-JUL-13	R2648987
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		09-JUL-13	R2646572
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		09-JUL-13	R2646572
Sulfate by IC							
Sulfate (SO4)	139		0.50	mg/L		09-JUL-13	R2646572
pH, Conductivity and Total Alkalinity							
pH	7.83		0.10	pH		09-JUL-13	R2645593
Conductivity (EC)	998		0.20	uS/cm		09-JUL-13	R2645593
Bicarbonate (HCO3)	448		5.0	mg/L		09-JUL-13	R2645593
Carbonate (CO3)	<5.0		5.0	mg/L		09-JUL-13	R2645593
Hydroxide (OH)	<5.0		5.0	mg/L		09-JUL-13	R2645593
Alkalinity, Total (as CaCO3)	367		2.0	mg/L		09-JUL-13	R2645593
L1328833-2 MW06							
Sampled By: STUART/GARY on 08-JUL-13 @ 15:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
Toluene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
EthylBenzene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
o-Xylene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
m+p-Xylene	<0.00050		0.00050	mg/L		10-JUL-13	R2646599
Styrene	<0.0010		0.0010	mg/L		10-JUL-13	R2646599
F1(C6-C10)	<0.10		0.10	mg/L		10-JUL-13	R2646599
F1-BTEX	<0.10		0.10	mg/L		10-JUL-13	R2646599
Xylenes	<0.00071		0.00071	mg/L		10-JUL-13	R2646599
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	10-JUL-13	10-JUL-13	R2647654
Surrogate: 2-Bromobenzotrifluoride	94.1		65-135	%	10-JUL-13	10-JUL-13	R2647654
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.66		0.050	mg/L		11-JUL-13	R2647531
Dissolved Organic Carbon	6.4		1.0	mg/L		12-JUL-13	R2648447
Fluoride (F)	0.128		0.020	mg/L		09-JUL-13	R2646572
Phenols (4AAP)	<0.0010		0.0010	mg/L		15-JUL-13	R2649572
Total Dissolved Solids	1240		10	mg/L		11-JUL-13	R2647476
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	4.57		0.50	mg/L		09-JUL-13	R2646572
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050	DLM	0.0050	mg/L		16-JUL-13	R2650282
Antimony (Sb)-Dissolved	<0.00040	DLM	0.00040	mg/L		16-JUL-13	R2650282
Arsenic (As)-Dissolved	0.00544	DLM	0.00040	mg/L		16-JUL-13	R2650282
Barium (Ba)-Dissolved	0.0315	DLM	0.0050	mg/L		16-JUL-13	R2650282
Beryllium (Be)-Dissolved	<0.0010	DLM	0.0010	mg/L		16-JUL-13	R2650282

* 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
L1328833-2 MW06							
Sampled By: STUART/GARY on 08-JUL-13 @ 15:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Boron (B)-Dissolved	0.123	DLM	0.050	mg/L		16-JUL-13	R2650282
Cadmium (Cd)-Dissolved	<0.00010	DLM	0.00010	mg/L		16-JUL-13	R2650282
Calcium (Ca)-Dissolved	168	DLM	0.50	mg/L		16-JUL-13	R2650282
Chromium (Cr)-Dissolved	<0.0050	DLM	0.0050	mg/L		16-JUL-13	R2650282
Cobalt (Co)-Dissolved	0.00036	DLM	0.00020	mg/L		16-JUL-13	R2650282
Copper (Cu)-Dissolved	<0.0010	DLM	0.0010	mg/L		16-JUL-13	R2650282
Iron (Fe)-Dissolved	5.84	DLM	0.020	mg/L		16-JUL-13	R2650282
Lead (Pb)-Dissolved	<0.00010	DLM	0.00010	mg/L		16-JUL-13	R2650282
Magnesium (Mg)-Dissolved	55.2	DLM	0.10	mg/L		16-JUL-13	R2650282
Manganese (Mn)-Dissolved	1.72	DLM	0.0020	mg/L		16-JUL-13	R2650282
Molybdenum (Mo)-Dissolved	0.00097	DLM	0.00010	mg/L		16-JUL-13	R2650282
Nickel (Ni)-Dissolved	<0.0020	DLM	0.0020	mg/L		16-JUL-13	R2650282
Potassium (K)-Dissolved	5.17	DLM	0.10	mg/L		16-JUL-13	R2650282
Selenium (Se)-Dissolved	<0.00040	DLM	0.00040	mg/L		16-JUL-13	R2650282
Silver (Ag)-Dissolved	<0.00010	DLM	0.00010	mg/L		16-JUL-13	R2650282
Sodium (Na)-Dissolved	135	DLM	1.0	mg/L		16-JUL-13	R2650282
Thallium (Tl)-Dissolved	<0.00010	DLM	0.00010	mg/L		16-JUL-13	R2650282
Titanium (Ti)-Dissolved	<0.00060	DLM	0.00060	mg/L		16-JUL-13	R2650282
Uranium (U)-Dissolved	0.00158	DLM	0.00010	mg/L		16-JUL-13	R2650282
Vanadium (V)-Dissolved	<0.00020	DLM	0.00020	mg/L		16-JUL-13	R2650282
Zinc (Zn)-Dissolved	<0.0030	DLM	0.0030	mg/L		16-JUL-13	R2650282
Ion Balance Calculation							
Ion Balance	92.2			%		16-JUL-13	
TDS (Calculated)	1170			mg/L		16-JUL-13	
Hardness (as CaCO3)	647			mg/L		16-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		13-JUL-13	R2648987
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		09-JUL-13	R2646572
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		09-JUL-13	R2646572
Sulfate by IC							
Sulfate (SO4)	499		0.50	mg/L		09-JUL-13	R2646572
pH, Conductivity and Total Alkalinity							
pH	7.81		0.10	pH		09-JUL-13	R2645593
Conductivity (EC)	1720		0.20	uS/cm		09-JUL-13	R2645593
Bicarbonate (HCO3)	611		5.0	mg/L		09-JUL-13	R2645593
Carbonate (CO3)	<5.0		5.0	mg/L		09-JUL-13	R2645593
Hydroxide (OH)	<5.0		5.0	mg/L		09-JUL-13	R2645593
Alkalinity, Total (as CaCO3)	501		2.0	mg/L		09-JUL-13	R2645593

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For 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
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-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:

10-214497

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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

L1328833

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: L1328833 Report Date: 16-JUL-13

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
BTXS,F1-ED	**Water**							
Batch R2646599								
WG1703607-4 DUP		**L1328736-7**						
Benzene		0.0205	0.0202		mg/L	1.5	30	10-JUL-13
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	10-JUL-13
EthylBenzene		0.00378	0.00372		mg/L	1.7	30	10-JUL-13
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	10-JUL-13
m+p-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	10-JUL-13
Styrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	10-JUL-13
F1(C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	10-JUL-13
WG1703607-2 LCS								
Benzene			88.7		%		70-130	12-JUL-13
Toluene			88.6		%		70-130	12-JUL-13
EthylBenzene			84.1		%		70-130	12-JUL-13
o-Xylene			89.5		%		70-130	12-JUL-13
m+p-Xylene			85.1		%		70-130	12-JUL-13
Styrene			87.8		%		70-130	12-JUL-13
WG1703607-3 LCS								
F1(C6-C10)			117.4		%		70-130	12-JUL-13
F1(C6-C10)			117.4		%		70-130	10-JUL-13
WG1703607-1 MB								
Benzene			<0.00050		mg/L		0.0005	10-JUL-13
Toluene			<0.00050		mg/L		0.0005	10-JUL-13
EthylBenzene			<0.00050		mg/L		0.0005	10-JUL-13
o-Xylene			<0.00050		mg/L		0.0005	10-JUL-13
m+p-Xylene			<0.00050		mg/L		0.0005	10-JUL-13
Styrene			<0.0010		mg/L		0.001	10-JUL-13
F1(C6-C10)			<0.10		mg/L		0.1	10-JUL-13
WG1703607-5 MS		**L1328736-7**						
Benzene			82.6		%		50-150	10-JUL-13
Toluene			71.7		%		50-150	10-JUL-13
EthylBenzene			78.1		%		50-150	10-JUL-13
o-Xylene			79.2		%		50-150	10-JUL-13
m+p-Xylene			77.3		%		50-150	10-JUL-13
Styrene			66.5		%		50-150	10-JUL-13
WG1703607-6 MS		**L1328736-7**						
F1(C6-C10)			87.5		%		50-150	10-JUL-13

Quality Control Report

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
C-DIS-ORG-ED	**Water**							
Batch R2648447								
WG1706107-3 CVS								
Dissolved Organic Carbon			107.4		%		80-160	12-JUL-13
WG1706107-6 DUP		**L1328313-4**						
Dissolved Organic Carbon		11.8	12.3		mg/L	4.2	20	15-JUL-13
WG1706107-2 LCS								
Dissolved Organic Carbon			95.2		%		80-120	12-JUL-13
WG1706107-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	12-JUL-13
WG1706107-7 MS		**L1328313-4**						
Dissolved Organic Carbon			N/A	MS-B	%		-	12-JUL-13
CL-IC-ED	**Water**							
Batch R2646572								
WG1703845-3 DUP		**L1328675-6**						
Chloride (Cl)		4.55	4.55		mg/L	0.0	20	09-JUL-13
WG1703845-5 DUP		**L1328833-2**						
Chloride (Cl)		4.57	4.60		mg/L	0.7	20	09-JUL-13
WG1703845-2 LCS								
Chloride (Cl)			102.4		%		90-110	09-JUL-13
WG1703845-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	09-JUL-13
WG1703845-4 MS		**L1328675-6**						
Chloride (Cl)			103.1		%		75-125	09-JUL-13
WG1703845-6 MS		**L1328833-2**						
Chloride (Cl)			104.1		%		75-125	09-JUL-13
F-IC-ED	**Water**							
Batch R2646572								
WG1703845-5 DUP		**L1328833-2**						
Fluoride (F)		0.128	0.128		mg/L	0.2	20	09-JUL-13
WG1703845-2 LCS								
Fluoride (F)			96.8		%		90-110	09-JUL-13
WG1703845-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	09-JUL-13
WG1703845-6 MS		**L1328833-2**						
Fluoride (F)			97.2		%		75-125	09-JUL-13
F2-ED	**Water**							

Quality Control Report

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
F2-ED	**Water**							
Batch R2647654								
WG1704345-2 LCS								
F2 (C10-C16)			120.6		%		65-135	10-JUL-13
WG1704345-1 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	10-JUL-13
Surrogate: 2-Bromobenzotrifluoride			100.6		%		65-135	10-JUL-13
WG1704345-3 MS		**L1328623-6**						
F2 (C10-C16)			115.9		%		50-150	10-JUL-13
HG-D-L-CVAA-ED	**Water**							
Batch R2648987								
WG1706539-12 LCS								
Mercury (Hg)-Dissolved			95.0		%		80-120	13-JUL-13
WG1706539-2 LCS								
Mercury (Hg)-Dissolved			92.0		%		80-120	13-JUL-13
WG1706539-7 LCS								
Mercury (Hg)-Dissolved			91.2		%		80-120	13-JUL-13
WG1706539-13 LCSD		**WG1706539-12**						
Mercury (Hg)-Dissolved		95.0	95.8		%	0.8	20	13-JUL-13
WG1706539-3 LCSD		**WG1706539-2**						
Mercury (Hg)-Dissolved		92.0	92.8		%	0.8	20	13-JUL-13
WG1706539-8 LCSD		**WG1706539-7**						
Mercury (Hg)-Dissolved		91.2	93.8		%	2.8	20	13-JUL-13
WG1706539-1 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	13-JUL-13
WG1706539-11 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	13-JUL-13
WG1706539-6 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	13-JUL-13
MET-D-CCMS-ED	**Water**							
Batch R2650282								
WG1707797-2 CRM		**ED-HIGH-WATRM**						
Aluminum (Al)-Dissolved			99.8		%		80-120	16-JUL-13
Antimony (Sb)-Dissolved			102.5		%		80-120	16-JUL-13
Arsenic (As)-Dissolved			100.1		%		80-120	16-JUL-13
Barium (Ba)-Dissolved			110.0		%		80-120	16-JUL-13
Beryllium (Be)-Dissolved			93.6		%		80-120	16-JUL-13
Boron (B)-Dissolved			90.5		%		80-120	16-JUL-13
Cadmium (Cd)-Dissolved			105.6		%		80-120	16-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2650282								
WG1707797-2 CRM		**ED-HIGH-WATRM**						
Calcium (Ca)-Dissolved			100.2		%		80-120	16-JUL-13
Chromium (Cr)-Dissolved			101.0		%		80-120	16-JUL-13
Cobalt (Co)-Dissolved			98.2		%		80-120	16-JUL-13
Copper (Cu)-Dissolved			96.4		%		80-120	16-JUL-13
Lead (Pb)-Dissolved			98.4		%		80-120	16-JUL-13
Magnesium (Mg)-Dissolved			96.6		%		80-120	16-JUL-13
Manganese (Mn)-Dissolved			101.3		%		80-120	16-JUL-13
Molybdenum (Mo)-Dissolved			99.0		%		80-120	16-JUL-13
Nickel (Ni)-Dissolved			101.3		%		80-120	16-JUL-13
Potassium (K)-Dissolved			98.7		%		80-120	16-JUL-13
Selenium (Se)-Dissolved			106.6		%		80-120	16-JUL-13
Silver (Ag)-Dissolved			95.7		%		80-120	16-JUL-13
Sodium (Na)-Dissolved			101.7		%		80-120	16-JUL-13
Thallium (Tl)-Dissolved			102.9		%		80-120	16-JUL-13
Titanium (Ti)-Dissolved			89.7		%		80-120	16-JUL-13
Uranium (U)-Dissolved			89.9		%		80-120	16-JUL-13
Vanadium (V)-Dissolved			99.8		%		80-120	16-JUL-13
Zinc (Zn)-Dissolved			101.8		%		80-120	16-JUL-13
WG1707797-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	16-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	16-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	16-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	16-JUL-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	16-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	16-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2650282								
WG1707797-1 MB								
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	16-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	16-JUL-13
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	16-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	16-JUL-13
NH3-D-CFA-ED	**Water**							
Batch R2647531								
WG1704872-3 DUP		**L1328833-1**						
Ammonia, Total Dissolved (as N)		0.234	0.235		mg/L	0.2	20	11-JUL-13
NO2-IC-ED	**Water**							
Batch R2646572								
WG1703845-3 DUP		**L1328675-6**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	09-JUL-13
WG1703845-5 DUP		**L1328833-2**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	09-JUL-13
WG1703845-7 DUP		**L1328947-22**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	09-JUL-13
WG1703845-2 LCS								
Nitrite (as N)			93.4		%		90-110	09-JUL-13
WG1703845-1 MB								
Nitrite (as N)			<0.050		mg/L		0.05	09-JUL-13
WG1703845-4 MS		**L1328675-6**						
Nitrite (as N)			92.1		%		75-125	09-JUL-13
WG1703845-6 MS		**L1328833-2**						
Nitrite (as N)			91.6		%		75-125	09-JUL-13
WG1703845-8 MS		**L1328947-22**						
Nitrite (as N)			90.3		%		75-125	09-JUL-13
NO3-IC-ED	**Water**							

Quality Control Report

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
NO3-IC-ED	**Water**							
Batch R2646572								
WG1703845-3 DUP		**L1328675-6**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	09-JUL-13
WG1703845-5 DUP		**L1328833-2**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	09-JUL-13
WG1703845-7 DUP		**L1328947-22**						
Nitrate (as N)		1.58	1.59		mg/L	0.5	20	09-JUL-13
WG1703845-2 LCS								
Nitrate (as N)			99.1		%		90-110	09-JUL-13
WG1703845-1 MB								
Nitrate (as N)			<0.050		mg/L		0.05	09-JUL-13
WG1703845-4 MS		**L1328675-6**						
Nitrate (as N)			102.5		%		75-125	09-JUL-13
WG1703845-6 MS		**L1328833-2**						
Nitrate (as N)			103.9		%		75-125	09-JUL-13
WG1703845-8 MS		**L1328947-22**						
Nitrate (as N)			107.1		%		75-125	09-JUL-13
PH/EC/ALK-ED	**Water**							
Batch R2645593								
WG1703186-6 DUP		**L1328736-7**						
pH		7.59	7.61	J	pH	0.02	0.3	09-JUL-13
Conductivity (EC)		1290	1290		uS/cm	0.2	10	09-JUL-13
Bicarbonate (HCO3)		562	520		mg/L	7.8	25	09-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	09-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	09-JUL-13
Alkalinity, Total (as CaCO3)		461	426		mg/L	7.8	20	09-JUL-13
WG1703186-8 DUP		**L1324047-2**						
pH		8.52	8.59	J	pH	0.08	0.3	09-JUL-13
Conductivity (EC)		1400	1410		uS/cm	0.1	10	09-JUL-13
Bicarbonate (HCO3)		450	444		mg/L	1.2	25	09-JUL-13
Carbonate (CO3)		24.3	33.8	J	mg/L	9.4	10	09-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	09-JUL-13
Alkalinity, Total (as CaCO3)		409	420		mg/L	2.7	20	09-JUL-13
WG1703186-9 DUP		**L1328675-6**						
pH		8.03	8.05	J	pH	0.03	0.3	09-JUL-13
Conductivity (EC)		968	968		uS/cm	0.0	10	09-JUL-13
Bicarbonate (HCO3)		234	198		mg/L	17	25	09-JUL-13

Quality Control Report

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
PH/EC/ALK-ED	**Water**							
Batch R2645593								
WG1703186-9 DUP		**L1328675-6**						
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	09-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	09-JUL-13
Alkalinity, Total (as CaCO3)		192	162		mg/L	17	20	09-JUL-13
WG1703186-2 LCS								
Conductivity (EC)			99.0		%		90-110	09-JUL-13
WG1703186-3 LCS								
pH			7.07		pH		6.7-7.3	09-JUL-13
WG1703186-4 LCS								
Alkalinity, Total (as CaCO3)			101.6		%		85-115	09-JUL-13
WG1703186-5 LCS								
Conductivity (EC)			97.2		%		90-110	09-JUL-13
WG1703186-1 MB								
Bicarbonate (HCO3)			<5.0		mg/L		5	09-JUL-13
Carbonate (CO3)			<5.0		mg/L		5	09-JUL-13
Hydroxide (OH)			<5.0		mg/L		5	09-JUL-13
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	09-JUL-13
PHENOLS-4AAP-ED	**Water**							
Batch R2649572								
WG1707226-4 DUP		**L1331139-5**						
Phenols (4AAP)		0.0080	0.0082		mg/L	2.5	15	15-JUL-13
WG1707226-5 DUP		**L1328286-9**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	15-JUL-13
WG1707226-3 LCS								
Phenols (4AAP)			91.6		%		85-115	15-JUL-13
WG1707226-2 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	15-JUL-13
SO4-IC-ED	**Water**							
Batch R2646572								
WG1703845-3 DUP		**L1328675-6**						
Sulfate (SO4)		364	364		mg/L	0.1	20	09-JUL-13
WG1703845-5 DUP		**L1328833-2**						
Sulfate (SO4)		499	499		mg/L	0.1	20	09-JUL-13
WG1703845-2 LCS								
Sulfate (SO4)			101.4		%		90-110	09-JUL-13
WG1703845-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	09-JUL-13

Quality Control Report

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
SO4-IC-ED	**Water**							
Batch R2646572								
WG1703845-4 MS		**L1328675-6**						
Sulfate (SO4)			N/A	MS-B	%		-	09-JUL-13
WG1703845-6 MS		**L1328833-2**						
Sulfate (SO4)			N/A	MS-B	%		-	09-JUL-13
SOLIDS-TDS-ED	**Water**							
Batch R2647476								
WG1704037-3 DUP		**L1328269-1**						
Total Dissolved Solids		970	962		mg/L	0.8	20	11-JUL-13
WG1704037-4 DUP		**L1328227-1**						
Total Dissolved Solids		112	110		mg/L	1.8	20	11-JUL-13
WG1704037-2 LCS								
Total Dissolved Solids			101.6		%		85-115	11-JUL-13
WG1704037-1 MB								
Total Dissolved Solids			<10		mg/L		10	11-JUL-13

Quality Control Report

Workorder: L1328833 Report Date: 16-JUL-13

Client: WORLEYPARSONS CANADA
700 - 4445 Calgary Trail Terrace Plaza
EDMONTON AB T6H 5R7
Contact: TREVOR BUTTERFIELD

Legend:

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.

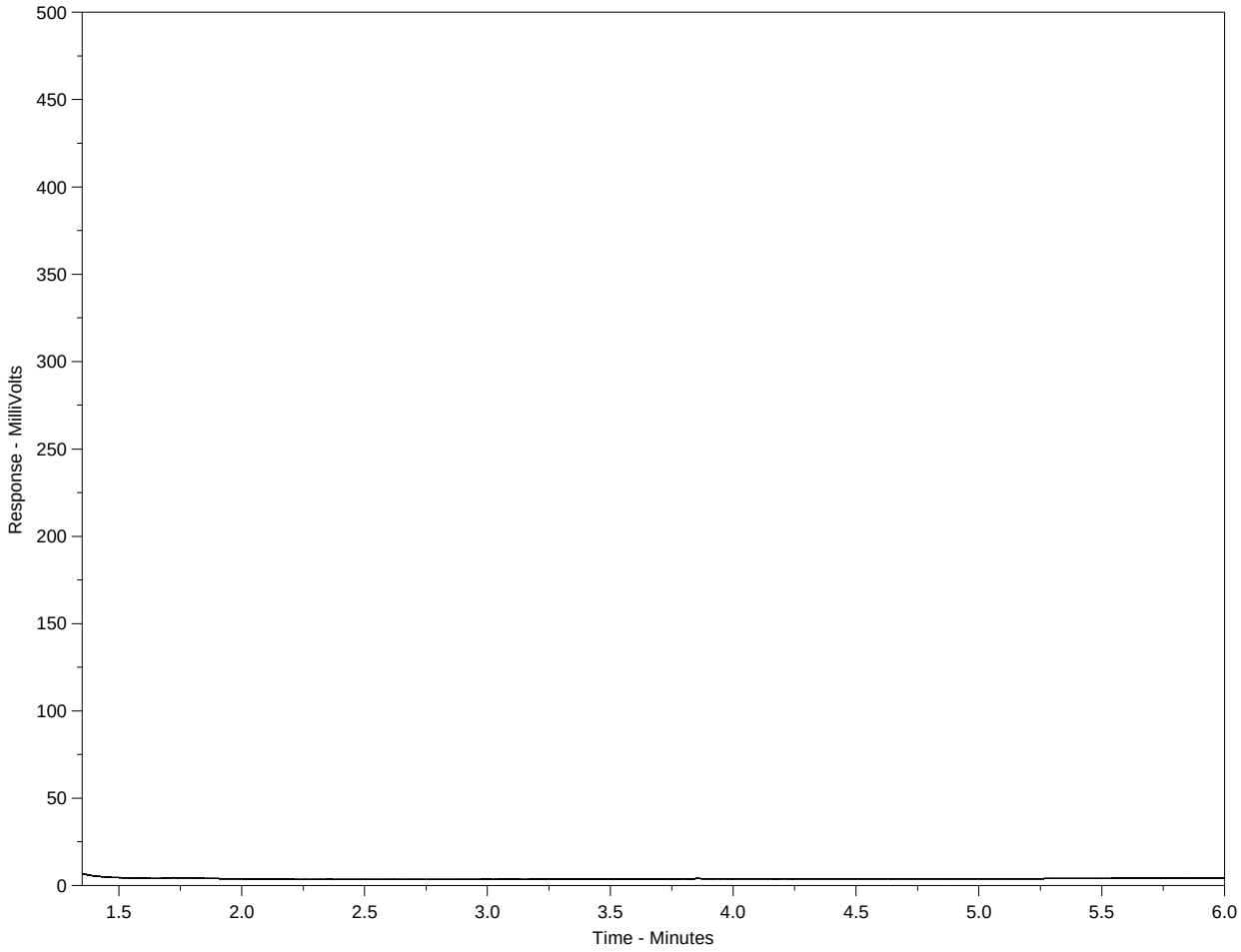
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

Hydrocarbon Distribution Report

ALS Sample ID: **L1328833-1**
Client ID: **MW05**



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			

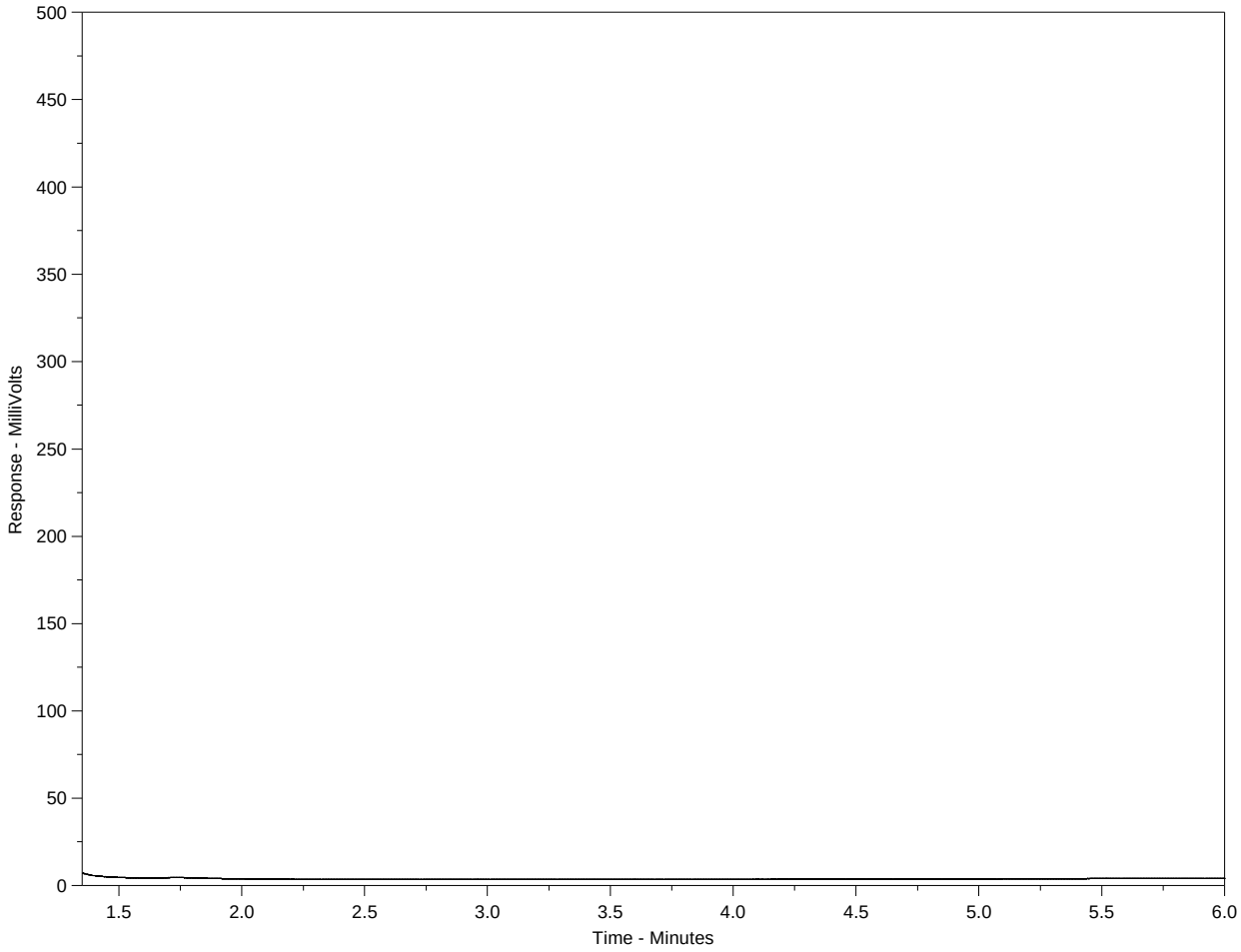
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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: **L1328833-2**
Client ID: **MW06**



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.

10- 214497

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Page 1 of 1

Report To	Report Format / Distribution	Service Request:(Rush subject to availability - Contact ALS to confirm TAT)
Company: Worley Parsons	Standard: X Other (specify):	X Regular (Standard Turnaround Times - Business Days)
Contact: Trevor Butterfield	Select: PDF X Excel Digital X Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: Suite 700, 4445 Calgary Trail	Email 1: trevor.butterfield@worleyparsons.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Edmonton AB T6H 5R7	Email 2: edm.chemistry@worleyparsons.com	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 780 496 9055 Fax: 780 496 9575	stuart.gray@worleyparsons.com	**Analysis Request**
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) (Yes) or No	Job #: 307076-06086	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: Q39294	
Lab Work Order # (lab use only) L1328833	ALS Contact: Maureen Olinek	Sampler: Stuart Gray

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX-F1	F2	DOC	Diss. Metals	Diss. Nutrients	Phenols	Routine IE	TDS Actual					Number of Containers
	MW05	08-Jul-13	1220	Water	X	X	X	X	X	X	X	X					11
	MW06	08-Jul-13	1530	Water	X	X	X	X	X	X	X	X					11


L1328833-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR ...ils

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.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Stuart Gray	8-Jul-13	1807		08/JUL/13	18:08	15.4 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — GENF 18.01 Front

WORLEYPARSONS CANADA
ATTN: TREVOR BUTTERFIELD
700 - 4445 Calgary Trail
Terrace Plaza
EDMONTON AB T6H 5R7

Date Received: 09-JUL-13
Report Date: 17-JUL-13 14:52 (MT)
Version: FINAL

Client Phone: 780-496-9055

Certificate of Analysis

Lab Work Order #: L1329669

Project P.O. #: NOT SUBMITTED
Job Reference: 307076-06086
C of C Numbers: 10-214498
Legal Site Desc:

Maureen Olinek
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1329669-1 MW04							
Sampled By: S.G on 09-JUL-13 @ 11:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L	11-JUL-13	12-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L	11-JUL-13	12-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L	11-JUL-13	12-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L	11-JUL-13	12-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	11-JUL-13	11-JUL-13	R2648698
Surrogate: 2-Bromobenzotrifluoride	99.3		65-135	%	11-JUL-13	11-JUL-13	R2648698
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	<0.050		0.050	mg/L		11-JUL-13	R2647531
Dissolved Organic Carbon	3.3		1.0	mg/L		15-JUL-13	R2649611
Fluoride (F)	0.082		0.020	mg/L		10-JUL-13	R2647695
Phenols (4AAP)	<0.0010		0.0010	mg/L		16-JUL-13	R2650218
Total Dissolved Solids	761	RRV	10	mg/L		13-JUL-13	R2649148
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	129		0.50	mg/L		10-JUL-13	R2647695
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Arsenic (As)-Dissolved	0.00065		0.00040	mg/L		16-JUL-13	R2650485
Barium (Ba)-Dissolved	0.103		0.0050	mg/L		16-JUL-13	R2650485
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		16-JUL-13	R2650485
Boron (B)-Dissolved	0.091		0.050	mg/L		16-JUL-13	R2650485
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Calcium (Ca)-Dissolved	154		0.50	mg/L		16-JUL-13	R2650485
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Cobalt (Co)-Dissolved	0.00058		0.00010	mg/L		16-JUL-13	R2650485
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		16-JUL-13	R2650485
Iron (Fe)-Dissolved	1.70		0.010	mg/L		16-JUL-13	R2650485
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Magnesium (Mg)-Dissolved	44.0		0.10	mg/L		16-JUL-13	R2650485
Manganese (Mn)-Dissolved	0.561		0.0020	mg/L		16-JUL-13	R2650485
Molybdenum (Mo)-Dissolved	0.000359		0.000050	mg/L		16-JUL-13	R2650485
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		16-JUL-13	R2650485
Potassium (K)-Dissolved	10.8		0.10	mg/L		16-JUL-13	R2650485
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Sodium (Na)-Dissolved	55.8		1.0	mg/L		16-JUL-13	R2650485
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		16-JUL-13	R2650485
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		16-JUL-13	R2650485
Uranium (U)-Dissolved	0.00392		0.00010	mg/L		16-JUL-13	R2650485
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		16-JUL-13	R2650485
Ion Balance Calculation							
Ion Balance	103			%		17-JUL-13	

* 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
L1329669-1 MW04							
Sampled By: S.G on 09-JUL-13 @ 11:30							
Matrix: WATER							
Ion Balance Calculation							
TDS (Calculated)	724			mg/L		17-JUL-13	
Hardness (as CaCO3)	566			mg/L		17-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		14-JUL-13	R2648987
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Sulfate by IC							
Sulfate (SO4)	87.8		0.50	mg/L		10-JUL-13	R2647695
pH, Conductivity and Total Alkalinity							
pH	7.76		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	1230		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	493		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	404		2.0	mg/L		12-JUL-13	R2648510
L1329669-2 F13-01							
Sampled By: S.G on 09-JUL-13 @ 11:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		12-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		12-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		12-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		12-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	11-JUL-13	11-JUL-13	R2648698
Surrogate: 2-Bromobenzotrifluoride	97.8		65-135	%	11-JUL-13	11-JUL-13	R2648698
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	<0.050		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	3.5	RRV	1.0	mg/L		16-JUL-13	R2650265
Fluoride (F)	<0.020		0.020	mg/L		10-JUL-13	R2647695
Phenols (4AAP)	<0.0010		0.0010	mg/L		16-JUL-13	R2650218
Total Dissolved Solids	<10		10	mg/L		12-JUL-13	R2648379
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	<0.50		0.50	mg/L		10-JUL-13	R2647695
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Arsenic (As)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Barium (Ba)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		16-JUL-13	R2650485

* 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
L1329669-2 F13-01							
Sampled By: S.G on 09-JUL-13 @ 11:00							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Boron (B)-Dissolved	<0.050		0.050	mg/L		16-JUL-13	R2650485
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Calcium (Ca)-Dissolved	<0.50		0.50	mg/L		16-JUL-13	R2650485
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		16-JUL-13	R2650485
Iron (Fe)-Dissolved	<0.010		0.010	mg/L		16-JUL-13	R2650485
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Magnesium (Mg)-Dissolved	<0.10		0.10	mg/L		16-JUL-13	R2650485
Manganese (Mn)-Dissolved	<0.0020		0.0020	mg/L		16-JUL-13	R2650485
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L		16-JUL-13	R2650485
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		16-JUL-13	R2650485
Potassium (K)-Dissolved	<0.10		0.10	mg/L		16-JUL-13	R2650485
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Sodium (Na)-Dissolved	<1.0		1.0	mg/L		16-JUL-13	R2650485
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		16-JUL-13	R2650485
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		16-JUL-13	R2650485
Uranium (U)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		16-JUL-13	R2650485
Ion Balance Calculation							
Ion Balance	Low TDS			%		16-JUL-13	
TDS (Calculated)	<1.0			mg/L		16-JUL-13	
Hardness (as CaCO3)	<1.0			mg/L		16-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		14-JUL-13	R2648987
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Sulfate by IC							
Sulfate (SO4)	<0.50		0.50	mg/L		10-JUL-13	R2647695
pH, Conductivity and Total Alkalinity							
pH	6.19		0.10	pH		11-JUL-13	R2647622
Conductivity (EC)	1.90		0.20	uS/cm		11-JUL-13	R2647622
Bicarbonate (HCO3)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Carbonate (CO3)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Hydroxide (OH)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Alkalinity, Total (as CaCO3)	<2.0		2.0	mg/L		11-JUL-13	R2647622
L1329669-3 MW08							
Sampled By: S.G on 09-JUL-13 @ 14:45							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290

* 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
L1329669-3 MW08							
Sampled By: S.G on 09-JUL-13 @ 14:45							
Matrix: WATER							
BTEX, Styrene and F1 (C6-C10)							
m+p-Xylene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		12-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		12-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		12-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		12-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	11-JUL-13	11-JUL-13	R2648698
Surrogate: 2-Bromobenzotrifluoride	97.0		65-135	%	11-JUL-13	11-JUL-13	R2648698
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.76		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	5.5		1.0	mg/L		15-JUL-13	R2649611
Fluoride (F)	0.093		0.020	mg/L		10-JUL-13	R2647695
Phenols (4AAP)	<0.0010		0.0010	mg/L		16-JUL-13	R2650218
Total Dissolved Solids	876		10	mg/L		12-JUL-13	R2648379
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	1.37		0.50	mg/L		10-JUL-13	R2647695
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Arsenic (As)-Dissolved	0.00767		0.00040	mg/L		16-JUL-13	R2650485
Barium (Ba)-Dissolved	0.0639		0.0050	mg/L		16-JUL-13	R2650485
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		16-JUL-13	R2650485
Boron (B)-Dissolved	0.163		0.050	mg/L		16-JUL-13	R2650485
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Calcium (Ca)-Dissolved	149		0.50	mg/L		16-JUL-13	R2650485
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Cobalt (Co)-Dissolved	0.00018		0.00010	mg/L		16-JUL-13	R2650485
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		16-JUL-13	R2650485
Iron (Fe)-Dissolved	6.47		0.010	mg/L		16-JUL-13	R2650485
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Magnesium (Mg)-Dissolved	40.4		0.10	mg/L		16-JUL-13	R2650485
Manganese (Mn)-Dissolved	0.415		0.0020	mg/L		16-JUL-13	R2650485
Molybdenum (Mo)-Dissolved	0.00175		0.000050	mg/L		16-JUL-13	R2650485
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		16-JUL-13	R2650485
Potassium (K)-Dissolved	6.47		0.10	mg/L		16-JUL-13	R2650485
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Sodium (Na)-Dissolved	112		1.0	mg/L		16-JUL-13	R2650485
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		16-JUL-13	R2650485
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		16-JUL-13	R2650485
Uranium (U)-Dissolved	0.00067		0.00010	mg/L		16-JUL-13	R2650485
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		16-JUL-13	R2650485
Ion Balance Calculation							
Ion Balance	104			%		17-JUL-13	
TDS (Calculated)	877			mg/L		17-JUL-13	
Hardness (as CaCO3)	538			mg/L		17-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		14-JUL-13	R2648987
Nitrate as N by IC							

* 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
L1329669-3 MW08							
Sampled By: S.G on 09-JUL-13 @ 14:45							
Matrix: WATER							
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Sulfate by IC							
Sulfate (SO4)	304		0.50	mg/L		10-JUL-13	R2647695
pH, Conductivity and Total Alkalinity							
pH	7.96		0.10	pH		11-JUL-13	R2647622
Conductivity (EC)	1290		0.20	uS/cm		11-JUL-13	R2647622
Bicarbonate (HCO3)	535		5.0	mg/L		11-JUL-13	R2647622
Carbonate (CO3)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Hydroxide (OH)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Alkalinity, Total (as CaCO3)	439		2.0	mg/L		11-JUL-13	R2647622
L1329669-4 MW10							
Sampled By: S.G on 09-JUL-13 @ 18:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L	11-JUL-13	12-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L	11-JUL-13	12-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L	11-JUL-13	12-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L	11-JUL-13	12-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L	11-JUL-13	12-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	11-JUL-13	11-JUL-13	R2648698
Surrogate: 2-Bromobenzotrifluoride	97.8		65-135	%	11-JUL-13	11-JUL-13	R2648698
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.88		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	5.4		1.0	mg/L		15-JUL-13	R2649611
Fluoride (F)	0.107		0.020	mg/L		10-JUL-13	R2647695
Phenols (4AAP)	<0.0010		0.0010	mg/L		16-JUL-13	R2650218
Total Dissolved Solids	833		10	mg/L		12-JUL-13	R2648379
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	0.68		0.50	mg/L		10-JUL-13	R2647695
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Arsenic (As)-Dissolved	0.00485		0.00040	mg/L		16-JUL-13	R2650485
Barium (Ba)-Dissolved	0.0295		0.0050	mg/L		16-JUL-13	R2650485
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		16-JUL-13	R2650485
Boron (B)-Dissolved	0.162		0.050	mg/L		16-JUL-13	R2650485
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Calcium (Ca)-Dissolved	141		0.50	mg/L		16-JUL-13	R2650485
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Cobalt (Co)-Dissolved	0.00032		0.00010	mg/L		16-JUL-13	R2650485

* 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
L1329669-4 MW10							
Sampled By: S.G on 09-JUL-13 @ 18:00							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		16-JUL-13	R2650485
Iron (Fe)-Dissolved	6.11		0.010	mg/L		16-JUL-13	R2650485
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Magnesium (Mg)-Dissolved	37.3		0.10	mg/L		16-JUL-13	R2650485
Manganese (Mn)-Dissolved	0.729		0.0020	mg/L		16-JUL-13	R2650485
Molybdenum (Mo)-Dissolved	0.000870		0.000050	mg/L		16-JUL-13	R2650485
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		16-JUL-13	R2650485
Potassium (K)-Dissolved	6.22		0.10	mg/L		16-JUL-13	R2650485
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Sodium (Na)-Dissolved	118		1.0	mg/L		16-JUL-13	R2650485
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		16-JUL-13	R2650485
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		16-JUL-13	R2650485
Uranium (U)-Dissolved	0.00116		0.00010	mg/L		16-JUL-13	R2650485
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		16-JUL-13	R2650485
Ion Balance Calculation							
Ion Balance	103			%		17-JUL-13	
TDS (Calculated)	832			mg/L		17-JUL-13	
Hardness (as CaCO3)	506			mg/L		17-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		14-JUL-13	R2648987
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Sulfate by IC							
Sulfate (SO4)	215		0.50	mg/L		10-JUL-13	R2647695
pH, Conductivity and Total Alkalinity							
pH	8.09		0.10	pH		11-JUL-13	R2647622
Conductivity (EC)	1250		0.20	uS/cm		11-JUL-13	R2647622
Bicarbonate (HCO3)	638		5.0	mg/L		11-JUL-13	R2647622
Carbonate (CO3)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Hydroxide (OH)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Alkalinity, Total (as CaCO3)	523		2.0	mg/L		11-JUL-13	R2647622
L1329669-5 D13-01							
Sampled By: S.G on 09-JUL-13 @ 18:05							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L		12-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		12-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		12-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		12-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		12-JUL-13	R2647290

* 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
L1329669-5 D13-01							
Sampled By: S.G on 09-JUL-13 @ 18:05							
Matrix: WATER							
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	11-JUL-13	11-JUL-13	R2648698
Surrogate: 2-Bromobenzotrifluoride	98.3		65-135	%	11-JUL-13	11-JUL-13	R2648698
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.93		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	5.4		1.0	mg/L		15-JUL-13	R2649611
Fluoride (F)	0.115		0.020	mg/L		10-JUL-13	R2647695
Phenols (4AAP)	<0.0010		0.0010	mg/L		16-JUL-13	R2650218
Total Dissolved Solids	837		10	mg/L		12-JUL-13	R2648379
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	0.85		0.50	mg/L		10-JUL-13	R2647695
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Arsenic (As)-Dissolved	0.00479		0.00040	mg/L		16-JUL-13	R2650485
Barium (Ba)-Dissolved	0.0293		0.0050	mg/L		16-JUL-13	R2650485
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		16-JUL-13	R2650485
Boron (B)-Dissolved	0.159		0.050	mg/L		16-JUL-13	R2650485
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Calcium (Ca)-Dissolved	142		0.50	mg/L		16-JUL-13	R2650485
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		16-JUL-13	R2650485
Cobalt (Co)-Dissolved	0.00031		0.00010	mg/L		16-JUL-13	R2650485
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		16-JUL-13	R2650485
Iron (Fe)-Dissolved	6.03		0.010	mg/L		16-JUL-13	R2650485
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Magnesium (Mg)-Dissolved	36.7		0.10	mg/L		16-JUL-13	R2650485
Manganese (Mn)-Dissolved	0.710		0.0020	mg/L		16-JUL-13	R2650485
Molybdenum (Mo)-Dissolved	0.000863		0.000050	mg/L		16-JUL-13	R2650485
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		16-JUL-13	R2650485
Potassium (K)-Dissolved	5.96		0.10	mg/L		16-JUL-13	R2650485
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		16-JUL-13	R2650485
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Sodium (Na)-Dissolved	115		1.0	mg/L		16-JUL-13	R2650485
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		16-JUL-13	R2650485
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		16-JUL-13	R2650485
Uranium (U)-Dissolved	0.00115		0.00010	mg/L		16-JUL-13	R2650485
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		16-JUL-13	R2650485
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		16-JUL-13	R2650485
Ion Balance Calculation							
Ion Balance	101			%		17-JUL-13	
TDS (Calculated)	833			mg/L		17-JUL-13	
Hardness (as CaCO3)	506			mg/L		17-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		14-JUL-13	R2648987
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		10-JUL-13	R2647695
Sulfate by IC							

* 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
L1329669-5 D13-01							
Sampled By: S.G on 09-JUL-13 @ 18:05							
Matrix: WATER							
Sulfate by IC							
Sulfate (SO4)	216		0.50	mg/L		10-JUL-13	R2647695
pH, Conductivity and Total Alkalinity							
pH	8.04		0.10	pH		11-JUL-13	R2647622
Conductivity (EC)	1250		0.20	uS/cm		11-JUL-13	R2647622
Bicarbonate (HCO3)	643		5.0	mg/L		11-JUL-13	R2647622
Carbonate (CO3)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Hydroxide (OH)	<5.0		5.0	mg/L		11-JUL-13	R2647622
Alkalinity, Total (as CaCO3)	527		2.0	mg/L		11-JUL-13	R2647622

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-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:

10-214498

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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

L1329669

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: L1329669 Report Date: 17-JUL-13

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
BTXS,F1-ED	**Water**							
Batch R2647290								
WG1705295-4 DUP		**L1329542-5**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	12-JUL-13
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	12-JUL-13
EthylBenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	12-JUL-13
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	12-JUL-13
m+p-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	12-JUL-13
Styrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	12-JUL-13
F1(C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	12-JUL-13
WG1705295-5 DUP		**L1329637-11**						
Benzene		0.0154	0.0134		mg/L	13	30	12-JUL-13
Toluene		0.00060	0.00061		mg/L	1.5	30	12-JUL-13
EthylBenzene		0.132	0.116		mg/L	13	30	12-JUL-13
o-Xylene		0.0266	0.0247		mg/L	7.1	24	12-JUL-13
m+p-Xylene		0.204	0.183		mg/L	11	24	12-JUL-13
Styrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	12-JUL-13
F1(C6-C10)		1.71	1.27		mg/L	29	30	12-JUL-13
WG1705295-2 LCS								
Benzene			80.0		%		70-130	12-JUL-13
Toluene			85.7		%		70-130	12-JUL-13
EthylBenzene			80.7		%		70-130	12-JUL-13
o-Xylene			85.3		%		70-130	12-JUL-13
m+p-Xylene			83.6		%		70-130	12-JUL-13
Styrene			81.4		%		70-130	12-JUL-13
WG1705295-3 LCS								
F1(C6-C10)			88.1		%		70-130	12-JUL-13
WG1705295-1 MB								
Benzene			<0.00050		mg/L		0.0005	12-JUL-13
Toluene			<0.00050		mg/L		0.0005	12-JUL-13
EthylBenzene			<0.00050		mg/L		0.0005	12-JUL-13
o-Xylene			<0.00050		mg/L		0.0005	12-JUL-13
m+p-Xylene			<0.00050		mg/L		0.0005	12-JUL-13
Styrene			<0.0010		mg/L		0.001	12-JUL-13
F1(C6-C10)			<0.10		mg/L		0.1	12-JUL-13
WG1705295-6 MS		**L1329637-11**						
Benzene			82.2		%		50-150	12-JUL-13

Quality Control Report

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
BTXS,F1-ED	**Water**							
Batch R2647290								
WG1705295-6 MS		**L1329637-11**						
Toluene			86.4		%		50-150	12-JUL-13
EthylBenzene			N/A	MS-B	%		-	12-JUL-13
o-Xylene			94.7		%		50-150	12-JUL-13
m+p-Xylene			N/A	MS-B	%		-	12-JUL-13
Styrene			91.4		%		50-150	12-JUL-13
WG1705295-7 MS		**L1329637-11**						
EthylBenzene			N/A	MS-B	%		-	12-JUL-13
m+p-Xylene			N/A	MS-B	%		-	12-JUL-13
F1(C6-C10)			51.0		%		50-150	12-JUL-13
C-DIS-ORG-ED	**Water**							
Batch R2649611								
WG1707257-3 CVS								
Dissolved Organic Carbon			101.0		%		80-160	15-JUL-13
WG1707257-2 LCS								
Dissolved Organic Carbon			90.5		%		80-120	15-JUL-13
WG1707257-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	15-JUL-13
Batch R2650265								
WG1708071-3 CVS								
Dissolved Organic Carbon			106.1		%		80-160	16-JUL-13
WG1708071-6 DUP		**L1329895-10**						
Dissolved Organic Carbon		7.4	7.1		mg/L	4.2	20	16-JUL-13
WG1708071-2 LCS								
Dissolved Organic Carbon			90.6		%		80-120	16-JUL-13
WG1708071-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	16-JUL-13
WG1708071-7 MS		**L1329895-10**						
Dissolved Organic Carbon			86.7		%		70-130	16-JUL-13
CL-IC-ED	**Water**							
Batch R2647695								
WG1704718-11 DUP		**L1329971-2**						
Chloride (Cl)		21.7	21.7		mg/L	0.1	20	10-JUL-13
WG1704718-13 DUP		**L1329799-14**						
Chloride (Cl)		20.4	20.4		mg/L	0.1	20	10-JUL-13
WG1704718-3 DUP		**L1329443-2**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	10-JUL-13

Quality Control Report

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
CL-IC-ED	**Water**							
Batch R2647695								
WG1704718-7 DUP		**L1329542-7**						
Chloride (Cl)		187	187		mg/L	0.2	20	10-JUL-13
WG1704718-2 LCS								
Chloride (Cl)			102.3		%		90-110	10-JUL-13
WG1704718-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	10-JUL-13
WG1704718-12 MS		**L1329971-2**						
Chloride (Cl)			116.6		%		75-125	10-JUL-13
WG1704718-14 MS		**L1329799-14**						
Chloride (Cl)			109.0		%		75-125	10-JUL-13
WG1704718-4 MS		**L1329443-2**						
Chloride (Cl)			109.5		%		75-125	10-JUL-13
WG1704718-8 MS		**L1329542-7**						
Chloride (Cl)			N/A	MS-B	%		-	10-JUL-13
F-IC-ED	**Water**							
Batch R2647695								
WG1704718-11 DUP		**L1329971-2**						
Fluoride (F)		0.240	0.240		mg/L	0.1	20	10-JUL-13
WG1704718-3 DUP		**L1329443-2**						
Fluoride (F)		0.027	0.028		mg/L	4.7	20	10-JUL-13
WG1704718-7 DUP		**L1329542-7**						
Fluoride (F)		0.215	0.214		mg/L	0.5	20	10-JUL-13
WG1704718-2 LCS								
Fluoride (F)			105.1		%		90-110	10-JUL-13
WG1704718-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	10-JUL-13
WG1704718-12 MS		**L1329971-2**						
Fluoride (F)			114.4		%		75-125	10-JUL-13
WG1704718-4 MS		**L1329443-2**						
Fluoride (F)			113.1		%		75-125	10-JUL-13
WG1704718-8 MS		**L1329542-7**						
Fluoride (F)			92.4		%		75-125	10-JUL-13
F2-ED	**Water**							
Batch R2648698								
WG1705076-2 LCS								
F2 (C10-C16)			125.2		%		65-135	11-JUL-13
WG1705076-5 LCS								
F2 (C10-C16)			125.8		%		65-135	11-JUL-13

Quality Control Report

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
F2-ED	**Water**							
Batch R2648698								
WG1705076-8 LCS								
F2 (C10-C16)			125.6		%		65-135	11-JUL-13
WG1705076-1 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	11-JUL-13
Surrogate: 2-Bromobenzotrifluoride			94.2		%		65-135	11-JUL-13
WG1705076-4 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	11-JUL-13
Surrogate: 2-Bromobenzotrifluoride			94.1		%		65-135	11-JUL-13
WG1705076-7 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	11-JUL-13
Surrogate: 2-Bromobenzotrifluoride			93.5		%		65-135	11-JUL-13
WG1705076-6 MS		**L1329587-4**						
F2 (C10-C16)			124.0		%		50-150	11-JUL-13
HG-D-L-CVAA-ED	**Water**							
Batch R2648987								
WG1706539-12 LCS								
Mercury (Hg)-Dissolved			95.0		%		80-120	13-JUL-13
WG1706539-2 LCS								
Mercury (Hg)-Dissolved			92.0		%		80-120	13-JUL-13
WG1706539-7 LCS								
Mercury (Hg)-Dissolved			91.2		%		80-120	13-JUL-13
WG1706539-13 LCSD		**WG1706539-12**						
Mercury (Hg)-Dissolved		95.0	95.8		%	0.8	20	13-JUL-13
WG1706539-3 LCSD		**WG1706539-2**						
Mercury (Hg)-Dissolved		92.0	92.8		%	0.8	20	13-JUL-13
WG1706539-8 LCSD		**WG1706539-7**						
Mercury (Hg)-Dissolved		91.2	93.8		%	2.8	20	13-JUL-13
WG1706539-1 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	13-JUL-13
WG1706539-11 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	13-JUL-13
WG1706539-6 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	13-JUL-13
MET-D-CCMS-ED	**Water**							

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2650485								
WG1707899-2 CRM		**ED-HIGH-WATRM**						
Aluminum (Al)-Dissolved			105.5		%		80-120	16-JUL-13
Antimony (Sb)-Dissolved			104.7		%		80-120	16-JUL-13
Arsenic (As)-Dissolved			104.1		%		80-120	16-JUL-13
Barium (Ba)-Dissolved			102.5		%		80-120	16-JUL-13
Beryllium (Be)-Dissolved			107.2		%		80-120	16-JUL-13
Boron (B)-Dissolved			100.6		%		80-120	16-JUL-13
Cadmium (Cd)-Dissolved			108.9		%		80-120	16-JUL-13
Calcium (Ca)-Dissolved			105.5		%		80-120	16-JUL-13
Chromium (Cr)-Dissolved			103.0		%		80-120	16-JUL-13
Cobalt (Co)-Dissolved			101.2		%		80-120	16-JUL-13
Copper (Cu)-Dissolved			100.0		%		80-120	16-JUL-13
Lead (Pb)-Dissolved			102.6		%		80-120	16-JUL-13
Magnesium (Mg)-Dissolved			103.0		%		80-120	16-JUL-13
Manganese (Mn)-Dissolved			101.0		%		80-120	16-JUL-13
Molybdenum (Mo)-Dissolved			100.9		%		80-120	16-JUL-13
Nickel (Ni)-Dissolved			102.7		%		80-120	16-JUL-13
Potassium (K)-Dissolved			105.0		%		80-120	16-JUL-13
Selenium (Se)-Dissolved			114.2		%		80-120	16-JUL-13
Silver (Ag)-Dissolved			107.7		%		80-120	16-JUL-13
Sodium (Na)-Dissolved			109.1		%		80-120	16-JUL-13
Thallium (Tl)-Dissolved			100.3		%		80-120	16-JUL-13
Titanium (Ti)-Dissolved			100.1		%		80-120	16-JUL-13
Uranium (U)-Dissolved			105.5		%		80-120	16-JUL-13
Vanadium (V)-Dissolved			102.5		%		80-120	16-JUL-13
Zinc (Zn)-Dissolved			100.7		%		80-120	16-JUL-13
WG1707899-3 DUP		**L1329409-1**						
Aluminum (Al)-Dissolved		0.0422	0.0415		mg/L	1.5	20	16-JUL-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Arsenic (As)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Barium (Ba)-Dissolved		0.00231	0.00231		mg/L	0.0	20	16-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	16-JUL-13
Boron (B)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-JUL-13
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	16-JUL-13

Quality Control Report

Workorder: L1329669 Report Date: 17-JUL-13

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
MET-D-CCMS-ED	**Water**							
Batch R2650485								
WG1707899-3 DUP		**L1329409-1**						
Calcium (Ca)-Dissolved		2.43	2.50		mg/L	2.6	20	16-JUL-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Copper (Cu)-Dissolved		0.00039	0.00039		mg/L	0.9	20	16-JUL-13
Iron (Fe)-Dissolved		0.022	0.022		mg/L	1.6	20	16-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-JUL-13
Magnesium (Mg)-Dissolved		1.65	1.66		mg/L	0.7	20	16-JUL-13
Manganese (Mn)-Dissolved		0.00620	0.00612		mg/L	1.3	20	16-JUL-13
Molybdenum (Mo)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-JUL-13
Nickel (Ni)-Dissolved		0.00014	0.00015		mg/L	13	20	16-JUL-13
Potassium (K)-Dissolved		0.75	0.74		mg/L	0.7	20	16-JUL-13
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	16-JUL-13
Sodium (Na)-Dissolved		4.9	4.8		mg/L	1.4	20	16-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-JUL-13
Titanium (Ti)-Dissolved		0.00143	0.00134		mg/L	6.9	20	16-JUL-13
Uranium (U)-Dissolved		0.000012	0.000011		mg/L	5.9	20	16-JUL-13
Vanadium (V)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Zinc (Zn)-Dissolved		0.0012	<0.0010	RPD-NA	mg/L	N/A	20	16-JUL-13
WG1707899-4 DUP		**L1329669-3**						
Aluminum (Al)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-JUL-13
Antimony (Sb)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	16-JUL-13
Arsenic (As)-Dissolved		0.00767	0.00758		mg/L	1.2	20	16-JUL-13
Barium (Ba)-Dissolved		0.0639	0.0643		mg/L	0.7	20	16-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	16-JUL-13
Boron (B)-Dissolved		0.163	0.157		mg/L	4.0	20	16-JUL-13
Cadmium (Cd)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Calcium (Ca)-Dissolved		149	146		mg/L	1.9	20	16-JUL-13
Chromium (Cr)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-JUL-13
Cobalt (Co)-Dissolved		0.00018	0.00018		mg/L	1.2	20	16-JUL-13
Copper (Cu)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-JUL-13
Iron (Fe)-Dissolved		6.47	6.58		mg/L	1.6	20	16-JUL-13
Lead (Pb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2650485								
WG1707899-4 DUP		**L1329669-3**						
Magnesium (Mg)-Dissolved		40.4	40.6		mg/L	0.4	20	16-JUL-13
Manganese (Mn)-Dissolved		0.415	0.417		mg/L	0.5	20	16-JUL-13
Molybdenum (Mo)-Dissolved		0.00175	0.00170		mg/L	2.6	20	16-JUL-13
Nickel (Ni)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	16-JUL-13
Potassium (K)-Dissolved		6.47	6.52		mg/L	0.7	20	16-JUL-13
Selenium (Se)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	16-JUL-13
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Sodium (Na)-Dissolved		112	111		mg/L	0.9	20	16-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-JUL-13
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	16-JUL-13
Uranium (U)-Dissolved		0.00067	0.00067		mg/L	0.4	20	16-JUL-13
Vanadium (V)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Zinc (Zn)-Dissolved		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	16-JUL-13
WG1707899-5 DUP		**L1329982-1**						
Aluminum (Al)-Dissolved		0.023	0.024		mg/L	4.6	20	16-JUL-13
Antimony (Sb)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	16-JUL-13
Arsenic (As)-Dissolved		0.00056	0.00062		mg/L	11	20	16-JUL-13
Barium (Ba)-Dissolved		0.0730	0.0734		mg/L	0.6	20	16-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	16-JUL-13
Boron (B)-Dissolved		0.016	0.015		mg/L	3.6	20	16-JUL-13
Cadmium (Cd)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Calcium (Ca)-Dissolved		45.4	43.5		mg/L	4.2	20	16-JUL-13
Chromium (Cr)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	16-JUL-13
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Copper (Cu)-Dissolved		0.00774	0.00792		mg/L	2.3	20	16-JUL-13
Iron (Fe)-Dissolved		0.013	0.012		mg/L	3.6	20	16-JUL-13
Lead (Pb)-Dissolved		0.00022	0.00022		mg/L	2.8	20	16-JUL-13
Magnesium (Mg)-Dissolved		14.5	14.2		mg/L	1.5	20	16-JUL-13
Manganese (Mn)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	16-JUL-13
Molybdenum (Mo)-Dissolved		0.00108	0.00108		mg/L	0.4	20	16-JUL-13
Nickel (Ni)-Dissolved		0.00112	0.00112		mg/L	0.7	20	16-JUL-13
Potassium (K)-Dissolved		1.44	1.43		mg/L	0.9	20	16-JUL-13
Selenium (Se)-Dissolved		0.00067	0.00068		mg/L	1.3	20	16-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2650485								
WG1707899-5 DUP		**L1329982-1**						
Silver (Ag)-Dissolved		0.0121	0.0121		mg/L	0.1	20	16-JUL-13
Sodium (Na)-Dissolved		10.2	10.1		mg/L	1.2	20	16-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-JUL-13
Titanium (Ti)-Dissolved		0.00055	<0.00030	RPD-NA	mg/L	N/A	20	16-JUL-13
Uranium (U)-Dissolved		0.00078	0.00077		mg/L	0.5	20	16-JUL-13
Vanadium (V)-Dissolved		0.00037	0.00038		mg/L	2.9	20	16-JUL-13
Zinc (Zn)-Dissolved		0.0022	0.0018	J	mg/L	0.0004	0.002	16-JUL-13
WG1707899-6 DUP		**L1330134-19**						
Aluminum (Al)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-JUL-13
Antimony (Sb)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	16-JUL-13
Arsenic (As)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	16-JUL-13
Barium (Ba)-Dissolved		0.200	0.195		mg/L	2.5	20	16-JUL-13
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-JUL-13
Boron (B)-Dissolved		0.067	0.068		mg/L	1.2	20	16-JUL-13
Cadmium (Cd)-Dissolved		0.000069	0.000071		mg/L	3.0	20	16-JUL-13
Calcium (Ca)-Dissolved		168	165		mg/L	1.9	20	16-JUL-13
Chromium (Cr)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-JUL-13
Cobalt (Co)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	16-JUL-13
Copper (Cu)-Dissolved		0.0012	0.0011		mg/L	3.5	20	16-JUL-13
Iron (Fe)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-JUL-13
Lead (Pb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Magnesium (Mg)-Dissolved		41.3	41.3		mg/L	0.1	20	16-JUL-13
Manganese (Mn)-Dissolved		0.105	0.105		mg/L	0.1	20	16-JUL-13
Molybdenum (Mo)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-JUL-13
Nickel (Ni)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	16-JUL-13
Potassium (K)-Dissolved		2.33	2.36		mg/L	1.6	20	16-JUL-13
Selenium (Se)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	16-JUL-13
Silver (Ag)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Sodium (Na)-Dissolved		42.7	43.1		mg/L	1.1	20	16-JUL-13
Thallium (Tl)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-13
Titanium (Ti)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-JUL-13
Uranium (U)-Dissolved		0.00525	0.00524		mg/L	0.3	20	16-JUL-13
Vanadium (V)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2650485								
WG1707899-6 DUP		**L1330134-19**						
Zinc (Zn)-Dissolved		0.0143	0.0142		mg/L	0.8	20	16-JUL-13
WG1707899-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	16-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	16-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	16-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	16-JUL-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	16-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	16-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	16-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	16-JUL-13
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	16-JUL-13
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	16-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	16-JUL-13
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	16-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	16-JUL-13
NH3-D-CFA-ED	**Water**							
Batch R2647531								
WG1704872-3 DUP		**L1328833-1**						
Ammonia, Total Dissolved (as N)		0.234	0.235		mg/L	0.2	20	11-JUL-13

Quality Control Report

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
NH3-D-CFA-ED	**Water**							
Batch R2649501								
WG1706874-3 DUP		**L1329669-2**						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	15-JUL-13
NO2-IC-ED	**Water**							
Batch R2647695								
WG1704718-13 DUP		**L1329799-14**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	10-JUL-13
WG1704718-3 DUP		**L1329443-2**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	10-JUL-13
WG1704718-7 DUP		**L1329542-7**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	10-JUL-13
WG1704718-2 LCS								
Nitrite (as N)			91.8		%		90-110	10-JUL-13
WG1704718-1 MB								
Nitrite (as N)			<0.050		mg/L		0.05	10-JUL-13
WG1704718-14 MS		**L1329799-14**						
Nitrite (as N)			98.9		%		75-125	10-JUL-13
WG1704718-4 MS		**L1329443-2**						
Nitrite (as N)			97.0		%		75-125	10-JUL-13
WG1704718-8 MS		**L1329542-7**						
Nitrite (as N)			89.9		%		75-125	10-JUL-13
NO3-IC-ED	**Water**							
Batch R2647695								
WG1704718-13 DUP		**L1329799-14**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	10-JUL-13
WG1704718-3 DUP		**L1329443-2**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	10-JUL-13
WG1704718-7 DUP		**L1329542-7**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	10-JUL-13
WG1704718-9 DUP		**L1329820-15**						
Nitrate (as N)		0.249	0.257		mg/L	3.4	20	10-JUL-13
WG1704718-2 LCS								
Nitrate (as N)			97.9		%		90-110	10-JUL-13
WG1704718-1 MB								
Nitrate (as N)			<0.050		mg/L		0.05	10-JUL-13
WG1704718-10 MS		**L1329820-15**						
Nitrate (as N)			93.0		%		75-125	10-JUL-13
WG1704718-14 MS		**L1329799-14**						

Quality Control Report

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
NO3-IC-ED	**Water**							
Batch R2647695								
WG1704718-14 MS		**L1329799-14**						
Nitrate (as N)			106.3		%		75-125	10-JUL-13
WG1704718-4 MS		**L1329443-2**						
Nitrate (as N)			104.4		%		75-125	10-JUL-13
WG1704718-8 MS		**L1329542-7**						
Nitrate (as N)			98.3		%		75-125	10-JUL-13
PH/EC/ALK-ED	**Water**							
Batch R2647622								
WG1704948-10 DUP		**L1330397-1**						
pH		7.89	7.89	J	pH	0.01	0.3	12-JUL-13
Conductivity (EC)		166	166		uS/cm	0.0	10	12-JUL-13
Bicarbonate (HCO3)		90.1	91.0		mg/L	1.0	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		73.9	74.6		mg/L	1.0	20	12-JUL-13
WG1704948-6 DUP		**L1329799-14**						
pH		7.73	7.77	J	pH	0.04	0.3	11-JUL-13
Conductivity (EC)		1430	1440		uS/cm	0.2	10	11-JUL-13
Bicarbonate (HCO3)		731	727		mg/L	0.6	25	11-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	11-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	11-JUL-13
Alkalinity, Total (as CaCO3)		599	596		mg/L	0.6	20	11-JUL-13
WG1704948-7 DUP		**L1330134-18**						
pH		7.52	7.52	J	pH	0.00	0.3	11-JUL-13
Conductivity (EC)		11100	11100		uS/cm	0.5	10	11-JUL-13
Bicarbonate (HCO3)		566	572		mg/L	1.1	25	11-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	11-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	11-JUL-13
Alkalinity, Total (as CaCO3)		464	469		mg/L	1.1	20	11-JUL-13
WG1704948-9 DUP		**L1330177-6**						
pH		8.03	8.07	J	pH	0.03	0.3	11-JUL-13
Conductivity (EC)		1070	1070		uS/cm	0.1	10	11-JUL-13
Bicarbonate (HCO3)		206	208		mg/L	0.7	25	11-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	11-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	11-JUL-13

Quality Control Report

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
PH/EC/ALK-ED	**Water**							
Batch R2647622								
WG1704948-9 DUP		**L1330177-6**						
Alkalinity, Total (as CaCO3)		169	170		mg/L	0.7	20	11-JUL-13
WG1704948-2 LCS								
Conductivity (EC)			100.6		%		90-110	11-JUL-13
WG1704948-3 LCS								
pH			7.07		pH		6.7-7.3	11-JUL-13
WG1704948-4 LCS								
Alkalinity, Total (as CaCO3)			103.5		%		85-115	11-JUL-13
WG1704948-5 LCS								
Conductivity (EC)			98.5		%		90-110	11-JUL-13
WG1704948-1 MB								
Bicarbonate (HCO3)			<5.0		mg/L		5	11-JUL-13
Carbonate (CO3)			<5.0		mg/L		5	11-JUL-13
Hydroxide (OH)			<5.0		mg/L		5	11-JUL-13
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	11-JUL-13
Batch R2648510								
WG1705920-10 DUP		**L1330570-1**						
pH		8.09	8.08	J	pH	0.01	0.3	13-JUL-13
Conductivity (EC)		1570	1560		uS/cm	0.1	10	13-JUL-13
Bicarbonate (HCO3)		569	608		mg/L	6.5	25	13-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Alkalinity, Total (as CaCO3)		467	498		mg/L	6.5	20	13-JUL-13
WG1705920-6 DUP		**L1330959-2**						
pH		6.67	6.60	J	pH	0.06	0.3	12-JUL-13
Conductivity (EC)		23.0	22.5		uS/cm	2.2	10	12-JUL-13
Bicarbonate (HCO3)		10.0	9.7		mg/L	3.3	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		8.2	8.0		mg/L	3.3	20	12-JUL-13
WG1705920-7 DUP		**L1330465-2**						
pH		7.94	7.89	J	pH	0.05	0.3	12-JUL-13
Conductivity (EC)		727	729		uS/cm	0.3	10	12-JUL-13
Bicarbonate (HCO3)		438	472		mg/L	7.4	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13

Quality Control Report

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
PH/EC/ALK-ED	**Water**							
Batch R2648510								
WG1705920-7 DUP		**L1330465-2**						
Alkalinity, Total (as CaCO3)		359	387		mg/L	7.4	20	12-JUL-13
WG1705920-9 DUP		**L1330656-19**						
pH		7.70	7.73	J	pH	0.03	0.3	12-JUL-13
Conductivity (EC)		1120	1120		uS/cm	0.4	10	12-JUL-13
Bicarbonate (HCO3)		753	715		mg/L	5.2	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		617	586		mg/L	5.2	20	12-JUL-13
WG1705920-2 LCS								
Conductivity (EC)			99.9		%		90-110	12-JUL-13
WG1705920-3 LCS								
pH			7.04		pH		6.7-7.3	12-JUL-13
WG1705920-4 LCS								
Alkalinity, Total (as CaCO3)			104.4		%		85-115	12-JUL-13
WG1705920-5 LCS								
Conductivity (EC)			97.9		%		90-110	12-JUL-13
WG1705920-1 MB								
Bicarbonate (HCO3)			<5.0		mg/L		5	12-JUL-13
Carbonate (CO3)			<5.0		mg/L		5	12-JUL-13
Hydroxide (OH)			<5.0		mg/L		5	12-JUL-13
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-JUL-13
PHENOLS-4AAP-ED	**Water**							
Batch R2650218								
WG1708014-3 LCS								
Phenols (4AAP)			94.8		%		85-115	16-JUL-13
WG1708014-2 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	16-JUL-13
SO4-IC-ED	**Water**							
Batch R2647695								
WG1704718-11 DUP		**L1329971-2**						
Sulfate (SO4)		42.7	42.7		mg/L	0.1	20	10-JUL-13
WG1704718-13 DUP		**L1329799-14**						
Sulfate (SO4)		249	248		mg/L	0.3	20	10-JUL-13
WG1704718-3 DUP		**L1329443-2**						
Sulfate (SO4)		20.3	20.3		mg/L	0.1	20	10-JUL-13
WG1704718-2 LCS								

Quality Control Report

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
SO4-IC-ED	**Water**							
Batch R2647695								
WG1704718-2 LCS								
Sulfate (SO4)			100.9		%		90-110	10-JUL-13
WG1704718-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	10-JUL-13
WG1704718-12 MS		**L1329971-2**						
Sulfate (SO4)			111.4		%		75-125	10-JUL-13
WG1704718-14 MS		**L1329799-14**						
Sulfate (SO4)			N/A	MS-B	%		-	10-JUL-13
WG1704718-4 MS		**L1329443-2**						
Sulfate (SO4)			106.3		%		75-125	10-JUL-13
SOLIDS-TDS-ED	**Water**							
Batch R2648379								
WG1704981-3 DUP		**L1329967-1**						
Total Dissolved Solids		887	900		mg/L	1.5	20	12-JUL-13
WG1704981-2 LCS								
Total Dissolved Solids			100.0		%		85-115	12-JUL-13
WG1704981-1 MB								
Total Dissolved Solids			<10		mg/L		10	12-JUL-13
Batch R2649148								
WG1706630-3 DUP		**L1331774-1**						
Total Dissolved Solids		2110	2080		mg/L	1.4	20	13-JUL-13
WG1706630-2 LCS								
Total Dissolved Solids			101.1		%		85-115	13-JUL-13
WG1706630-1 MB								
Total Dissolved Solids			<10		mg/L		10	13-JUL-13

Quality Control Report

Workorder: L1329669 Report Date: 17-JUL-13

Client: WORLEYPARSONS CANADA
700 - 4445 Calgary Trail Terrace Plaza
EDMONTON AB T6H 5R7
Contact: TREVOR BUTTERFIELD

Legend:

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.

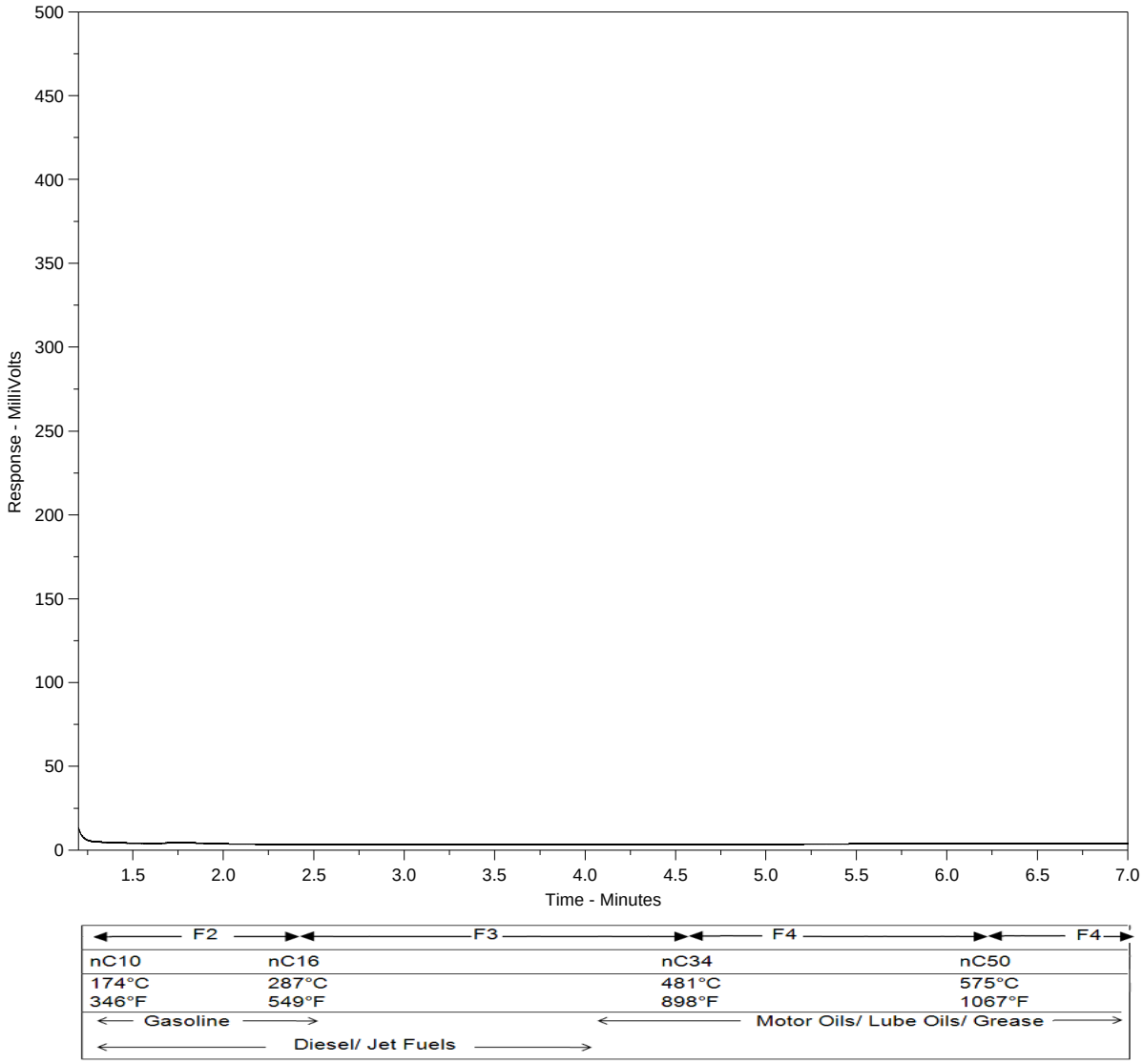
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

Hydrocarbon Distribution Report

ALS Sample ID: **L1329669-1**
Client ID: **MW04**



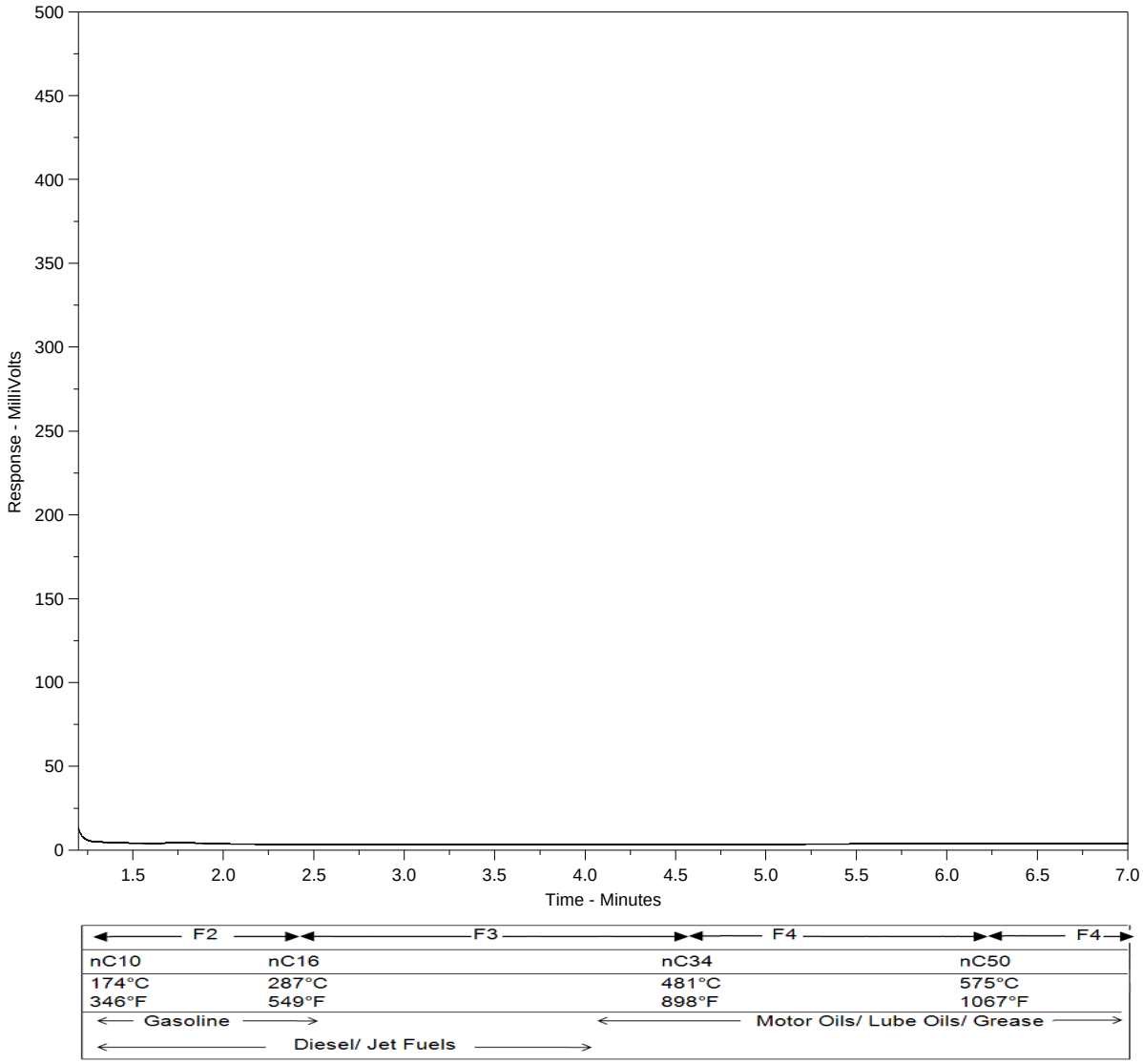
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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: **L1329669-2**
Client ID: **F13-01**



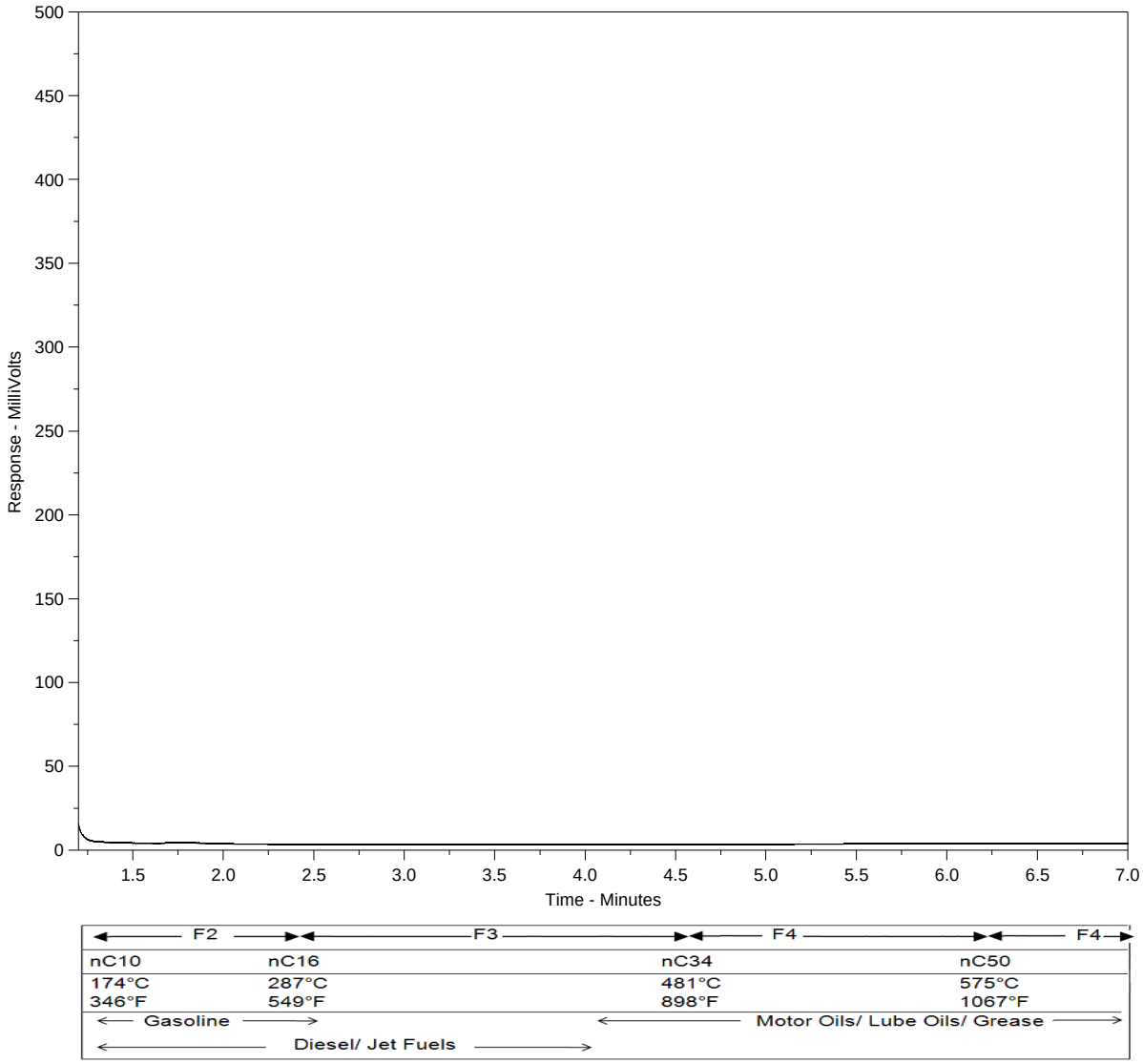
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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: **L1329669-3**
Client ID: **MW08**



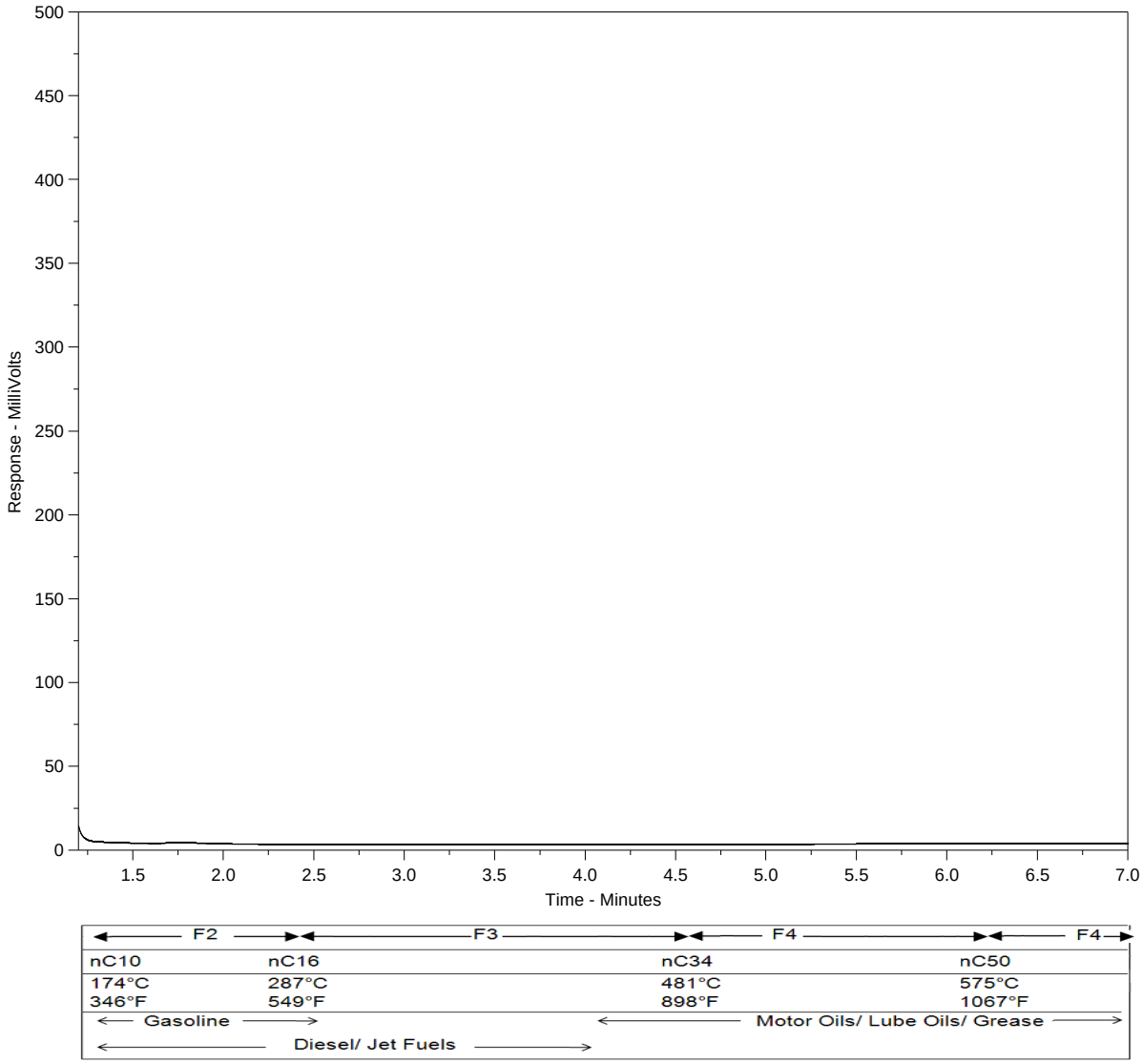
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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: **L1329669-4**
Client ID: **MW10**



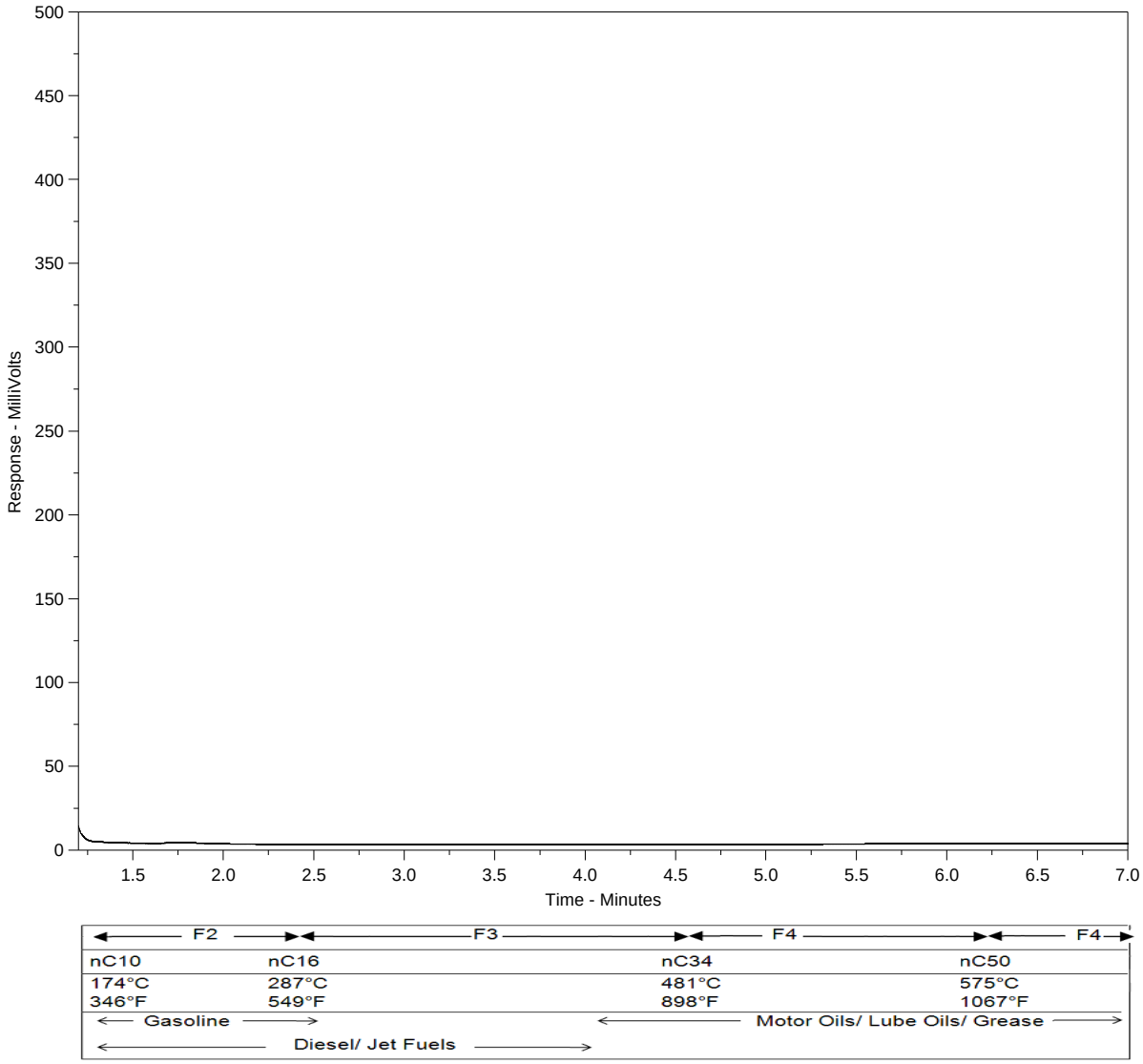
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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: **L1329669-5**
Client ID: **D13-01**



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.

10-214498

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Worley Parsons	Standard: X Other (specify):	X Regular (Standard Turnaround Times - Business Days)
Contact: Trevor Butterfield	Select: PDF X Excel Digital X Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: Suite 700 Calgary Trail Edmonton AB T6H 5R7	Email 1: trevor.butterfield@worleyparsons.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2: edm.chemistry@worleyparsons.com stuart.gray@worleyparsons.com	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 780 4969055 Fax: 780 496 9575		Analysis Request
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	Client / Project Information	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) Yes or No	Job #: 307076-06086	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: Q39294	
Lab Work Order # (lab use only) L1329669	ALS Contact: Maureen Olinek	Sampler: Stuart Gray

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX, F1	F2	DOC	Diss. Metals	Diss. Nutrients	Phenols	Routine WQ	PS Actual	Number of Containers
	MW04	09-Jul-13	1130	Water	X	X	X	X	X	X	X	X	11
	F13-01		1100		X	X	X	X	X	X	X	X	11
	MW08		1445		X	X	X	X	X	X	X	X	11
	MW10		1800		X	X	X	X	X	X	X	X	11
	D13-01		1805		X	X	X	X	X	X	X	X	11

L1329669-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commerci

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.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Stuart Gray	9-Jul-13	1936	N.C	7/9/13	7:37pm	10° °C				

WORLEYPARSONS CANADA
ATTN: Trevor Butterfield
700 - 4445 CALGARY TRAIL NW
TERRACE PLAZA
EDMONTON AB T6H 5R7

Date Received: 10-JUL-13
Report Date: 20-JUL-13 14:41 (MT)
Version: FINAL

Client Phone: 780-496-9055

Certificate of Analysis

Lab Work Order #: L1330465

Project P.O. #: NOT SUBMITTED
Job Reference: 307076-06086
C of C Numbers: 10-214499
Legal Site Desc:

Maureen Olinek
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1330465-1 MW02							
Sampled By: SG on 10-JUL-13 @ 18:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		15-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		15-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		15-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		15-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	0.31		0.25	mg/L	15-JUL-13	15-JUL-13	R2650179
Surrogate: 2-Bromobenzotrifluoride	99.5		65-135	%	15-JUL-13	15-JUL-13	R2650179
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.726		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	5.4		1.0	mg/L		16-JUL-13	R2650265
Fluoride (F)	0.080		0.020	mg/L		11-JUL-13	R2648440
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-13	R2651408
Total Dissolved Solids	805		10	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	24.2	RRV	0.50	mg/L		11-JUL-13	R2648440
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050	RRV	0.0050	mg/L		18-JUL-13	R2651658
Antimony (Sb)-Dissolved	<0.00040	RRV	0.00040	mg/L		18-JUL-13	R2651658
Arsenic (As)-Dissolved	0.00340	RRV	0.00040	mg/L		18-JUL-13	R2651658
Barium (Ba)-Dissolved	0.0850	RRV	0.0050	mg/L		18-JUL-13	R2651658
Beryllium (Be)-Dissolved	<0.00050	RRV	0.00050	mg/L		18-JUL-13	R2651658
Boron (B)-Dissolved	0.200	RRV	0.050	mg/L		18-JUL-13	R2651658
Cadmium (Cd)-Dissolved	<0.00010	RRV	0.00010	mg/L		18-JUL-13	R2651658
Calcium (Ca)-Dissolved	172	RRV	0.50	mg/L		18-JUL-13	R2651658
Chromium (Cr)-Dissolved	<0.0050	RRV	0.0050	mg/L		18-JUL-13	R2651658
Cobalt (Co)-Dissolved	0.00072	RRV	0.00010	mg/L		18-JUL-13	R2651658
Copper (Cu)-Dissolved	<0.0010	RRV	0.0010	mg/L		18-JUL-13	R2651658
Iron (Fe)-Dissolved	12.3	RRV	0.010	mg/L		18-JUL-13	R2651658
Lead (Pb)-Dissolved	<0.00010	RRV	0.00010	mg/L		18-JUL-13	R2651658
Magnesium (Mg)-Dissolved	56.4	RRV	0.10	mg/L		18-JUL-13	R2651658
Manganese (Mn)-Dissolved	0.554	RRV	0.0020	mg/L		18-JUL-13	R2651658
Molybdenum (Mo)-Dissolved	0.000324	RRV	0.000050	mg/L		18-JUL-13	R2651658
Nickel (Ni)-Dissolved	<0.0020	RRV	0.0020	mg/L		18-JUL-13	R2651658
Potassium (K)-Dissolved	5.25	RRV	0.10	mg/L		18-JUL-13	R2651658
Selenium (Se)-Dissolved	<0.00040	RRV	0.00040	mg/L		18-JUL-13	R2651658
Silver (Ag)-Dissolved	<0.00010	RRV	0.00010	mg/L		18-JUL-13	R2651658
Sodium (Na)-Dissolved	161	RRV	1.0	mg/L		18-JUL-13	R2651658
Thallium (Tl)-Dissolved	<0.000050	RRV	0.000050	mg/L		18-JUL-13	R2651658
Titanium (Ti)-Dissolved	<0.00030	RRV	0.00030	mg/L		18-JUL-13	R2651658
Uranium (U)-Dissolved	0.00102	RRV	0.00010	mg/L		18-JUL-13	R2651658
Vanadium (V)-Dissolved	<0.00010	RRV	0.00010	mg/L		18-JUL-13	R2651658
Zinc (Zn)-Dissolved	<0.0030	RRV	0.0030	mg/L		18-JUL-13	R2651658
Ion Balance Calculation							
Ion Balance	142	BL:INT		%		19-JUL-13	

* 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
L1330465-1 MW02							
Sampled By: SG on 10-JUL-13 @ 18:00							
Matrix: WATER							
Ion Balance Calculation							
TDS (Calculated)	902			mg/L		19-JUL-13	
Hardness (as CaCO3)	662			mg/L		19-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		16-JUL-13	R2650063
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		16-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Sulfate by IC							
Sulfate (SO4)	194	RRV	0.50	mg/L		11-JUL-13	R2648440
pH, Conductivity and Total Alkalinity							
pH	7.69		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	1220		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	588		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	482		2.0	mg/L		12-JUL-13	R2648510
L1330465-2 MW01							
Sampled By: SG on 10-JUL-13 @ 07:10							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		15-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		15-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		15-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		15-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	15-JUL-13	15-JUL-13	R2650179
Surrogate: 2-Bromobenzotrifluoride	95.8		65-135	%	15-JUL-13	15-JUL-13	R2650179
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.246		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	3.5		1.0	mg/L		16-JUL-13	R2650265
Fluoride (F)	0.124		0.020	mg/L		11-JUL-13	R2648440
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-13	R2651408
Total Dissolved Solids	445		10	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	3.49		0.50	mg/L		11-JUL-13	R2648440
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Arsenic (As)-Dissolved	0.00098		0.00040	mg/L		18-JUL-13	R2651658
Barium (Ba)-Dissolved	0.147		0.0050	mg/L		18-JUL-13	R2651658
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		18-JUL-13	R2651658

* 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
L1330465-2 MW01							
Sampled By: SG on 10-JUL-13 @ 07:10							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Boron (B)-Dissolved	<0.050		0.050	mg/L		18-JUL-13	R2651658
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Calcium (Ca)-Dissolved	96.5		0.50	mg/L		18-JUL-13	R2651658
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Cobalt (Co)-Dissolved	0.00075		0.00010	mg/L		18-JUL-13	R2651658
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		18-JUL-13	R2651658
Iron (Fe)-Dissolved	1.82		0.010	mg/L		18-JUL-13	R2651658
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Magnesium (Mg)-Dissolved	26.2		0.10	mg/L		18-JUL-13	R2651658
Manganese (Mn)-Dissolved	0.729		0.0020	mg/L		18-JUL-13	R2651658
Molybdenum (Mo)-Dissolved	0.000360		0.000050	mg/L		18-JUL-13	R2651658
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		18-JUL-13	R2651658
Potassium (K)-Dissolved	2.71		0.10	mg/L		18-JUL-13	R2651658
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Sodium (Na)-Dissolved	36.0		1.0	mg/L		18-JUL-13	R2651658
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		18-JUL-13	R2651658
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		18-JUL-13	R2651658
Uranium (U)-Dissolved	0.00223		0.00010	mg/L		18-JUL-13	R2651658
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		18-JUL-13	R2651658
Ion Balance Calculation							
Ion Balance	103			%		19-JUL-13	
TDS (Calculated)	433			mg/L		19-JUL-13	
Hardness (as CaCO3)	349			mg/L		19-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		16-JUL-13	R2650063
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		16-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Sulfate by IC							
Sulfate (SO4)	52.3		0.50	mg/L		11-JUL-13	R2648440
pH, Conductivity and Total Alkalinity							
pH	7.94		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	727		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	438		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	359		2.0	mg/L		12-JUL-13	R2648510
L1330465-3 MW03							
Sampled By: SG on 10-JUL-13 @ 08:20							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290

* 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
L1330465-3 MW03							
Sampled By: SG on 10-JUL-13 @ 08:20							
Matrix: WATER							
BTEX, Styrene and F1 (C6-C10)							
m+p-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		15-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		15-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		15-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		15-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	15-JUL-13	15-JUL-13	R2650179
Surrogate: 2-Bromobenzotrifluoride	100.1		65-135	%	15-JUL-13	15-JUL-13	R2650179
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.369		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	3.0		1.0	mg/L		16-JUL-13	R2650265
Fluoride (F)	0.105		0.020	mg/L		11-JUL-13	R2648440
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-13	R2651408
Total Dissolved Solids	608		10	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	48.3		0.50	mg/L		11-JUL-13	R2648440
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Arsenic (As)-Dissolved	0.00147		0.00040	mg/L		18-JUL-13	R2651658
Barium (Ba)-Dissolved	0.0431		0.0050	mg/L		18-JUL-13	R2651658
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		18-JUL-13	R2651658
Boron (B)-Dissolved	0.098		0.050	mg/L		18-JUL-13	R2651658
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Calcium (Ca)-Dissolved	109		0.50	mg/L		18-JUL-13	R2651658
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Cobalt (Co)-Dissolved	0.00073		0.00010	mg/L		18-JUL-13	R2651658
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		18-JUL-13	R2651658
Iron (Fe)-Dissolved	5.36		0.010	mg/L		18-JUL-13	R2651658
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Magnesium (Mg)-Dissolved	38.3		0.10	mg/L		18-JUL-13	R2651658
Manganese (Mn)-Dissolved	0.274		0.0020	mg/L		18-JUL-13	R2651658
Molybdenum (Mo)-Dissolved	0.000682		0.000050	mg/L		18-JUL-13	R2651658
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		18-JUL-13	R2651658
Potassium (K)-Dissolved	3.20		0.10	mg/L		18-JUL-13	R2651658
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Sodium (Na)-Dissolved	57.9		1.0	mg/L		18-JUL-13	R2651658
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		18-JUL-13	R2651658
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		18-JUL-13	R2651658
Uranium (U)-Dissolved	0.00064		0.00010	mg/L		18-JUL-13	R2651658
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		18-JUL-13	R2651658
Ion Balance Calculation							
Ion Balance	103			%		19-JUL-13	
TDS (Calculated)	586			mg/L		19-JUL-13	
Hardness (as CaCO3)	430			mg/L		19-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		16-JUL-13	R2650063
Nitrate as N by IC							

* 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
L1330465-3 MW03							
Sampled By: SG on 10-JUL-13 @ 08:20							
Matrix: WATER							
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		16-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Sulfate by IC							
Sulfate (SO4)	119		0.50	mg/L		11-JUL-13	R2648440
pH, Conductivity and Total Alkalinity							
pH	7.81		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	963		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	427		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	350		2.0	mg/L		12-JUL-13	R2648510
L1330465-4 MW11							
Sampled By: SG on 10-JUL-13 @ 10:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		15-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		15-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		15-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		15-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	15-JUL-13	15-JUL-13	R2650179
Surrogate: 2-Bromobenzotrifluoride	99.7		65-135	%	15-JUL-13	15-JUL-13	R2650179
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.57		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	6.2		1.0	mg/L		16-JUL-13	R2650265
Fluoride (F)	0.105		0.020	mg/L		11-JUL-13	R2648440
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-13	R2651408
Total Dissolved Solids	828		10	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	8.92		0.50	mg/L		11-JUL-13	R2648440
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Arsenic (As)-Dissolved	0.00260		0.00040	mg/L		18-JUL-13	R2651658
Barium (Ba)-Dissolved	0.0424		0.0050	mg/L		18-JUL-13	R2651658
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		18-JUL-13	R2651658
Boron (B)-Dissolved	0.173		0.050	mg/L		18-JUL-13	R2651658
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Calcium (Ca)-Dissolved	147		0.50	mg/L		18-JUL-13	R2651658
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Cobalt (Co)-Dissolved	0.00036		0.00010	mg/L		18-JUL-13	R2651658

* 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
L1330465-4 MW11							
Sampled By: SG on 10-JUL-13 @ 10:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		18-JUL-13	R2651658
Iron (Fe)-Dissolved	7.52		0.010	mg/L		18-JUL-13	R2651658
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Magnesium (Mg)-Dissolved	44.7		0.10	mg/L		18-JUL-13	R2651658
Manganese (Mn)-Dissolved	0.697		0.0020	mg/L		18-JUL-13	R2651658
Molybdenum (Mo)-Dissolved	0.000700		0.000050	mg/L		18-JUL-13	R2651658
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		18-JUL-13	R2651658
Potassium (K)-Dissolved	5.09		0.10	mg/L		18-JUL-13	R2651658
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Sodium (Na)-Dissolved	102		1.0	mg/L		18-JUL-13	R2651658
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		18-JUL-13	R2651658
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		18-JUL-13	R2651658
Uranium (U)-Dissolved	0.00116		0.00010	mg/L		18-JUL-13	R2651658
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		18-JUL-13	R2651658
Ion Balance Calculation							
Ion Balance	103			%		19-JUL-13	
TDS (Calculated)	836			mg/L		19-JUL-13	
Hardness (as CaCO3)	551			mg/L		19-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		16-JUL-13	R2650063
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		16-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Sulfate by IC							
Sulfate (SO4)	213		0.50	mg/L		11-JUL-13	R2648440
pH, Conductivity and Total Alkalinity							
pH	7.93		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	1270		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	640		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	525		2.0	mg/L		12-JUL-13	R2648510

* 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
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-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:

10-214499

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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.

Quality Control Report

Workorder: L1330465 Report Date: 20-JUL-13

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
BTXS,F1-ED	**Water**							
Batch R2647290								
WG1706148-4 DUP		**L1330465-4**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	15-JUL-13
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	15-JUL-13
EthylBenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	15-JUL-13
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	15-JUL-13
m+p-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	15-JUL-13
Styrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	15-JUL-13
F1(C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	15-JUL-13
WG1706148-2 LCS								
Benzene			76.7		%		70-130	13-JUL-13
Toluene			90.9		%		70-130	13-JUL-13
EthylBenzene			75.7		%		70-130	13-JUL-13
o-Xylene			86.6		%		70-130	13-JUL-13
m+p-Xylene			80.0		%		70-130	13-JUL-13
Styrene			89.7		%		70-130	13-JUL-13
WG1706148-3 LCS								
F1(C6-C10)			104.1		%		70-130	13-JUL-13
WG1706148-1 MB								
Benzene			<0.00050		mg/L		0.0005	13-JUL-13
Toluene			<0.00050		mg/L		0.0005	13-JUL-13
EthylBenzene			<0.00050		mg/L		0.0005	13-JUL-13
o-Xylene			<0.00050		mg/L		0.0005	13-JUL-13
m+p-Xylene			<0.00050		mg/L		0.0005	13-JUL-13
Styrene			<0.0010		mg/L		0.001	13-JUL-13
F1(C6-C10)			<0.10		mg/L		0.1	13-JUL-13
WG1706148-5 MS		**L1330465-4**						
Benzene			89.2		%		50-150	15-JUL-13
Toluene			94.3		%		50-150	15-JUL-13
EthylBenzene			89.9		%		50-150	15-JUL-13
o-Xylene			97.3		%		50-150	15-JUL-13
m+p-Xylene			94.6		%		50-150	15-JUL-13
Styrene			95.1		%		50-150	15-JUL-13
WG1706148-6 MS		**L1330465-4**						
F1(C6-C10)			84.9		%		50-150	15-JUL-13
C-DIS-ORG-ED	**Water**							

Quality Control Report

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
C-DIS-ORG-ED	**Water**							
Batch R2650265								
WG1708071-3 CVS								
Dissolved Organic Carbon			106.1		%		80-160	16-JUL-13
WG1708071-6 DUP		**L1329895-10**						
Dissolved Organic Carbon		7.4	7.1		mg/L	4.2	20	16-JUL-13
WG1708071-2 LCS								
Dissolved Organic Carbon			90.6		%		80-120	16-JUL-13
WG1708071-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	16-JUL-13
WG1708071-7 MS		**L1329895-10**						
Dissolved Organic Carbon			86.7		%		70-130	16-JUL-13
CL-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Chloride (Cl)		5.28	5.13		mg/L	2.9	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Chloride (Cl)		3.49	3.51		mg/L	0.6	20	11-JUL-13
WG1705578-2 LCS								
Chloride (Cl)			105.0		%		90-110	11-JUL-13
WG1705578-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	11-JUL-13
WG1705578-4 MS		**L1330177-6**						
Chloride (Cl)			102.7		%		75-125	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Chloride (Cl)			103.8		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Chloride (Cl)			104.1		%		75-125	11-JUL-13
F-IC-ED	**Water**							
Batch R2648440								
WG1705578-7 DUP		**L1330465-2**						
Fluoride (F)		0.124	0.124		mg/L	0.3	20	11-JUL-13
WG1705578-2 LCS								
Fluoride (F)			102.8		%		90-110	11-JUL-13
WG1705578-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Fluoride (F)			104.3		%		75-125	11-JUL-13

Quality Control Report

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
F2-ED	**Water**							
Batch R2650179								
WG1707107-2 LCS								
F2 (C10-C16)			119.9		%		65-135	15-JUL-13
WG1707107-5 LCS								
F2 (C10-C16)			122.6		%		65-135	15-JUL-13
WG1707107-1 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	15-JUL-13
Surrogate: 2-Bromobenzotrifluoride			95.9		%		65-135	15-JUL-13
WG1707107-4 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	15-JUL-13
Surrogate: 2-Bromobenzotrifluoride			96.1		%		65-135	15-JUL-13
WG1707107-6 MS		**L1330560-2**						
F2 (C10-C16)			125.5		%		50-150	15-JUL-13
HG-D-L-CVAA-ED	**Water**							
Batch R2650063								
WG1707737-8 DUP		**L1330465-4**						
Mercury (Hg)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	16-JUL-13
WG1707737-2 LCS								
Mercury (Hg)-Dissolved			95.9		%		80-120	16-JUL-13
WG1707737-3 LCSD		**WG1707737-2**						
Mercury (Hg)-Dissolved		95.9	96.7		%	0.9	20	16-JUL-13
WG1707737-1 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	16-JUL-13
WG1707737-9 MS		**L1330465-4**						
Mercury (Hg)-Dissolved			103.3		%		70-130	16-JUL-13
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-2 CRM		**ED-HIGH-WATRM**						
Aluminum (Al)-Dissolved			99.5		%		80-120	18-JUL-13
Antimony (Sb)-Dissolved			102.6		%		80-120	18-JUL-13
Arsenic (As)-Dissolved			102.9		%		80-120	18-JUL-13
Barium (Ba)-Dissolved			103.1		%		80-120	18-JUL-13
Beryllium (Be)-Dissolved			93.0		%		80-120	18-JUL-13
Cadmium (Cd)-Dissolved			104.4		%		80-120	18-JUL-13
Calcium (Ca)-Dissolved			99.4		%		80-120	18-JUL-13
Chromium (Cr)-Dissolved			101.3		%		80-120	18-JUL-13
Cobalt (Co)-Dissolved			103.4		%		80-120	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-2 CRM		**ED-HIGH-WATRM**						
Copper (Cu)-Dissolved			101.3		%		80-120	18-JUL-13
Lead (Pb)-Dissolved			99.1		%		80-120	18-JUL-13
Magnesium (Mg)-Dissolved			104.1		%		80-120	18-JUL-13
Manganese (Mn)-Dissolved			104.7		%		80-120	18-JUL-13
Molybdenum (Mo)-Dissolved			98.6		%		80-120	18-JUL-13
Nickel (Ni)-Dissolved			102.0		%		80-120	18-JUL-13
Potassium (K)-Dissolved			100.7		%		80-120	18-JUL-13
Selenium (Se)-Dissolved			102.7		%		80-120	18-JUL-13
Silver (Ag)-Dissolved			103.6		%		80-120	18-JUL-13
Sodium (Na)-Dissolved			106.0		%		80-120	18-JUL-13
Thallium (Tl)-Dissolved			102.0		%		80-120	18-JUL-13
Titanium (Ti)-Dissolved			95.2		%		80-120	18-JUL-13
Uranium (U)-Dissolved			95.2		%		80-120	18-JUL-13
Vanadium (V)-Dissolved			102.7		%		80-120	18-JUL-13
Zinc (Zn)-Dissolved			103.6		%		80-120	18-JUL-13
WG1709035-3 DUP		**L1329882-1**						
Aluminum (Al)-Dissolved		0.0230	0.0226		mg/L	1.6	20	18-JUL-13
Antimony (Sb)-Dissolved		0.00054	0.00054		mg/L	1.3	20	18-JUL-13
Arsenic (As)-Dissolved		0.00042	0.00039		mg/L	7.7	20	18-JUL-13
Barium (Ba)-Dissolved		0.0871	0.0877		mg/L	0.7	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.108	0.106		mg/L	1.1	20	18-JUL-13
Cadmium (Cd)-Dissolved		0.000055	0.000063		mg/L	14	20	18-JUL-13
Calcium (Ca)-Dissolved		62.5	62.9		mg/L	0.8	20	18-JUL-13
Chromium (Cr)-Dissolved		0.00046	0.00043		mg/L	5.5	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00049	0.00049		mg/L	0.2	20	18-JUL-13
Copper (Cu)-Dissolved		0.00120	0.00118		mg/L	1.8	20	18-JUL-13
Iron (Fe)-Dissolved		0.024	0.022		mg/L	9.2	20	18-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		12.3	12.0		mg/L	2.2	20	18-JUL-13
Manganese (Mn)-Dissolved		0.0845	0.0836		mg/L	1.0	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.0179	0.0179		mg/L	0.1	20	18-JUL-13
Nickel (Ni)-Dissolved		0.00446	0.00436		mg/L	2.3	20	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-3 DUP		**L1329882-1**						
Potassium (K)-Dissolved		4.43	4.35		mg/L	1.9	20	18-JUL-13
Selenium (Se)-Dissolved		0.00372	0.00375		mg/L	0.7	20	18-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		29.7	28.3		mg/L	4.7	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		0.00118	0.00093	J	mg/L	0.00026	0.0006	18-JUL-13
Uranium (U)-Dissolved		0.00555	0.00557		mg/L	0.3	20	18-JUL-13
Vanadium (V)-Dissolved		0.00020	0.00020		mg/L	4.0	20	18-JUL-13
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-JUL-13
WG1709035-4 DUP		**L1330177-2**						
Aluminum (Al)-Dissolved		0.0142	0.0130		mg/L	8.6	20	18-JUL-13
Antimony (Sb)-Dissolved		0.00034	0.00034		mg/L	1.1	20	18-JUL-13
Arsenic (As)-Dissolved		0.00228	0.00231		mg/L	1.6	20	18-JUL-13
Barium (Ba)-Dissolved		0.0958	0.0957		mg/L	0.1	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.309	0.303		mg/L	1.7	20	18-JUL-13
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Calcium (Ca)-Dissolved		216	217		mg/L	0.2	20	18-JUL-13
Chromium (Cr)-Dissolved		0.00014	0.00013		mg/L	6.1	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00173	0.00171		mg/L	0.9	20	18-JUL-13
Copper (Cu)-Dissolved		0.00035	0.00036		mg/L	2.2	20	18-JUL-13
Iron (Fe)-Dissolved		0.194	0.187		mg/L	3.8	20	18-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		63.5	61.6		mg/L	2.9	20	18-JUL-13
Manganese (Mn)-Dissolved		0.437	0.423		mg/L	3.3	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.00428	0.00432		mg/L	1.0	20	18-JUL-13
Nickel (Ni)-Dissolved		0.0377	0.0366		mg/L	2.8	20	18-JUL-13
Potassium (K)-Dissolved		13.4	12.9		mg/L	3.9	20	18-JUL-13
Selenium (Se)-Dissolved		0.00371	0.00366		mg/L	1.3	20	18-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		45.4	44.6		mg/L	1.6	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		0.00133	0.00112		mg/L	17	20	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-4 DUP		**L1330177-2**						
Uranium (U)-Dissolved		0.00371	0.00381		mg/L	2.6	20	18-JUL-13
Vanadium (V)-Dissolved		0.00042	0.00043		mg/L	2.0	20	18-JUL-13
Zinc (Zn)-Dissolved		0.0024	0.0023		mg/L	3.6	20	18-JUL-13
WG1709035-5 DUP		**L1330653-2**						
Aluminum (Al)-Dissolved		0.0068	0.0065		mg/L	5.4	20	18-JUL-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Arsenic (As)-Dissolved		0.00051	0.00049		mg/L	4.4	20	18-JUL-13
Barium (Ba)-Dissolved		0.188	0.187		mg/L	0.5	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.044	0.045		mg/L	3.1	20	18-JUL-13
Cadmium (Cd)-Dissolved		0.000041	0.000046		mg/L	11	20	18-JUL-13
Calcium (Ca)-Dissolved		152	159		mg/L	4.7	20	18-JUL-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00206	0.00208		mg/L	1.3	20	18-JUL-13
Copper (Cu)-Dissolved		0.00040	0.00040		mg/L	0.4	20	18-JUL-13
Iron (Fe)-Dissolved		0.057	0.056		mg/L	1.7	20	18-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		42.3	42.3		mg/L	0.0	20	18-JUL-13
Manganese (Mn)-Dissolved		0.469	0.466		mg/L	0.8	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.00305	0.00313		mg/L	2.8	20	18-JUL-13
Nickel (Ni)-Dissolved		0.00388	0.00382		mg/L	1.7	20	18-JUL-13
Potassium (K)-Dissolved		3.41	3.38		mg/L	0.7	20	18-JUL-13
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		8.7	8.6		mg/L	1.7	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	18-JUL-13
Uranium (U)-Dissolved		0.00420	0.00418		mg/L	0.5	20	18-JUL-13
Vanadium (V)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Zinc (Zn)-Dissolved		0.0042	0.0041		mg/L	0.3	20	18-JUL-13
WG1709035-6 DUP		**L1330656-9**						
Aluminum (Al)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-JUL-13
Antimony (Sb)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-6 DUP		**L1330656-9**						
Arsenic (As)-Dissolved		0.0221	0.0225		mg/L	1.8	20	18-JUL-13
Barium (Ba)-Dissolved		0.243	0.241		mg/L	0.9	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.440	0.441		mg/L	0.2	20	18-JUL-13
Cadmium (Cd)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Calcium (Ca)-Dissolved		95.4	96.2		mg/L	0.8	20	18-JUL-13
Chromium (Cr)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00096	0.00097		mg/L	0.7	20	18-JUL-13
Copper (Cu)-Dissolved		<0.00060	<0.00060	RPD-NA	mg/L	N/A	20	18-JUL-13
Iron (Fe)-Dissolved		8.41	8.45		mg/L	0.4	20	18-JUL-13
Lead (Pb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		22.9	23.8		mg/L	3.6	20	18-JUL-13
Manganese (Mn)-Dissolved		1.13	1.17		mg/L	3.1	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.00680	0.00685		mg/L	0.7	20	18-JUL-13
Nickel (Ni)-Dissolved		0.00301	0.00299		mg/L	0.5	20	18-JUL-13
Potassium (K)-Dissolved		5.30	5.41		mg/L	2.1	20	18-JUL-13
Selenium (Se)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	18-JUL-13
Silver (Ag)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		24.6	24.9		mg/L	1.2	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	18-JUL-13
Uranium (U)-Dissolved		0.00091	0.00089		mg/L	1.9	20	18-JUL-13
Vanadium (V)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Zinc (Zn)-Dissolved		0.0148	0.0147		mg/L	0.9	20	18-JUL-13
WG1709035-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	18-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	18-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	18-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	18-JUL-13
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-1 MB								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	18-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	18-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	18-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	18-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	18-JUL-13
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	18-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	18-JUL-13
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	18-JUL-13
NH3-D-CFA-ED	**Water**							
Batch R2649501								
WG1706874-3 DUP		**L1329669-2**						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	15-JUL-13
NO2-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-2 LCS								
Nitrite (as N)			94.6		%		90-110	11-JUL-13
WG1705578-1 MB								
Nitrite (as N)			<0.050		mg/L		0.05	11-JUL-13

Quality Control Report

Workorder: L1330465 Report Date: 20-JUL-13

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
NO2-IC-ED	**Water**							
Batch R2648440								
WG1705578-4 MS		**L1330177-6**						
Nitrite (as N)			92.7		%		75-125	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Nitrite (as N)			91.5		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Nitrite (as N)			103.9		%		75-125	11-JUL-13
NO3-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-2 LCS								
Nitrate (as N)			103.3		%		90-110	11-JUL-13
WG1705578-1 MB								
Nitrate (as N)			<0.050		mg/L		0.05	11-JUL-13
WG1705578-4 MS		**L1330177-6**						
Nitrate (as N)			103.0		%		75-125	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Nitrate (as N)			101.5		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Nitrate (as N)			103.0		%		75-125	11-JUL-13
PH/EC/ALK-ED	**Water**							
Batch R2648510								
WG1705920-10 DUP		**L1330570-1**						
pH		8.09	8.08	J	pH	0.01	0.3	13-JUL-13
Conductivity (EC)		1570	1560		uS/cm	0.1	10	13-JUL-13
Bicarbonate (HCO3)		569	608		mg/L	6.5	25	13-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Alkalinity, Total (as CaCO3)		467	498		mg/L	6.5	20	13-JUL-13
WG1705920-6 DUP		**L1330959-2**						
pH		6.67	6.60	J	pH	0.06	0.3	12-JUL-13
Conductivity (EC)		23.0	22.5		uS/cm	2.2	10	12-JUL-13
Bicarbonate (HCO3)		10.0	9.7		mg/L	3.3	25	12-JUL-13

Quality Control Report

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
PH/EC/ALK-ED	**Water**							
Batch **R2648510**								
WG1705920-6 DUP		**L1330959-2**						
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		8.2	8.0		mg/L	3.3	20	12-JUL-13
WG1705920-7 DUP		**L1330465-2**						
pH		7.94	7.89	J	pH	0.05	0.3	12-JUL-13
Conductivity (EC)		727	729		uS/cm	0.3	10	12-JUL-13
Bicarbonate (HCO3)		438	472		mg/L	7.4	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		359	387		mg/L	7.4	20	12-JUL-13
WG1705920-9 DUP		**L1330656-19**						
pH		7.70	7.73	J	pH	0.03	0.3	12-JUL-13
Conductivity (EC)		1120	1120		uS/cm	0.4	10	12-JUL-13
Bicarbonate (HCO3)		753	715		mg/L	5.2	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		617	586		mg/L	5.2	20	12-JUL-13
WG1705920-2 LCS								
Conductivity (EC)			99.9		%		90-110	12-JUL-13
WG1705920-3 LCS								
pH			7.04		pH		6.7-7.3	12-JUL-13
WG1705920-4 LCS								
Alkalinity, Total (as CaCO3)			104.4		%		85-115	12-JUL-13
WG1705920-5 LCS								
Conductivity (EC)			97.9		%		90-110	12-JUL-13
WG1705920-1 MB								
Bicarbonate (HCO3)			<5.0		mg/L		5	12-JUL-13
Carbonate (CO3)			<5.0		mg/L		5	12-JUL-13
Hydroxide (OH)			<5.0		mg/L		5	12-JUL-13
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-JUL-13
PHENOLS-4AAP-ED	**Water**							
Batch **R2651408**								
WG1709310-4 DUP		**L1326938-5**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	17-JUL-13
WG1709310-6 DUP		**L1329895-10**						

Quality Control Report

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
PHENOLS-4AAP-ED	**Water**							
Batch R2651408								
WG1709310-6 DUP		**L1329895-10**						
Phenols (4AAP)		0.0017	0.0011	J	mg/L	0.0006	0.002	17-JUL-13
WG1709310-3 LCS								
Phenols (4AAP)			94.4		%		85-115	17-JUL-13
WG1709310-2 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	17-JUL-13
WG1709310-5 MS		**L1326938-5**						
Phenols (4AAP)			94.0		%		75-125	17-JUL-13
SO4-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Sulfate (SO4)		418	420		mg/L	0.3	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Sulfate (SO4)		10.0	9.92		mg/L	0.9	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Sulfate (SO4)		52.3	52.8		mg/L	0.8	20	11-JUL-13
WG1705578-2 LCS								
Sulfate (SO4)			105.4		%		90-110	11-JUL-13
WG1705578-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	11-JUL-13
WG1705578-4 MS		**L1330177-6**						
Sulfate (SO4)			N/A	MS-B	%		-	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Sulfate (SO4)			103.3		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Sulfate (SO4)			103.3		%		75-125	11-JUL-13
SOLIDS-TDS-ED	**Water**							
Batch R2649151								
WG1705811-3 DUP		**L1330553-1**						
Total Dissolved Solids		1410	1410		mg/L	0.4	20	15-JUL-13
WG1705811-4 DUP		**L1331139-5**						
Total Dissolved Solids		689	684		mg/L	0.7	20	15-JUL-13
WG1705811-2 LCS								
Total Dissolved Solids			100.8		%		85-115	15-JUL-13
WG1705811-1 MB								
Total Dissolved Solids			<10		mg/L		10	15-JUL-13

Quality Control Report

Workorder: L1330465 Report Date: 20-JUL-13

Client: WORLEYPARSONS CANADA
700 - 4445 CALGARY TRAIL NW TERRACE PLAZA
EDMONTON AB T6H 5R7
Contact: Trevor Butterfield

Legend:

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.

10- 214499

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Page 1 of 1

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Worley Parsons	Standard: X Other (specify):	X Regular (Standard Turnaround Times - Business Days)
Contact: Trevor Butterfield	Select: PDF X Excel Digital X Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: Suite 700 Calgary Trail Edmonton AB T6H 5R7	Email 1: Trevor.butterfield@worleyparsons.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2: edm.chemistry@worleyparsons.com	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 780 496 9055 Fax: 780 496 9575	stuart.gray@worleyparsons.com	
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	**Analysis Request**
Copy of Invoice with Report? (circle) Yes or No	Job #: 307076 - 06086	(Indicate Filtered or Preserved, F/P)
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: Q 39294	
Lab Work Order # (lab use only) L1330465	ALS ~~Maureen~~ Contact: Olinek	Sampler: Stuart Gray

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	P BTEX, EF	P EP	F P DOC	F P Diss Metals	F P Diss Nutrients	P Phenols	/ Routine E+	/ TDS Annual	/	/	/	/	Number of Containers
	MW02	10-Jul-13	1800	Water	X	X	X	X	X	X	X	X					11
	MW01	10-Jul-13	0710	Water	X	X	X	X	X	X	X	X					11
	MW03	10-Jul-13	0820	Water	X	X	X	X	X	X	X	X					11
	MW11	10-Jul-13	1830	Water	X	X	X	X	X	X	X	X					11

L1330465-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB

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.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Stuart Gray.	10-July-2013	1937	N.C	7/10/13	7:38 pm	12°C °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — GENF 18.01 Front

WORLEYPARSONS CANADA
ATTN: Trevor Butterfield
700 - 4445 CALGARY TRAIL NW
TERRACE PLAZA
EDMONTON AB T6H 5R7

Date Received: 10-JUL-13
Report Date: 19-JUL-13 14:29 (MT)
Version: FINAL

Client Phone: 780-496-9055

Certificate of Analysis

Lab Work Order #: L1330466

Project P.O. #:	NOT SUBMITTED
Job Reference:	307076-06086
C of C Numbers:	10-214500
Legal Site Desc:	

Maureen Olinek
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1330466-1 MW13							
Sampled By: ST on 10-JUL-13 @ 11:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		15-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		15-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		15-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		15-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	15-JUL-13	15-JUL-13	R2650179
Surrogate: 2-Bromobenzotrifluoride	98.7		65-135	%	15-JUL-13	15-JUL-13	R2650179
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.38		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	4.4		1.0	mg/L		17-JUL-13	R2650265
Fluoride (F)	0.147		0.020	mg/L		11-JUL-13	R2648440
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-13	R2651408
Total Dissolved Solids	464	DLA	20	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	2.28		0.50	mg/L		11-JUL-13	R2648440
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Arsenic (As)-Dissolved	0.00176		0.00040	mg/L		18-JUL-13	R2651658
Barium (Ba)-Dissolved	0.462		0.0050	mg/L		18-JUL-13	R2651658
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		18-JUL-13	R2651658
Boron (B)-Dissolved	0.221		0.050	mg/L		18-JUL-13	R2651658
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Calcium (Ca)-Dissolved	49.7		0.50	mg/L		18-JUL-13	R2651658
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Cobalt (Co)-Dissolved	0.00128		0.00010	mg/L		18-JUL-13	R2651658
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		18-JUL-13	R2651658
Iron (Fe)-Dissolved	1.17		0.010	mg/L		18-JUL-13	R2651658
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Magnesium (Mg)-Dissolved	16.2		0.10	mg/L		18-JUL-13	R2651658
Manganese (Mn)-Dissolved	0.252		0.0020	mg/L		18-JUL-13	R2651658
Molybdenum (Mo)-Dissolved	0.00484		0.000050	mg/L		18-JUL-13	R2651658
Nickel (Ni)-Dissolved	0.0112		0.0020	mg/L		18-JUL-13	R2651658
Potassium (K)-Dissolved	3.98		0.10	mg/L		18-JUL-13	R2651658
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Sodium (Na)-Dissolved	118		1.0	mg/L		18-JUL-13	R2651658
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		18-JUL-13	R2651658
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		18-JUL-13	R2651658
Uranium (U)-Dissolved	0.00075		0.00010	mg/L		18-JUL-13	R2651658
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		18-JUL-13	R2651658
Ion Balance Calculation							
Ion Balance	102			%		19-JUL-13	

* 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
L1330466-1 MW13							
Sampled By: ST on 10-JUL-13 @ 11:30							
Matrix: WATER							
Ion Balance Calculation							
TDS (Calculated)	458			mg/L		19-JUL-13	
Hardness (as CaCO3)	191			mg/L		19-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		16-JUL-13	R2650063
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		16-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Sulfate by IC							
Sulfate (SO4)	10.0		0.50	mg/L		11-JUL-13	R2648440
pH, Conductivity and Total Alkalinity							
pH	7.92		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	769		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	525		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	430		2.0	mg/L		12-JUL-13	R2648510
L1330466-2 MW12							
Sampled By: ST on 10-JUL-13 @ 12:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		15-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		15-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		15-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		15-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	15-JUL-13	15-JUL-13	R2650179
Surrogate: 2-Bromobenzotrifluoride	97.8		65-135	%	15-JUL-13	15-JUL-13	R2650179
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.36		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	6.9		1.0	mg/L		17-JUL-13	R2650265
Fluoride (F)	0.083		0.020	mg/L		11-JUL-13	R2648440
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-13	R2651408
Total Dissolved Solids	628	DLA	20	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	6.89		0.50	mg/L		11-JUL-13	R2648440
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Arsenic (As)-Dissolved	0.00285		0.00040	mg/L		18-JUL-13	R2651658
Barium (Ba)-Dissolved	0.143		0.0050	mg/L		18-JUL-13	R2651658
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		18-JUL-13	R2651658

* 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
L1330466-2 MW12							
Sampled By: ST on 10-JUL-13 @ 12:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Boron (B)-Dissolved	0.227		0.050	mg/L		18-JUL-13	R2651658
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Calcium (Ca)-Dissolved	101		0.50	mg/L		18-JUL-13	R2651658
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Cobalt (Co)-Dissolved	0.00045		0.00010	mg/L		18-JUL-13	R2651658
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		18-JUL-13	R2651658
Iron (Fe)-Dissolved	3.99		0.010	mg/L		18-JUL-13	R2651658
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Magnesium (Mg)-Dissolved	28.9		0.10	mg/L		18-JUL-13	R2651658
Manganese (Mn)-Dissolved	0.457		0.0020	mg/L		18-JUL-13	R2651658
Molybdenum (Mo)-Dissolved	0.00115		0.000050	mg/L		18-JUL-13	R2651658
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		18-JUL-13	R2651658
Potassium (K)-Dissolved	5.00		0.10	mg/L		18-JUL-13	R2651658
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Sodium (Na)-Dissolved	113		1.0	mg/L		18-JUL-13	R2651658
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		18-JUL-13	R2651658
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		18-JUL-13	R2651658
Uranium (U)-Dissolved	0.00094		0.00010	mg/L		18-JUL-13	R2651658
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		18-JUL-13	R2651658
Ion Balance Calculation							
Ion Balance	106			%		19-JUL-13	
TDS (Calculated)	618			mg/L		19-JUL-13	
Hardness (as CaCO3)	371			mg/L		19-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		16-JUL-13	R2650063
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		16-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Sulfate by IC							
Sulfate (SO4)	44.4		0.50	mg/L		11-JUL-13	R2648440
pH, Conductivity and Total Alkalinity							
pH	7.89		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	1000		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	649		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	532		2.0	mg/L		12-JUL-13	R2648510
L1330466-3 MW09							
Sampled By: ST on 10-JUL-13 @ 15:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290

* 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
L1330466-3 MW09							
Sampled By: ST on 10-JUL-13 @ 15:30							
Matrix: WATER							
BTEX, Styrene and F1 (C6-C10)							
m+p-Xylene	<0.00050		0.00050	mg/L		15-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L		15-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L		15-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L		15-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L		15-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	15-JUL-13	15-JUL-13	R2650179
Surrogate: 2-Bromobenzotrifluoride	97.0		65-135	%	15-JUL-13	15-JUL-13	R2650179
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	2.10		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	5.9		1.0	mg/L		17-JUL-13	R2650265
Fluoride (F)	0.203		0.020	mg/L		11-JUL-13	R2648440
Phenols (4AAP)	<0.0010		0.0010	mg/L		17-JUL-13	R2651408
Total Dissolved Solids	1030		10	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	5.29		0.50	mg/L		11-JUL-13	R2648440
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Arsenic (As)-Dissolved	0.00237		0.00040	mg/L		18-JUL-13	R2651658
Barium (Ba)-Dissolved	0.0243		0.0050	mg/L		18-JUL-13	R2651658
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L		18-JUL-13	R2651658
Boron (B)-Dissolved	0.249		0.050	mg/L		18-JUL-13	R2651658
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Calcium (Ca)-Dissolved	96.2		0.50	mg/L		18-JUL-13	R2651658
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		18-JUL-13	R2651658
Cobalt (Co)-Dissolved	0.00138		0.00020	mg/L		18-JUL-13	R2651658
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		18-JUL-13	R2651658
Iron (Fe)-Dissolved	1.94		0.020	mg/L		18-JUL-13	R2651658
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Magnesium (Mg)-Dissolved	26.8		0.10	mg/L		18-JUL-13	R2651658
Manganese (Mn)-Dissolved	0.842		0.0020	mg/L		18-JUL-13	R2651658
Molybdenum (Mo)-Dissolved	0.00154		0.00010	mg/L		18-JUL-13	R2651658
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		18-JUL-13	R2651658
Potassium (K)-Dissolved	4.06		0.10	mg/L		18-JUL-13	R2651658
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		18-JUL-13	R2651658
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Sodium (Na)-Dissolved	251		1.0	mg/L		18-JUL-13	R2651658
Thallium (Tl)-Dissolved	<0.00010		0.00010	mg/L		18-JUL-13	R2651658
Titanium (Ti)-Dissolved	<0.00060		0.00060	mg/L		18-JUL-13	R2651658
Uranium (U)-Dissolved	0.00138		0.00010	mg/L		18-JUL-13	R2651658
Vanadium (V)-Dissolved	<0.00020		0.00020	mg/L		18-JUL-13	R2651658
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		18-JUL-13	R2651658
Ion Balance Calculation							
Ion Balance	103			%		19-JUL-13	
TDS (Calculated)	1030			mg/L		19-JUL-13	
Hardness (as CaCO3)	351			mg/L		19-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		16-JUL-13	R2650063
Nitrate as N by IC							

* 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
L1330466-3 MW09							
Sampled By: ST on 10-JUL-13 @ 15:30							
Matrix: WATER							
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		16-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		11-JUL-13	R2648440
Sulfate by IC							
Sulfate (SO4)	327		0.50	mg/L		11-JUL-13	R2648440
pH, Conductivity and Total Alkalinity							
pH	7.89		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	1530		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	644		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	527		2.0	mg/L		12-JUL-13	R2648510

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
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
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-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:

10-214500

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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.

Quality Control Report

Workorder: L1330466 Report Date: 19-JUL-13

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
BTXS,F1-ED	**Water**							
Batch R2647290								
WG1706148-4 DUP		**L1330465-4**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	15-JUL-13
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	15-JUL-13
EthylBenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	15-JUL-13
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	15-JUL-13
m+p-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	15-JUL-13
Styrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	15-JUL-13
F1(C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	15-JUL-13
WG1706148-2 LCS								
Benzene			76.7		%		70-130	13-JUL-13
Toluene			90.9		%		70-130	13-JUL-13
EthylBenzene			75.7		%		70-130	13-JUL-13
o-Xylene			86.6		%		70-130	13-JUL-13
m+p-Xylene			80.0		%		70-130	13-JUL-13
Styrene			89.7		%		70-130	13-JUL-13
WG1706148-3 LCS								
F1(C6-C10)			104.1		%		70-130	13-JUL-13
WG1706148-1 MB								
Benzene			<0.00050		mg/L		0.0005	13-JUL-13
Toluene			<0.00050		mg/L		0.0005	13-JUL-13
EthylBenzene			<0.00050		mg/L		0.0005	13-JUL-13
o-Xylene			<0.00050		mg/L		0.0005	13-JUL-13
m+p-Xylene			<0.00050		mg/L		0.0005	13-JUL-13
Styrene			<0.0010		mg/L		0.001	13-JUL-13
F1(C6-C10)			<0.10		mg/L		0.1	13-JUL-13
WG1706148-5 MS		**L1330465-4**						
Benzene			89.2		%		50-150	15-JUL-13
Toluene			94.3		%		50-150	15-JUL-13
EthylBenzene			89.9		%		50-150	15-JUL-13
o-Xylene			97.3		%		50-150	15-JUL-13
m+p-Xylene			94.6		%		50-150	15-JUL-13
Styrene			95.1		%		50-150	15-JUL-13
WG1706148-6 MS		**L1330465-4**						
F1(C6-C10)			84.9		%		50-150	15-JUL-13
C-DIS-ORG-ED	**Water**							

Quality Control Report

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
C-DIS-ORG-ED	**Water**							
Batch R2650265								
WG1708071-3 CVS								
Dissolved Organic Carbon			106.1		%		80-160	16-JUL-13
WG1708071-6 DUP		**L1329895-10**						
Dissolved Organic Carbon		7.4	7.1		mg/L	4.2	20	16-JUL-13
WG1708071-2 LCS								
Dissolved Organic Carbon			90.6		%		80-120	16-JUL-13
WG1708071-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	16-JUL-13
WG1708071-7 MS		**L1329895-10**						
Dissolved Organic Carbon			86.7		%		70-130	16-JUL-13
CL-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Chloride (Cl)		5.28	5.13		mg/L	2.9	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Chloride (Cl)		3.49	3.51		mg/L	0.6	20	11-JUL-13
WG1705578-2 LCS								
Chloride (Cl)			105.0		%		90-110	11-JUL-13
WG1705578-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	11-JUL-13
WG1705578-4 MS		**L1330177-6**						
Chloride (Cl)			102.7		%		75-125	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Chloride (Cl)			103.8		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Chloride (Cl)			104.1		%		75-125	11-JUL-13
F-IC-ED	**Water**							
Batch R2648440								
WG1705578-7 DUP		**L1330465-2**						
Fluoride (F)		0.124	0.124		mg/L	0.3	20	11-JUL-13
WG1705578-2 LCS								
Fluoride (F)			102.8		%		90-110	11-JUL-13
WG1705578-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Fluoride (F)			104.3		%		75-125	11-JUL-13

Quality Control Report

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
F2-ED	**Water**							
Batch R2650179								
WG1707107-2 LCS								
F2 (C10-C16)			119.9		%		65-135	15-JUL-13
WG1707107-5 LCS								
F2 (C10-C16)			122.6		%		65-135	15-JUL-13
WG1707107-1 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	15-JUL-13
Surrogate: 2-Bromobenzotrifluoride			95.9		%		65-135	15-JUL-13
WG1707107-4 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	15-JUL-13
Surrogate: 2-Bromobenzotrifluoride			96.1		%		65-135	15-JUL-13
WG1707107-6 MS		**L1330560-2**						
F2 (C10-C16)			125.5		%		50-150	15-JUL-13
HG-D-L-CVAA-ED	**Water**							
Batch R2650063								
WG1707737-8 DUP		**L1330465-4**						
Mercury (Hg)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	16-JUL-13
WG1707737-2 LCS								
Mercury (Hg)-Dissolved			95.9		%		80-120	16-JUL-13
WG1707737-3 LCSD		**WG1707737-2**						
Mercury (Hg)-Dissolved		95.9	96.7		%	0.9	20	16-JUL-13
WG1707737-1 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	16-JUL-13
WG1707737-9 MS		**L1330465-4**						
Mercury (Hg)-Dissolved			103.3		%		70-130	16-JUL-13
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-2 CRM		**ED-HIGH-WATRM**						
Aluminum (Al)-Dissolved			99.5		%		80-120	18-JUL-13
Antimony (Sb)-Dissolved			102.6		%		80-120	18-JUL-13
Arsenic (As)-Dissolved			102.9		%		80-120	18-JUL-13
Barium (Ba)-Dissolved			103.1		%		80-120	18-JUL-13
Beryllium (Be)-Dissolved			93.0		%		80-120	18-JUL-13
Cadmium (Cd)-Dissolved			104.4		%		80-120	18-JUL-13
Calcium (Ca)-Dissolved			99.4		%		80-120	18-JUL-13
Chromium (Cr)-Dissolved			101.3		%		80-120	18-JUL-13
Cobalt (Co)-Dissolved			103.4		%		80-120	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-2 CRM		**ED-HIGH-WATRM**						
Copper (Cu)-Dissolved			101.3		%		80-120	18-JUL-13
Lead (Pb)-Dissolved			99.1		%		80-120	18-JUL-13
Magnesium (Mg)-Dissolved			104.1		%		80-120	18-JUL-13
Manganese (Mn)-Dissolved			104.7		%		80-120	18-JUL-13
Molybdenum (Mo)-Dissolved			98.6		%		80-120	18-JUL-13
Nickel (Ni)-Dissolved			102.0		%		80-120	18-JUL-13
Potassium (K)-Dissolved			100.7		%		80-120	18-JUL-13
Selenium (Se)-Dissolved			102.7		%		80-120	18-JUL-13
Silver (Ag)-Dissolved			103.6		%		80-120	18-JUL-13
Sodium (Na)-Dissolved			106.0		%		80-120	18-JUL-13
Thallium (Tl)-Dissolved			102.0		%		80-120	18-JUL-13
Titanium (Ti)-Dissolved			95.2		%		80-120	18-JUL-13
Uranium (U)-Dissolved			95.2		%		80-120	18-JUL-13
Vanadium (V)-Dissolved			102.7		%		80-120	18-JUL-13
Zinc (Zn)-Dissolved			103.6		%		80-120	18-JUL-13
WG1709035-3 DUP		**L1329882-1**						
Aluminum (Al)-Dissolved		0.0230	0.0226		mg/L	1.6	20	18-JUL-13
Antimony (Sb)-Dissolved		0.00054	0.00054		mg/L	1.3	20	18-JUL-13
Arsenic (As)-Dissolved		0.00042	0.00039		mg/L	7.7	20	18-JUL-13
Barium (Ba)-Dissolved		0.0871	0.0877		mg/L	0.7	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.108	0.106		mg/L	1.1	20	18-JUL-13
Cadmium (Cd)-Dissolved		0.000055	0.000063		mg/L	14	20	18-JUL-13
Calcium (Ca)-Dissolved		62.5	62.9		mg/L	0.8	20	18-JUL-13
Chromium (Cr)-Dissolved		0.00046	0.00043		mg/L	5.5	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00049	0.00049		mg/L	0.2	20	18-JUL-13
Copper (Cu)-Dissolved		0.00120	0.00118		mg/L	1.8	20	18-JUL-13
Iron (Fe)-Dissolved		0.024	0.022		mg/L	9.2	20	18-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		12.3	12.0		mg/L	2.2	20	18-JUL-13
Manganese (Mn)-Dissolved		0.0845	0.0836		mg/L	1.0	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.0179	0.0179		mg/L	0.1	20	18-JUL-13
Nickel (Ni)-Dissolved		0.00446	0.00436		mg/L	2.3	20	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-3 DUP		**L1329882-1**						
Potassium (K)-Dissolved		4.43	4.35		mg/L	1.9	20	18-JUL-13
Selenium (Se)-Dissolved		0.00372	0.00375		mg/L	0.7	20	18-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		29.7	28.3		mg/L	4.7	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		0.00118	0.00093	J	mg/L	0.00026	0.0006	18-JUL-13
Uranium (U)-Dissolved		0.00555	0.00557		mg/L	0.3	20	18-JUL-13
Vanadium (V)-Dissolved		0.00020	0.00020		mg/L	4.0	20	18-JUL-13
Zinc (Zn)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	18-JUL-13
WG1709035-4 DUP		**L1330177-2**						
Aluminum (Al)-Dissolved		0.0142	0.0130		mg/L	8.6	20	18-JUL-13
Antimony (Sb)-Dissolved		0.00034	0.00034		mg/L	1.1	20	18-JUL-13
Arsenic (As)-Dissolved		0.00228	0.00231		mg/L	1.6	20	18-JUL-13
Barium (Ba)-Dissolved		0.0958	0.0957		mg/L	0.1	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.309	0.303		mg/L	1.7	20	18-JUL-13
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Calcium (Ca)-Dissolved		216	217		mg/L	0.2	20	18-JUL-13
Chromium (Cr)-Dissolved		0.00014	0.00013		mg/L	6.1	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00173	0.00171		mg/L	0.9	20	18-JUL-13
Copper (Cu)-Dissolved		0.00035	0.00036		mg/L	2.2	20	18-JUL-13
Iron (Fe)-Dissolved		0.194	0.187		mg/L	3.8	20	18-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		63.5	61.6		mg/L	2.9	20	18-JUL-13
Manganese (Mn)-Dissolved		0.437	0.423		mg/L	3.3	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.00428	0.00432		mg/L	1.0	20	18-JUL-13
Nickel (Ni)-Dissolved		0.0377	0.0366		mg/L	2.8	20	18-JUL-13
Potassium (K)-Dissolved		13.4	12.9		mg/L	3.9	20	18-JUL-13
Selenium (Se)-Dissolved		0.00371	0.00366		mg/L	1.3	20	18-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		45.4	44.6		mg/L	1.6	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		0.00133	0.00112		mg/L	17	20	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-4 DUP		**L1330177-2**						
Uranium (U)-Dissolved		0.00371	0.00381		mg/L	2.6	20	18-JUL-13
Vanadium (V)-Dissolved		0.00042	0.00043		mg/L	2.0	20	18-JUL-13
Zinc (Zn)-Dissolved		0.0024	0.0023		mg/L	3.6	20	18-JUL-13
WG1709035-5 DUP		**L1330653-2**						
Aluminum (Al)-Dissolved		0.0068	0.0065		mg/L	5.4	20	18-JUL-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Arsenic (As)-Dissolved		0.00051	0.00049		mg/L	4.4	20	18-JUL-13
Barium (Ba)-Dissolved		0.188	0.187		mg/L	0.5	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.044	0.045		mg/L	3.1	20	18-JUL-13
Cadmium (Cd)-Dissolved		0.000041	0.000046		mg/L	11	20	18-JUL-13
Calcium (Ca)-Dissolved		152	159		mg/L	4.7	20	18-JUL-13
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00206	0.00208		mg/L	1.3	20	18-JUL-13
Copper (Cu)-Dissolved		0.00040	0.00040		mg/L	0.4	20	18-JUL-13
Iron (Fe)-Dissolved		0.057	0.056		mg/L	1.7	20	18-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		42.3	42.3		mg/L	0.0	20	18-JUL-13
Manganese (Mn)-Dissolved		0.469	0.466		mg/L	0.8	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.00305	0.00313		mg/L	2.8	20	18-JUL-13
Nickel (Ni)-Dissolved		0.00388	0.00382		mg/L	1.7	20	18-JUL-13
Potassium (K)-Dissolved		3.41	3.38		mg/L	0.7	20	18-JUL-13
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		8.7	8.6		mg/L	1.7	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	18-JUL-13
Uranium (U)-Dissolved		0.00420	0.00418		mg/L	0.5	20	18-JUL-13
Vanadium (V)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Zinc (Zn)-Dissolved		0.0042	0.0041		mg/L	0.3	20	18-JUL-13
WG1709035-6 DUP		**L1330656-9**						
Aluminum (Al)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-JUL-13
Antimony (Sb)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-6 DUP		**L1330656-9**						
Arsenic (As)-Dissolved		0.0221	0.0225		mg/L	1.8	20	18-JUL-13
Barium (Ba)-Dissolved		0.243	0.241		mg/L	0.9	20	18-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	18-JUL-13
Boron (B)-Dissolved		0.440	0.441		mg/L	0.2	20	18-JUL-13
Cadmium (Cd)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Calcium (Ca)-Dissolved		95.4	96.2		mg/L	0.8	20	18-JUL-13
Chromium (Cr)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	18-JUL-13
Cobalt (Co)-Dissolved		0.00096	0.00097		mg/L	0.7	20	18-JUL-13
Copper (Cu)-Dissolved		<0.00060	<0.00060	RPD-NA	mg/L	N/A	20	18-JUL-13
Iron (Fe)-Dissolved		8.41	8.45		mg/L	0.4	20	18-JUL-13
Lead (Pb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Magnesium (Mg)-Dissolved		22.9	23.8		mg/L	3.6	20	18-JUL-13
Manganese (Mn)-Dissolved		1.13	1.17		mg/L	3.1	20	18-JUL-13
Molybdenum (Mo)-Dissolved		0.00680	0.00685		mg/L	0.7	20	18-JUL-13
Nickel (Ni)-Dissolved		0.00301	0.00299		mg/L	0.5	20	18-JUL-13
Potassium (K)-Dissolved		5.30	5.41		mg/L	2.1	20	18-JUL-13
Selenium (Se)-Dissolved		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	18-JUL-13
Silver (Ag)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	18-JUL-13
Sodium (Na)-Dissolved		24.6	24.9		mg/L	1.2	20	18-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	18-JUL-13
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	18-JUL-13
Uranium (U)-Dissolved		0.00091	0.00089		mg/L	1.9	20	18-JUL-13
Vanadium (V)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	18-JUL-13
Zinc (Zn)-Dissolved		0.0148	0.0147		mg/L	0.9	20	18-JUL-13
WG1709035-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	18-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	18-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	18-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	18-JUL-13
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	18-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2651658								
WG1709035-1 MB								
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	18-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	18-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	18-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	18-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	18-JUL-13
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	18-JUL-13
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	18-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	18-JUL-13
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	18-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	18-JUL-13
NH3-D-CFA-ED	**Water**							
Batch R2649501								
WG1706874-3 DUP		**L1329669-2**						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	15-JUL-13
NO2-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-2 LCS								
Nitrite (as N)			94.6		%		90-110	11-JUL-13
WG1705578-1 MB								
Nitrite (as N)			<0.050		mg/L		0.05	11-JUL-13

Quality Control Report

Workorder: L1330466 Report Date: 19-JUL-13

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
NO2-IC-ED	**Water**							
Batch R2648440								
WG1705578-4 MS		**L1330177-6**						
Nitrite (as N)			92.7		%		75-125	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Nitrite (as N)			91.5		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Nitrite (as N)			103.9		%		75-125	11-JUL-13
NO3-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	11-JUL-13
WG1705578-2 LCS								
Nitrate (as N)			103.3		%		90-110	11-JUL-13
WG1705578-1 MB								
Nitrate (as N)			<0.050		mg/L		0.05	11-JUL-13
WG1705578-4 MS		**L1330177-6**						
Nitrate (as N)			103.0		%		75-125	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Nitrate (as N)			101.5		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Nitrate (as N)			103.0		%		75-125	11-JUL-13
PH/EC/ALK-ED	**Water**							
Batch R2648510								
WG1705920-10 DUP		**L1330570-1**						
pH		8.09	8.08	J	pH	0.01	0.3	13-JUL-13
Conductivity (EC)		1570	1560		uS/cm	0.1	10	13-JUL-13
Bicarbonate (HCO3)		569	608		mg/L	6.5	25	13-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Alkalinity, Total (as CaCO3)		467	498		mg/L	6.5	20	13-JUL-13
WG1705920-6 DUP		**L1330959-2**						
pH		6.67	6.60	J	pH	0.06	0.3	12-JUL-13
Conductivity (EC)		23.0	22.5		uS/cm	2.2	10	12-JUL-13
Bicarbonate (HCO3)		10.0	9.7		mg/L	3.3	25	12-JUL-13

Quality Control Report

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
PH/EC/ALK-ED	**Water**							
Batch **R2648510**								
WG1705920-6 DUP		**L1330959-2**						
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		8.2	8.0		mg/L	3.3	20	12-JUL-13
WG1705920-7 DUP		**L1330465-2**						
pH		7.94	7.89	J	pH	0.05	0.3	12-JUL-13
Conductivity (EC)		727	729		uS/cm	0.3	10	12-JUL-13
Bicarbonate (HCO3)		438	472		mg/L	7.4	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		359	387		mg/L	7.4	20	12-JUL-13
WG1705920-9 DUP		**L1330656-19**						
pH		7.70	7.73	J	pH	0.03	0.3	12-JUL-13
Conductivity (EC)		1120	1120		uS/cm	0.4	10	12-JUL-13
Bicarbonate (HCO3)		753	715		mg/L	5.2	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		617	586		mg/L	5.2	20	12-JUL-13
WG1705920-2 LCS								
Conductivity (EC)			99.9		%		90-110	12-JUL-13
WG1705920-3 LCS								
pH			7.04		pH		6.7-7.3	12-JUL-13
WG1705920-4 LCS								
Alkalinity, Total (as CaCO3)			104.4		%		85-115	12-JUL-13
WG1705920-5 LCS								
Conductivity (EC)			97.9		%		90-110	12-JUL-13
WG1705920-1 MB								
Bicarbonate (HCO3)			<5.0		mg/L		5	12-JUL-13
Carbonate (CO3)			<5.0		mg/L		5	12-JUL-13
Hydroxide (OH)			<5.0		mg/L		5	12-JUL-13
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-JUL-13
PHENOLS-4AAP-ED	**Water**							
Batch **R2651408**								
WG1709310-4 DUP		**L1326938-5**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	17-JUL-13
WG1709310-6 DUP		**L1329895-10**						

Quality Control Report

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
PHENOLS-4AAP-ED	**Water**							
Batch R2651408								
WG1709310-6 DUP		**L1329895-10**						
Phenols (4AAP)		0.0017	0.0011	J	mg/L	0.0006	0.002	17-JUL-13
WG1709310-3 LCS								
Phenols (4AAP)			94.4		%		85-115	17-JUL-13
WG1709310-2 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	17-JUL-13
WG1709310-5 MS		**L1326938-5**						
Phenols (4AAP)			94.0		%		75-125	17-JUL-13
SO4-IC-ED	**Water**							
Batch R2648440								
WG1705578-3 DUP		**L1330177-6**						
Sulfate (SO4)		418	420		mg/L	0.3	20	11-JUL-13
WG1705578-5 DUP		**L1330397-1**						
Sulfate (SO4)		10.0	9.92		mg/L	0.9	20	11-JUL-13
WG1705578-7 DUP		**L1330465-2**						
Sulfate (SO4)		52.3	52.8		mg/L	0.8	20	11-JUL-13
WG1705578-2 LCS								
Sulfate (SO4)			105.4		%		90-110	11-JUL-13
WG1705578-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	11-JUL-13
WG1705578-4 MS		**L1330177-6**						
Sulfate (SO4)			N/A	MS-B	%		-	11-JUL-13
WG1705578-6 MS		**L1330397-1**						
Sulfate (SO4)			103.3		%		75-125	11-JUL-13
WG1705578-8 MS		**L1330465-2**						
Sulfate (SO4)			103.3		%		75-125	11-JUL-13
SOLIDS-TDS-ED	**Water**							
Batch R2649151								
WG1705811-3 DUP		**L1330553-1**						
Total Dissolved Solids		1410	1410		mg/L	0.4	20	15-JUL-13
WG1705811-4 DUP		**L1331139-5**						
Total Dissolved Solids		689	684		mg/L	0.7	20	15-JUL-13
WG1705811-2 LCS								
Total Dissolved Solids			100.8		%		85-115	15-JUL-13
WG1705811-1 MB								
Total Dissolved Solids			<10		mg/L		10	15-JUL-13

Quality Control Report

Workorder: L1330466 Report Date: 19-JUL-13

Client: WORLEYPARSONS CANADA
700 - 4445 CALGARY TRAIL NW TERRACE PLAZA
EDMONTON AB T6H 5R7
Contact: Trevor Butterfield

Legend:

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.

10- 214500

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Page 1 of 1

Report To		Report Format / Distribution		Service Request: (Rush subject to availability - Contact ALS to confirm TAT)	
Company:	Worley Parsons	Standard: X	Other (specify):	X	Regular (Standard Turnaround Times - Business Days)
Contact:	Trevor Butterfield	Select: PDF X	Excel Digital X Fax		Priority (2-4 Business Days) - 50% surcharge - Contact ALS to confirm TAT
Address:	Suite 700 Calgary Trail Edmonton AB T6H 5R7	Email 1:	trevor.butterfield@worleyparsons.com		Emergency (1-2 Business Days) - 100% Surcharge - Contact ALS to confirm TAT
		Email 2:	edm.chemistry@worleyparsons.com		Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone:	780 496 9055 Fax: 780 496 9575		stuart.gray@worleyparsons.com		

Invoice To		Client / Project Information	
	Same as Report ? (circle) Yes or No (if No, provide details)		
	Copy of Invoice with Report? (circle) Yes or No	Job #:	307076-06086
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #:	Q39294

Lab Work Order # (lab use only)	L1330466	ALS Contact:	Maureen Olicek	Sampler:	Stuart Gray

Analysis Request (Indicate Filtered or Preserved, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX F1 (P)	F2 (F)	DOC (F)	Diss. Metals (F)	Diss. Nutrients (F)	Phenols (P)	Routine + F (P)	FDS Actual (P)					Number of Containers
	MW13	10-Jul-13	1130	water	X	X	X	X	X	X	X	X					11
	MW12	↓	1230	↓	X	X	X	X	X	X	X	X					11
	MW09	↓	1530	↓	X	X	X	X	X	X	X	X					11

L1330466-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

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.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Stuart Gray	10-Jul-13	1937	N.C	7/10/13	7:35pm	12°C °C				

WORLEYPARSONS CANADA
ATTN: TREVOR BUTTERFIELD
700 - 4445 Calgary Trail
Terrace Plaza
EDMONTON AB T6H 5R7

Date Received: 11-JUL-13
Report Date: 02-AUG-13 16:28 (MT)
Version: FINAL REV. 2

Client Phone: 780-496-9055

Certificate of Analysis

Lab Work Order #: L1331228

Project P.O. #: NOT SUBMITTED
Job Reference: 307076-06086
C of C Numbers: 10-214502
Legal Site Desc:

Comments: ADDITIONAL 02-AUG-13 10:43

Maureen Olinek
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1331228-1 MW 07							
Sampled By: A.M on 11-JUL-13 @ 16:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	12-JUL-13	16-JUL-13	R2647290
Toluene	<0.00050		0.00050	mg/L	12-JUL-13	16-JUL-13	R2647290
EthylBenzene	<0.00050		0.00050	mg/L	12-JUL-13	16-JUL-13	R2647290
o-Xylene	<0.00050		0.00050	mg/L	12-JUL-13	16-JUL-13	R2647290
m+p-Xylene	<0.00050		0.00050	mg/L	12-JUL-13	16-JUL-13	R2647290
Styrene	<0.0010		0.0010	mg/L	12-JUL-13	16-JUL-13	R2647290
F1(C6-C10)	<0.10		0.10	mg/L	12-JUL-13	16-JUL-13	R2647290
F1-BTEX	<0.10		0.10	mg/L	12-JUL-13	16-JUL-13	R2647290
Xylenes	<0.00071		0.00071	mg/L	12-JUL-13	16-JUL-13	R2647290
F2 (>C10-C16)							
F2 (C10-C16)	<0.25		0.25	mg/L	13-JUL-13	13-JUL-13	R2649004
Surrogate: 2-Bromobenzotrifluoride	93.4		65-135	%	13-JUL-13	13-JUL-13	R2649004
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	2.39		0.050	mg/L		15-JUL-13	R2649501
Dissolved Organic Carbon	6.2		1.0	mg/L		17-JUL-13	R2650999
Fluoride (F)	0.110		0.020	mg/L		12-JUL-13	R2649520
Phenols (4AAP)	0.0017		0.0010	mg/L		18-JUL-13	R2652048
Total Dissolved Solids	2180		10	mg/L		15-JUL-13	R2649151
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	11.5	RRV	0.50	mg/L		12-JUL-13	R2649520
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050	DLM	0.0050	mg/L		22-JUL-13	R2654063
Antimony (Sb)-Dissolved	<0.00050	DLM	0.00050	mg/L		22-JUL-13	R2654063
Arsenic (As)-Dissolved	0.00382		0.00050	mg/L		22-JUL-13	R2654063
Barium (Ba)-Dissolved	0.0466		0.0050	mg/L		22-JUL-13	R2654063
Beryllium (Be)-Dissolved	<0.0025		0.0025	mg/L		22-JUL-13	R2654063
Boron (B)-Dissolved	0.276		0.050	mg/L		22-JUL-13	R2654063
Cadmium (Cd)-Dissolved	<0.00010	DLM	0.00010	mg/L		22-JUL-13	R2654063
Calcium (Ca)-Dissolved	269	DLM	0.50	mg/L		22-JUL-13	R2654063
Chromium (Cr)-Dissolved	<0.0050	DLM	0.0050	mg/L		22-JUL-13	R2654063
Cobalt (Co)-Dissolved	0.00097		0.00050	mg/L		22-JUL-13	R2654063
Copper (Cu)-Dissolved	<0.0010	DLM	0.0010	mg/L		22-JUL-13	R2654063
Iron (Fe)-Dissolved	12.1	DLM	0.050	mg/L		22-JUL-13	R2654063
Lead (Pb)-Dissolved	<0.00025	DLM	0.00025	mg/L		22-JUL-13	R2654063
Magnesium (Mg)-Dissolved	82.4	DLM	0.10	mg/L		22-JUL-13	R2654063
Manganese (Mn)-Dissolved	1.87	DLM	0.0020	mg/L		22-JUL-13	R2654063
Molybdenum (Mo)-Dissolved	0.00088		0.00025	mg/L		22-JUL-13	R2654063
Nickel (Ni)-Dissolved	<0.0020	DLM	0.0020	mg/L		22-JUL-13	R2654063
Potassium (K)-Dissolved	5.37	DLM	0.25	mg/L		22-JUL-13	R2654063
Selenium (Se)-Dissolved	<0.00050	DLM	0.00050	mg/L		22-JUL-13	R2654063
Silver (Ag)-Dissolved	<0.00010	DLM	0.00010	mg/L		22-JUL-13	R2654063
Sodium (Na)-Dissolved	241	DLM	1.0	mg/L		22-JUL-13	R2654063
Thallium (Tl)-Dissolved	<0.00025		0.00025	mg/L		22-JUL-13	R2654063
Titanium (Ti)-Dissolved	<0.0015		0.0015	mg/L		22-JUL-13	R2654063
Uranium (U)-Dissolved	0.00140	DLM	0.00010	mg/L		22-JUL-13	R2654063
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L		22-JUL-13	R2654063
Zinc (Zn)-Dissolved	<0.0050	DLM	0.0050	mg/L		22-JUL-13	R2654063
Ion Balance Calculation							
Ion Balance	92.6			%		22-JUL-13	

* 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
L1331228-1 MW 07							
Sampled By: A.M on 11-JUL-13 @ 16:00							
Matrix: WATER							
Ion Balance Calculation							
TDS (Calculated)	1980			mg/L		22-JUL-13	
Hardness (as CaCO3)	1010			mg/L		22-JUL-13	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		18-JUL-13	R2651139
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		12-JUL-13	R2649520
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		15-JUL-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		12-JUL-13	R2649520
Sulfate by IC							
Sulfate (SO4)	1020	RRV	0.50	mg/L		12-JUL-13	R2649520
pH, Conductivity and Total Alkalinity							
pH	7.30		0.10	pH		12-JUL-13	R2648510
Conductivity (EC)	2680		0.20	uS/cm		12-JUL-13	R2648510
Bicarbonate (HCO3)	716		5.0	mg/L		12-JUL-13	R2648510
Carbonate (CO3)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Hydroxide (OH)	<5.0		5.0	mg/L		12-JUL-13	R2648510
Alkalinity, Total (as CaCO3)	586		2.0	mg/L		12-JUL-13	R2648510

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-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:

10-214502

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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.

Quality Control Report

Workorder: L1331228 Report Date: 02-AUG-13

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
BTXS,F1-ED	**Water**							
Batch R2647290								
WG1706285-2 LCS								
Benzene			96.1		%		70-130	16-JUL-13
Toluene			94.7		%		70-130	16-JUL-13
EthylBenzene			91.6		%		70-130	16-JUL-13
o-Xylene			97.5		%		70-130	16-JUL-13
m+p-Xylene			95.4		%		70-130	16-JUL-13
Styrene			93.2		%		70-130	16-JUL-13
WG1706285-3 LCS								
F1(C6-C10)			91.6		%		70-130	16-JUL-13
WG1706285-1 MB								
Benzene			<0.00050		mg/L		0.0005	16-JUL-13
Toluene			<0.00050		mg/L		0.0005	16-JUL-13
EthylBenzene			<0.00050		mg/L		0.0005	16-JUL-13
o-Xylene			<0.00050		mg/L		0.0005	16-JUL-13
m+p-Xylene			<0.00050		mg/L		0.0005	16-JUL-13
Styrene			<0.0010		mg/L		0.001	16-JUL-13
F1(C6-C10)			<0.10		mg/L		0.1	16-JUL-13
C-DIS-ORG-ED	**Water**							
Batch R2650999								
WG1708817-3 CVS								
Dissolved Organic Carbon			108.3		%		80-160	17-JUL-13
WG1708817-8 DUP		**L1331335-4**						
Dissolved Organic Carbon		13.1	13.3		mg/L	1.6	20	17-JUL-13
WG1708817-2 LCS								
Dissolved Organic Carbon			91.8		%		80-120	17-JUL-13
WG1708817-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	17-JUL-13
WG1708817-9 MS		**L1331335-4**						
Dissolved Organic Carbon			N/A	MS-B	%		-	17-JUL-13
CL-IC-ED	**Water**							
Batch R2649520								
WG1706359-11 DUP		**L1331335-12**						
Chloride (Cl)		0.72	0.70		mg/L	2.9	20	12-JUL-13
WG1706359-3 DUP		**L1330656-19**						
Chloride (Cl)		27.4	28.0		mg/L	2.1	20	12-JUL-13
WG1706359-5 DUP		**L1330570-1**						

Quality Control Report

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
CL-IC-ED	**Water**							
Batch R2649520								
WG1706359-5 DUP		**L1330570-1**						
Chloride (Cl)		36.3	36.2		mg/L	0.3	20	12-JUL-13
WG1706359-7 DUP		**L1330959-2**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-2 LCS								
Chloride (Cl)			103.2		%		90-110	12-JUL-13
WG1706359-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	12-JUL-13
WG1706359-12 MS		**L1331335-12**						
Chloride (Cl)			104.9		%		75-125	12-JUL-13
WG1706359-4 MS		**L1330656-19**						
Chloride (Cl)			101.4		%		75-125	12-JUL-13
WG1706359-6 MS		**L1330570-1**						
Chloride (Cl)			98.3		%		75-125	12-JUL-13
WG1706359-8 MS		**L1330959-2**						
Chloride (Cl)			98.9		%		75-125	12-JUL-13
F-IC-ED	**Water**							
Batch R2649520								
WG1706359-7 DUP		**L1330959-2**						
Fluoride (F)		0.042	0.040		mg/L	4.9	20	12-JUL-13
WG1706359-2 LCS								
Fluoride (F)			98.8		%		90-110	12-JUL-13
WG1706359-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	12-JUL-13
WG1706359-8 MS		**L1330959-2**						
Fluoride (F)			105.7		%		75-125	12-JUL-13
F2-ED	**Water**							
Batch R2649004								
WG1705839-1 MB								
F2 (C10-C16)			<0.25		mg/L		0.25	12-JUL-13
Surrogate: 2-Bromobenzotrifluoride			99.4		%		65-135	12-JUL-13
HG-D-L-CVAA-ED	**Water**							
Batch R2651139								
WG1708759-16 DUP		**L1327016-2**						
Mercury (Hg)-Dissolved		<0.020	<0.000020	RPD-NA	mg/L	N/A	20	17-JUL-13
WG1708759-18 DUP		**L1327029-1**						
Mercury (Hg)-Dissolved		<0.020	<0.000020	RPD-NA	mg/L	N/A	20	17-JUL-13

Quality Control Report

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
HG-D-L-CVAA-ED	**Water**							
Batch R2651139								
WG1708759-22 DUP		**L1331335-12**						
Mercury (Hg)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	18-JUL-13
WG1708759-12 LCS								
Mercury (Hg)-Dissolved			102.9		%		80-120	17-JUL-13
WG1708759-2 LCS								
Mercury (Hg)-Dissolved			99.8		%		80-120	17-JUL-13
WG1708759-7 LCS								
Mercury (Hg)-Dissolved			106.0		%		80-120	17-JUL-13
WG1708759-13 LCSD		**WG1708759-12**						
Mercury (Hg)-Dissolved		102.9	111.6		%	8.2	20	17-JUL-13
WG1708759-3 LCSD		**WG1708759-2**						
Mercury (Hg)-Dissolved		99.8	97.3		%	2.5	20	17-JUL-13
WG1708759-8 LCSD		**WG1708759-7**						
Mercury (Hg)-Dissolved		106.0	102.2		%	3.6	20	17-JUL-13
WG1708759-1 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	17-JUL-13
WG1708759-11 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	17-JUL-13
WG1708759-6 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	17-JUL-13
WG1708759-17 MS		**L1327016-2**						
Mercury (Hg)-Dissolved			110.7		%		70-130	17-JUL-13
WG1708759-19 MS		**L1327029-1**						
Mercury (Hg)-Dissolved			112.3		%		70-130	17-JUL-13
WG1708759-23 MS		**L1331335-12**						
Mercury (Hg)-Dissolved			96.0		%		70-130	18-JUL-13
MET-D-CCMS-ED	**Water**							
Batch R2654063								
WG1711526-2 CRM		**ED-HIGH-WATRM**						
Aluminum (Al)-Dissolved			102.4		%		80-120	22-JUL-13
Antimony (Sb)-Dissolved			103.0		%		80-120	22-JUL-13
Arsenic (As)-Dissolved			103.5		%		80-120	22-JUL-13
Barium (Ba)-Dissolved			97.9		%		80-120	22-JUL-13
Beryllium (Be)-Dissolved			96.3		%		80-120	22-JUL-13
Boron (B)-Dissolved			86.1		%		80-120	22-JUL-13
Cadmium (Cd)-Dissolved			104.5		%		80-120	22-JUL-13
Calcium (Ca)-Dissolved			100.4		%		80-120	22-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2654063								
WG1711526-2 CRM		**ED-HIGH-WATRM**						
Chromium (Cr)-Dissolved			97.6		%		80-120	22-JUL-13
Cobalt (Co)-Dissolved			100.1		%		80-120	22-JUL-13
Copper (Cu)-Dissolved			100.0		%		80-120	22-JUL-13
Lead (Pb)-Dissolved			99.1		%		80-120	22-JUL-13
Magnesium (Mg)-Dissolved			100.1		%		80-120	22-JUL-13
Manganese (Mn)-Dissolved			101.4		%		80-120	22-JUL-13
Molybdenum (Mo)-Dissolved			99.5		%		80-120	22-JUL-13
Nickel (Ni)-Dissolved			100.2		%		80-120	22-JUL-13
Potassium (K)-Dissolved			97.2		%		80-120	22-JUL-13
Selenium (Se)-Dissolved			103.4		%		80-120	22-JUL-13
Silver (Ag)-Dissolved			92.4		%		80-120	22-JUL-13
Sodium (Na)-Dissolved			104.7		%		80-120	22-JUL-13
Thallium (Tl)-Dissolved			100.8		%		80-120	22-JUL-13
Titanium (Ti)-Dissolved			94.9		%		80-120	22-JUL-13
Uranium (U)-Dissolved			90.7		%		80-120	22-JUL-13
Vanadium (V)-Dissolved			100.2		%		80-120	22-JUL-13
Zinc (Zn)-Dissolved			100.5		%		80-120	22-JUL-13
WG1711526-3 DUP		**L1331935-21**						
Aluminum (Al)-Dissolved		0.0039	0.0045		mg/L	13	20	22-JUL-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUL-13
Arsenic (As)-Dissolved		0.00065	0.00064		mg/L	1.1	20	22-JUL-13
Barium (Ba)-Dissolved		0.0477	0.0469		mg/L	1.8	20	22-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUL-13
Boron (B)-Dissolved		0.059	0.057		mg/L	2.7	20	22-JUL-13
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUL-13
Calcium (Ca)-Dissolved		139	136		mg/L	2.2	20	22-JUL-13
Chromium (Cr)-Dissolved		0.00024	0.00022		mg/L	11	20	22-JUL-13
Cobalt (Co)-Dissolved		0.00020	0.00019		mg/L	3.6	20	22-JUL-13
Copper (Cu)-Dissolved		0.00119	0.00120		mg/L	0.7	20	22-JUL-13
Iron (Fe)-Dissolved		0.056	0.054		mg/L	4.2	20	22-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUL-13
Magnesium (Mg)-Dissolved		28.6	28.4		mg/L	0.7	20	22-JUL-13
Manganese (Mn)-Dissolved		0.0675	0.0666		mg/L	1.2	20	22-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2654063								
WG1711526-3 DUP		**L1331935-21**						
Molybdenum (Mo)-Dissolved		0.00144	0.00140		mg/L	2.8	20	22-JUL-13
Nickel (Ni)-Dissolved		0.00281	0.00277		mg/L	1.6	20	22-JUL-13
Potassium (K)-Dissolved		8.42	8.18		mg/L	2.9	20	22-JUL-13
Selenium (Se)-Dissolved		0.00031	0.00033		mg/L	8.1	20	22-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUL-13
Sodium (Na)-Dissolved		12.3	12.4		mg/L	0.7	20	22-JUL-13
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUL-13
Titanium (Ti)-Dissolved		0.00046	0.00053		mg/L	12	20	22-JUL-13
Uranium (U)-Dissolved		0.00473	0.00491		mg/L	3.8	20	22-JUL-13
Vanadium (V)-Dissolved		0.00035	0.00032		mg/L	9.5	20	22-JUL-13
Zinc (Zn)-Dissolved		0.0044	0.0044		mg/L	0.5	20	22-JUL-13
WG1711526-4 DUP		**L1332224-8**						
Aluminum (Al)-Dissolved		0.0290	0.0282		mg/L	2.7	20	22-JUL-13
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-JUL-13
Arsenic (As)-Dissolved		0.00165	0.00171		mg/L	4.1	20	22-JUL-13
Barium (Ba)-Dissolved		0.0277	0.0270		mg/L	2.7	20	22-JUL-13
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-JUL-13
Boron (B)-Dissolved		0.035	0.032		mg/L	8.5	20	22-JUL-13
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUL-13
Calcium (Ca)-Dissolved		25.9	24.3		mg/L	6.4	20	22-JUL-13
Chromium (Cr)-Dissolved		0.00022	0.00018	J	mg/L	0.00004	0.0002	22-JUL-13
Cobalt (Co)-Dissolved		0.00018	0.00017		mg/L	4.4	20	22-JUL-13
Copper (Cu)-Dissolved		0.00064	0.00064		mg/L	0.8	20	22-JUL-13
Iron (Fe)-Dissolved		0.736	0.724		mg/L	1.6	20	22-JUL-13
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUL-13
Magnesium (Mg)-Dissolved		5.67	5.63		mg/L	0.7	20	22-JUL-13
Manganese (Mn)-Dissolved		0.0226	0.0234		mg/L	3.7	20	22-JUL-13
Molybdenum (Mo)-Dissolved		0.00121	0.00115		mg/L	5.0	20	22-JUL-13
Nickel (Ni)-Dissolved		0.00215	0.00222		mg/L	3.2	20	22-JUL-13
Potassium (K)-Dissolved		0.69	0.71		mg/L	2.8	20	22-JUL-13
Selenium (Se)-Dissolved		0.00015	0.00015		mg/L	1.6	20	22-JUL-13
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-JUL-13
Sodium (Na)-Dissolved		4.3	4.3		mg/L	0.4	20	22-JUL-13

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2654063								
WG1711526-4 DUP		**L1332224-8**						
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-JUL-13
Titanium (Ti)-Dissolved		0.00044	0.00066	J	mg/L	0.00022	0.0006	22-JUL-13
Uranium (U)-Dissolved		0.000120	0.000126		mg/L	4.6	20	22-JUL-13
Vanadium (V)-Dissolved		0.00034	0.00029		mg/L	16	20	22-JUL-13
Zinc (Zn)-Dissolved		0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-JUL-13
WG1711526-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUL-13
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	22-JUL-13
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	22-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUL-13
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUL-13
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	22-JUL-13
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUL-13
Calcium (Ca)-Dissolved			<0.020		mg/L		0.02	22-JUL-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUL-13
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUL-13
							0.005	

Quality Control Report

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
MET-D-CCMS-ED	**Water**							
Batch R2654063								
WG1711526-1 MB								
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Manganese (Mn)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUL-13
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUL-13
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUL-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-JUL-13
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	22-JUL-13
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUL-13
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUL-13
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-JUL-13
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	22-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUL-13
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-JUL-13
NH3-D-CFA-ED	**Water**							
Batch R2649501								
WG1706874-3 DUP		**L1329669-2**						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	15-JUL-13
NO2-IC-ED	**Water**							

Quality Control Report

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
NO2-IC-ED	**Water**							
Batch R2649520								
WG1706359-11 DUP		**L1331335-12**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-3 DUP		**L1330656-19**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-5 DUP		**L1330570-1**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-2 LCS								
Nitrite (as N)			94.1		%		90-110	12-JUL-13
WG1706359-1 MB								
Nitrite (as N)			<0.050		mg/L		0.05	12-JUL-13
WG1706359-12 MS		**L1331335-12**						
Nitrite (as N)			99.8		%		75-125	12-JUL-13
WG1706359-4 MS		**L1330656-19**						
Nitrite (as N)			97.6		%		75-125	12-JUL-13
WG1706359-6 MS		**L1330570-1**						
Nitrite (as N)			91.4		%		75-125	12-JUL-13
NO3-IC-ED	**Water**							
Batch R2649520								
WG1706359-11 DUP		**L1331335-12**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-3 DUP		**L1330656-19**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-5 DUP		**L1330570-1**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-9 DUP		**L1331303-10**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	12-JUL-13
WG1706359-2 LCS								
Nitrate (as N)			99.8		%		90-110	12-JUL-13
WG1706359-1 MB								
Nitrate (as N)			<0.050		mg/L		0.05	12-JUL-13
WG1706359-10 MS		**L1331303-10**						
Nitrate (as N)			97.7		%		75-125	12-JUL-13
WG1706359-12 MS		**L1331335-12**						
Nitrate (as N)			97.9		%		75-125	12-JUL-13
WG1706359-4 MS		**L1330656-19**						
Nitrate (as N)			97.0		%		75-125	12-JUL-13
WG1706359-6 MS		**L1330570-1**						
Nitrate (as N)			96.0		%		75-125	12-JUL-13

Quality Control Report

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
PH/EC/ALK-ED	**Water**							
Batch R2648510								
WG1705920-10 DUP		**L1330570-1**						
pH		8.09	8.08	J	pH	0.01	0.3	13-JUL-13
Conductivity (EC)		1570	1560		uS/cm	0.1	10	13-JUL-13
Bicarbonate (HCO3)		569	608		mg/L	6.5	25	13-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	13-JUL-13
Alkalinity, Total (as CaCO3)		467	498		mg/L	6.5	20	13-JUL-13
WG1705920-6 DUP		**L1330959-2**						
pH		6.67	6.60	J	pH	0.06	0.3	12-JUL-13
Conductivity (EC)		23.0	22.5		uS/cm	2.2	10	12-JUL-13
Bicarbonate (HCO3)		10.0	9.7		mg/L	3.3	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		8.2	8.0		mg/L	3.3	20	12-JUL-13
WG1705920-7 DUP		**L1330465-2**						
pH		7.94	7.89	J	pH	0.05	0.3	12-JUL-13
Conductivity (EC)		727	729		uS/cm	0.3	10	12-JUL-13
Bicarbonate (HCO3)		438	472		mg/L	7.4	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		359	387		mg/L	7.4	20	12-JUL-13
WG1705920-9 DUP		**L1330656-19**						
pH		7.70	7.73	J	pH	0.03	0.3	12-JUL-13
Conductivity (EC)		1120	1120		uS/cm	0.4	10	12-JUL-13
Bicarbonate (HCO3)		753	715		mg/L	5.2	25	12-JUL-13
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	12-JUL-13
Alkalinity, Total (as CaCO3)		617	586		mg/L	5.2	20	12-JUL-13
WG1705920-2 LCS								
Conductivity (EC)			99.9		%		90-110	12-JUL-13
WG1705920-3 LCS								
pH			7.04		pH		6.7-7.3	12-JUL-13
WG1705920-4 LCS								
Alkalinity, Total (as CaCO3)			104.4		%		85-115	12-JUL-13
WG1705920-5 LCS								

Quality Control Report

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
PH/EC/ALK-ED	**Water**							
Batch R2648510								
WG1705920-5 LCS								
Conductivity (EC)			97.9		%		90-110	12-JUL-13
WG1705920-1 MB								
Bicarbonate (HCO3)			<5.0		mg/L		5	12-JUL-13
Carbonate (CO3)			<5.0		mg/L		5	12-JUL-13
Hydroxide (OH)			<5.0		mg/L		5	12-JUL-13
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-JUL-13
PHENOLS-4AAP-ED	**Water**							
Batch R2652048								
WG1709839-4 DUP		**L1331912-10**						
Phenols (4AAP)		0.0075	0.0073		mg/L	2.7	15	18-JUL-13
WG1709839-6 DUP		**L1331335-15**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	18-JUL-13
WG1709839-7 DUP		**L1331424-25**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	15	18-JUL-13
WG1709839-3 LCS								
Phenols (4AAP)			91.2		%		85-115	18-JUL-13
WG1709839-2 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	18-JUL-13
WG1709839-5 MS		**L1331912-10**						
Phenols (4AAP)			82.5		%		75-125	18-JUL-13
SO4-IC-ED	**Water**							
Batch R2649520								
WG1706359-11 DUP		**L1331335-12**						
Sulfate (SO4)		28.9	28.9		mg/L	0.0	20	12-JUL-13
WG1706359-3 DUP		**L1330656-19**						
Sulfate (SO4)		32.2	33.1		mg/L	2.8	20	12-JUL-13
WG1706359-5 DUP		**L1330570-1**						
Sulfate (SO4)		363	363		mg/L	0.1	20	12-JUL-13
WG1706359-2 LCS								
Sulfate (SO4)			101.6		%		90-110	12-JUL-13
WG1706359-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	12-JUL-13
WG1706359-12 MS		**L1331335-12**						
Sulfate (SO4)			98.8		%		75-125	12-JUL-13
WG1706359-4 MS		**L1330656-19**						
Sulfate (SO4)			97.5		%		75-125	12-JUL-13

Quality Control Report

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
SO4-IC-ED	**Water**							
Batch R2649520								
WG1706359-6 MS		**L1330570-1**						
Sulfate (SO4)			N/A	MS-B	%		-	12-JUL-13
SOLIDS-TDS-ED	**Water**							
Batch R2649151								
WG1705811-3 DUP		**L1330553-1**						
Total Dissolved Solids		1410	1410		mg/L	0.4	20	15-JUL-13
WG1705811-4 DUP		**L1331139-5**						
Total Dissolved Solids		689	684		mg/L	0.7	20	15-JUL-13
WG1705811-2 LCS								
Total Dissolved Solids			100.8		%		85-115	15-JUL-13
WG1705811-1 MB								
Total Dissolved Solids			<10		mg/L		10	15-JUL-13

Quality Control Report

Workorder: L1331228 Report Date: 02-AUG-13

Client: WORLEYPARSONS CANADA
700 - 4445 Calgary Trail Terrace Plaza
EDMONTON AB T6H 5R7
Contact: TREVOR BUTTERFIELD

Legend:

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.

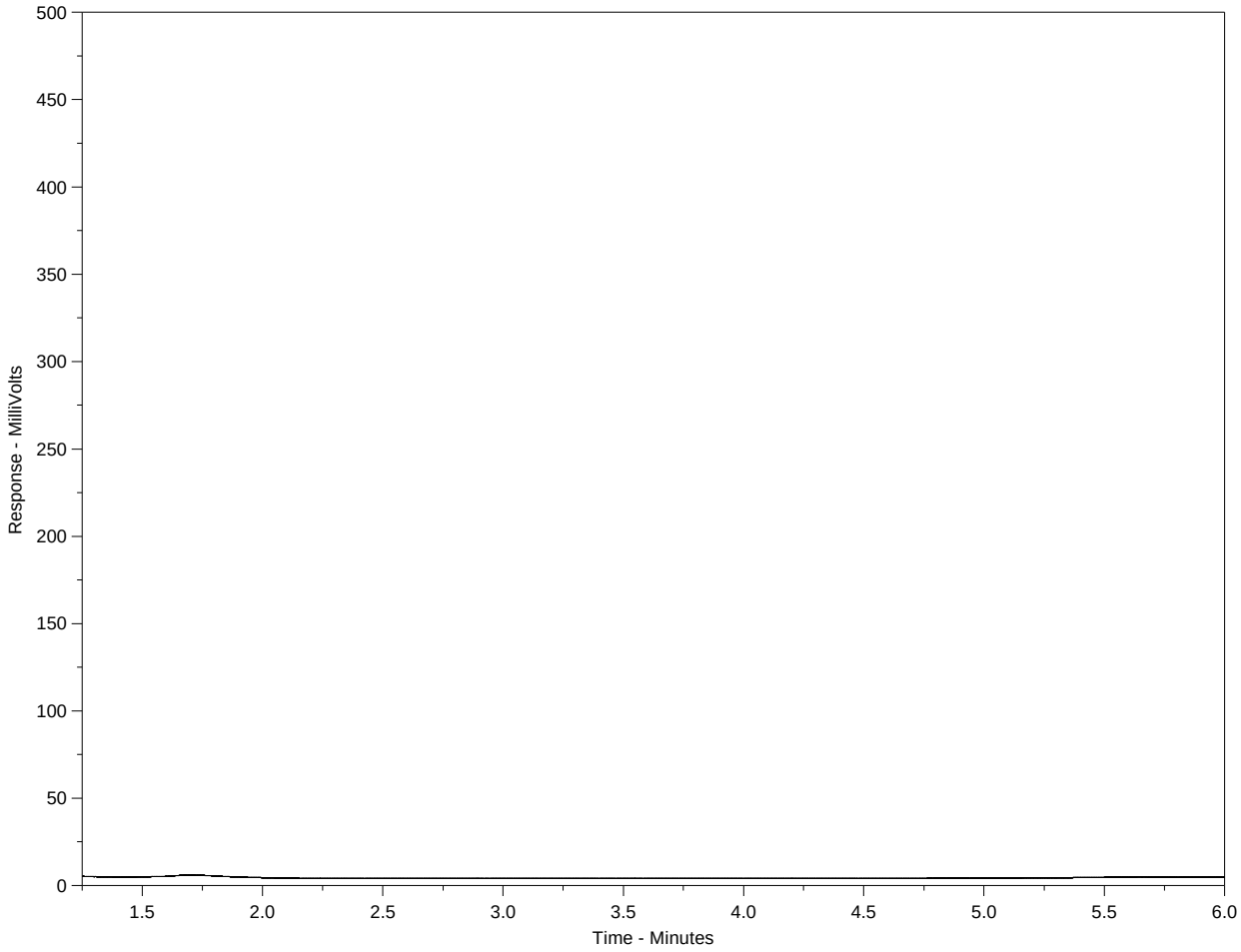
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

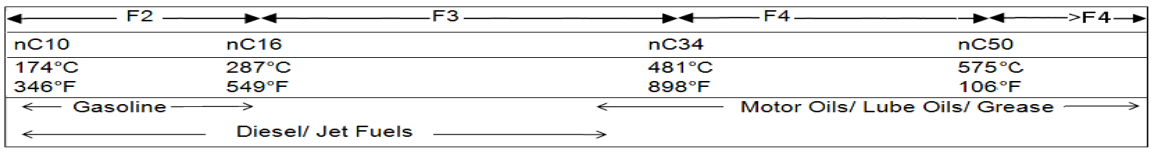
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide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

Hydrocarbon Distribution Report

ALS Sample ID: **L1331228-1**
Client ID: **MW 07**





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.

10-214502

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Page 1 of 1

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: WorleyParsons	Standard: X Other (specify):	X Regular (Standard Turnaround Times - Business Days)
Contact: Trevor Butterfield	Select: PDF X Excel Digital X Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: Suite 700 4445 Calgary Trail Edmonton AB T6H 5R7	Email 1: trevor.butterfield@worleyparsons.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2: edm.chemistry@worleyparsons.com anatoly.melnik@worleyparsons.com	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 780 496 9055 Fax: 780 496 9575		Analysis Request
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	Client / Project Information	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) Yes or No	Job #: 307076-06086	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: Q39294	
Lab Work Order # (lab use only): L1331228	ALS Contact: Maureen Olinek Sampler: Anatoly Melnik	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	P BTEX, F1	P F2	P DOC	F Diss. metals	P Diss. Nutrients	F Phenols	P Routine + F	TDS Actual	Number of Containers
	MW07	11-July-13	16:00	water	X	X	X	X	X	X	X	X	11

L1331228-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

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.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Anatoly Melnik	11-July-13	19:00	TK	11/Jul/2013	7:08	9.4 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

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

Table
Mann-Kendall Statistical Analysis (2005-2013) - pH

Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

Location	Count	Mann-Kendall S	Probability	Slope (pH units/year)	Normalized Slope (%/year)	Min (pH units)	Median (pH units)	Max (pH units)

Full Mann-Kendall Analysis, Sorted by Probability

Location	Count	Mann-Kendall S	Probability	Slope (pH units/year)	Normalized Slope (%/year)	Min (pH units)	Median (pH units)	Max (pH units)
MW-10	11	31	0.99	0.0474	1	7.5	7.89	8.09
MW-08	10	22	0.97	0.0386	0	7.5	7.8	8.04
MW-11	10	15	0.89	0.0325	0	7.4	7.8	8.04
MW-12	10	14	0.87	0.0385	0	7.4	7.895	8.14
MW-09	13	19	0.86	0.0193	0	7.73	8.04	8.22
MW-01	10	11	0.81	0.0233	0	7.67	7.92	8.06
MW-04	12	14	0.81	0.0125	0	7.5	7.84	8.01
MW-13	10	8	0.73	0.0110	0	7.8	8.05	8.24
MW-07	11	8	0.70	0.0225	0	7.19	7.6	7.98
MW-05	10	6	0.67	0.0183	0	7.58	7.865	8.1
MW-03	10	6	0.67	0.0077	0	7.4	7.82	8.03
MW-02	10	-5	0.64	0.0000	0	7.36	7.85	7.97
MW-06	10	5	0.64	0.0153	0	7.47	7.81	8.06

Table
Mann-Kendall Statistical Analysis (2005-2013) - Sulphate

Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)

Full Mann-Kendall Analysis, Sorted by Probability

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-05	10	23	0.97	3.4381	3	105	136.5	150
MW-06	10	15	0.89	4.2470	1	420	488.0	560
MW-11	10	15	0.89	1.3434	1	170	200.5	213
MW-01	10	-13	0.85	-0.6113	-1	44	56.95	62.0
MW-08	10	-12	0.83	-5.2380	-2	300	318.0	370
MW-13	10	-10	0.79	-0.1444	-2	9	9.39	12.5
MW-09	13	13	0.76	0.9499	0	312	325.0	350
MW-12	10	-7	0.70	-0.2087	0	32	44.3	52.5
MW-04	12	8	0.68	0.2356	0	74	87.4	92.1
MW-07	11	-7	0.68	-6.6288	-1	622	1010.0	1200
MW-10	11	-7	0.67	-0.6599	0	190	215.0	230
MW-02	10	-3	0.57	-1.5433	-1	194	265.5	318
MW-03	10	0	0.46	0.0000	0	98	119.5	130

Table
Mann-Kendall Statistical Analysis (2005-2013) - Total Dissolved Solids

Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)

Full Mann-Kendall Analysis, Sorted by Probability

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-05	10	41	0.99	10.8587	2	499	568.0	599
MW-08	10	-19	0.94	-13.6421	-2	862	899.0	999
MW-13	10	-16	0.91	-1.6981	0	438	456.5	470
MW-07	11	-16	0.87	-19.9004	-1	1330	1980.0	2400
MW-03	10	13	0.85	2.5462	0	520	572.0	588
MW-01	10	-11	0.81	-1.6090	0	410	438.5	456
MW-02	10	7	0.70	3.6708	0	759	887.0	944
MW-09	13	9	0.68	3.6020	0	954	1000.0	1040
MW-10	11	6	0.65	0.3026	0	759	819.0	847
MW-12	10	-5	0.63	-1.2461	0	591	609.5	651
MW-04	12	-5	0.60	-0.2108	0	690	724.0	774
MW-06	10	1	0.50	0.0000	0	1100	1185.0	1250
MW-11	10	1	0.50	0.4793	0	795	811.5	840

Table
Mann-Kendall Statistical Analysis (2005-2013) - Iron

Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-02	10	23	0.97	1.2887	23	< 0.06	5.63	12.3

Full Mann-Kendall Analysis, Sorted by Probability

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-06	10	31	0.99	0.4099	8	< 0.06	4.94	6.02
MW-09	13	36	0.98	0.1028	7	< 0.06	1.46	2.04
MW-02	10	23	0.97	1.2887	23	< 0.06	5.63	12.3
MW-10	11	25	0.96	0.0728	1	< 0.06	5.9	6.80
MW-12	10	19	0.94	0.1192	3	< 0.06	3.765	4.24
MW-03	10	18	0.93	0.1410	3	< 0.06	4.84	5.55
MW-13	10	17	0.92	0.0385	3	< 0.06	1.22	1.45
MW-07	11	18	0.90	0.2036	2	< 0.005	10.9	14
MW-04	12	13	0.79	0.0194	21	< 0.005	0.091	1.73
MW-05	10	8	0.73	0.0687	2	< 0.06	3.35	4
MW-01	10	8	0.73	0.0394	2	< 0.06	1.62	2.02
MW-11	10	7	0.70	0.0267	0	< 0.06	6.995	7.61
MW-08	10	2	0.53	0.0449	1	< 0.06	6.065	7.29

Table
Mann-Kendall Statistical Analysis (2005-2013) - Chloride

Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-08	10	-31	0.99	-0.2961	-15	0.86	2.0	4

Full Mann-Kendall Analysis, Sorted by Probability

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-05	10	42	0.99	2.2198	8	15	27.5	36.3
MW-03	10	33	0.99	1.9473	5	31	35.5	48.3
MW-08	10	-31	0.99	-0.2961	-15	0.86	2.0	4
MW-04	12	-28	0.96	-3.6642	-3	125	143.5	200
MW-06	10	-18	0.93	-0.7690	-15	2.95	5.285	13
MW-07	11	-19	0.91	-0.4271	-3	8.07	12.6	18
MW-13	10	-13	0.86	-0.0388	-2	1.81	2.075	4
MW-10	11	-11	0.78	-0.1630	-19	< 1	0.85	3
MW-09	13	-13	0.76	-0.0924	-2	4	5.63	7
MW-01	10	-8	0.73	-0.0721	-2	2	3.475	5
MW-11	10	-7	0.70	-0.1791	-2	8	9.845	16
MW-02	10	6	0.67	1.1078	5	11.6	20.15	38
MW-12	10	-5	0.64	-0.0183	0	5	6.945	8

Table
Mann-Kendall Statistical Analysis (2005-2013) - Manganese

Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)

Full Mann-Kendall Analysis, Sorted by Probability

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-06	10	32	0.99	0.0921	6	0.943	1.445	1.72
MW-05	10	29	0.99	0.0410	6	0.402	0.671	0.758
MW-12	10	26	0.98	0.0071	2	0.365	0.4355	0.457
MW-01	10	23	0.97	0.0087	1	0.605	0.6725	0.730
MW-09	13	30	0.96	0.0096	1	0.705	0.784	0.86
MW-04	12	23	0.93	0.0474	39	0.009	0.122	0.861
MW-13	10	-16	0.91	-0.0018	-1	0.231	0.251	0.263
MW-10	11	18	0.90	0.0084	1	0.566	0.656	0.735
MW-08	10	-15	0.89	-0.0069	-2	0.384	0.445	0.481
MW-02	10	-13	0.85	-0.0367	-7	0.236	0.542	1.09
MW-11	10	9	0.76	0.0034	1	0.605	0.661	0.697
MW-03	10	7	0.70	0.0012	1	0.239	0.2515	0.277
MW-07	11	-5	0.62	-0.0061	0	1.21	1.84	2.3

Table
Mann-Kendall Statistical Analysis (2005-2013) - Sodium

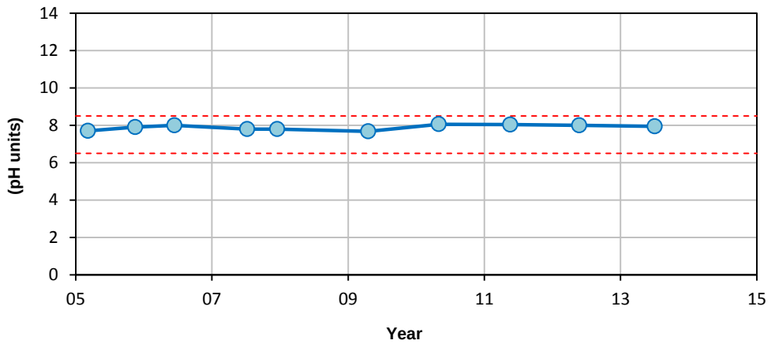
Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)

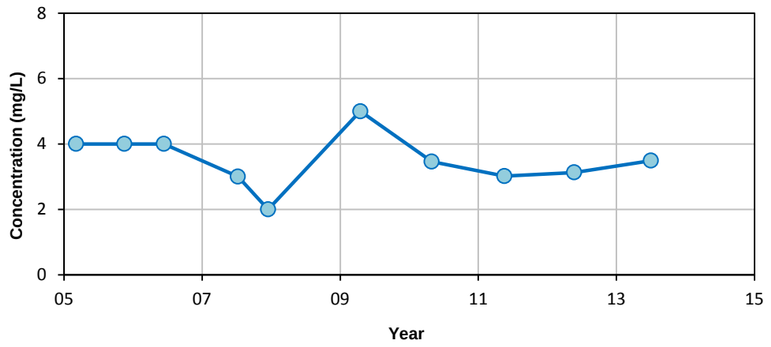
Full Mann-Kendall Analysis, Sorted by Probability

Location	Count	Mann-Kendall S	Probability	Slope (mg/L/year)	Normalized Slope (%/year)	Min (mg/L)	Median (mg/L)	Max (mg/L)
MW-08	10	-20	0.95	-2.8313	-2	98.0	113.5	137
MW-07	11	-22	0.94	-4.0407	-2	189	248.0	320
MW-06	10	-17	0.92	-4.9046	-3	123	145.0	211
MW-11	10	14	0.87	1.1999	1	85	91.5	102
MW-05	10	-12	0.83	-0.1556	0	41	42.95	51
MW-04	12	-11	0.75	-0.4842	-1	50.7	58.95	71
MW-01	10	-8	0.73	-0.2040	-1	33	36.0	40
MW-03	10	-7	0.70	-0.3807	-1	48.8	52.5	57.9
MW-13	10	-6	0.67	-0.3060	0	101	110.0	118
MW-12	10	-6	0.67	-0.7417	-1	95.4	106.0	113
MW-02	10	-6	0.67	-1.1273	-1	81	91.1	161
MW-10	11	6	0.65	0.2878	0	105	115.0	124
MW-09	13	1	0.50	0.5816	0	212	231.0	251

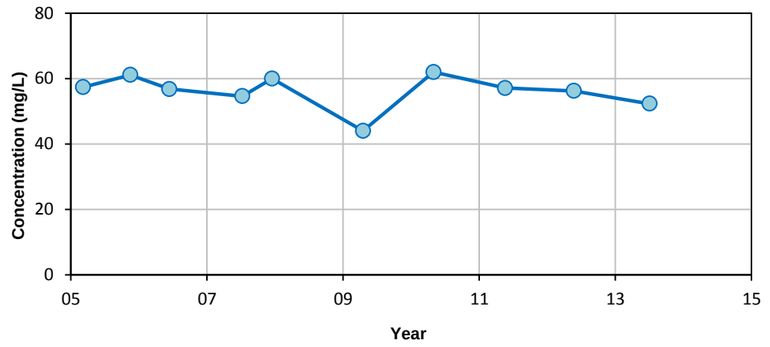
PH



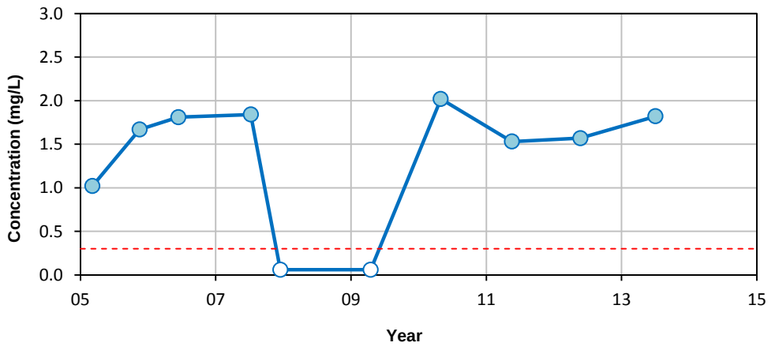
CHLORIDE



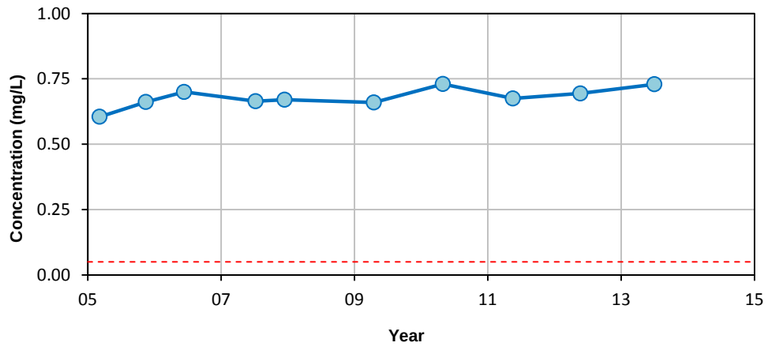
SULPHATE



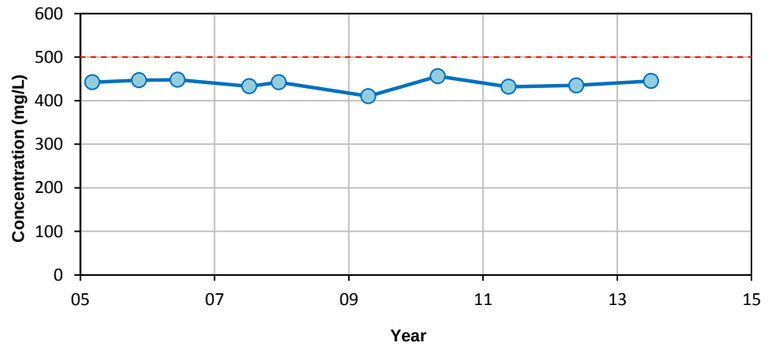
IRON



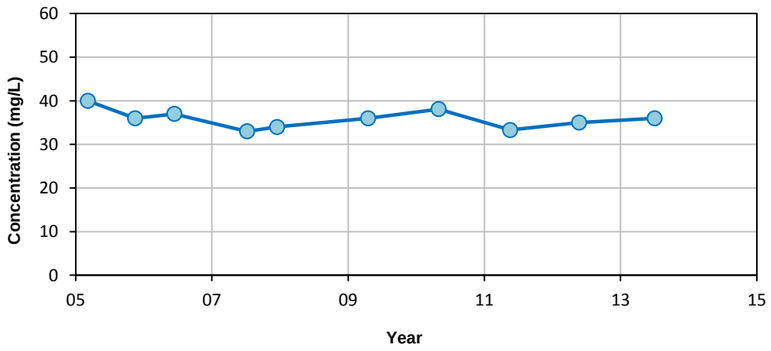
MANGANESE



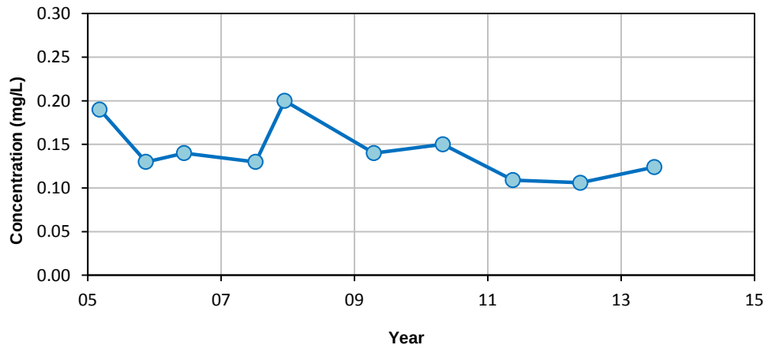
TOTAL DISSOLVED SOLIDS



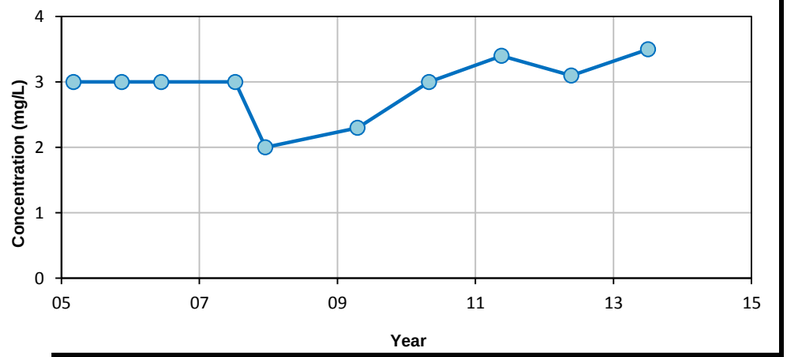
SODIUM



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/MAC 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: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-01

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons resources & energy

WorleyParsons Project No.: 307076-06086

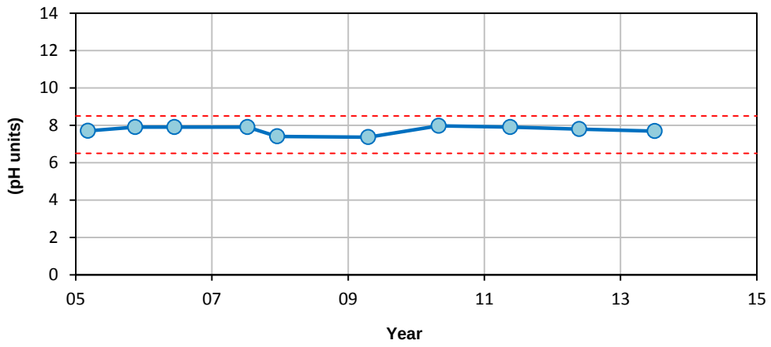
FIG No.: A5-1

REV: A

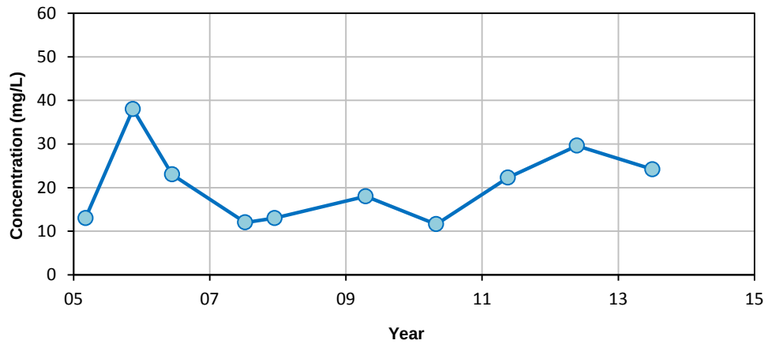
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

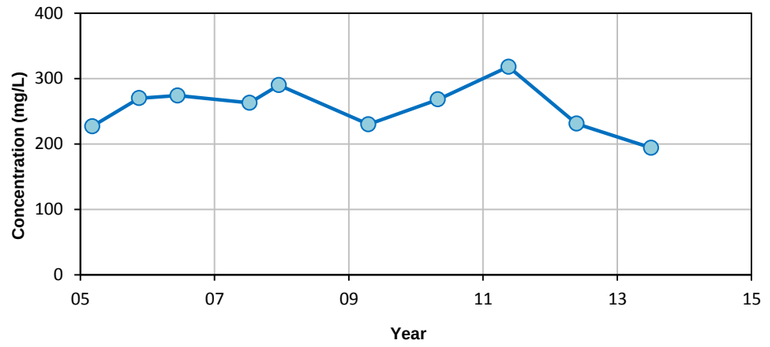
PH



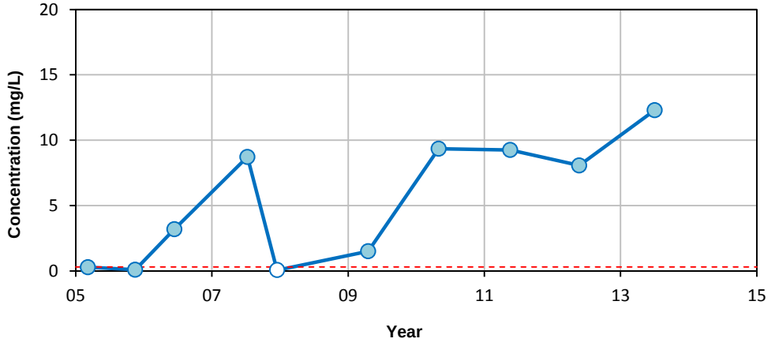
CHLORIDE



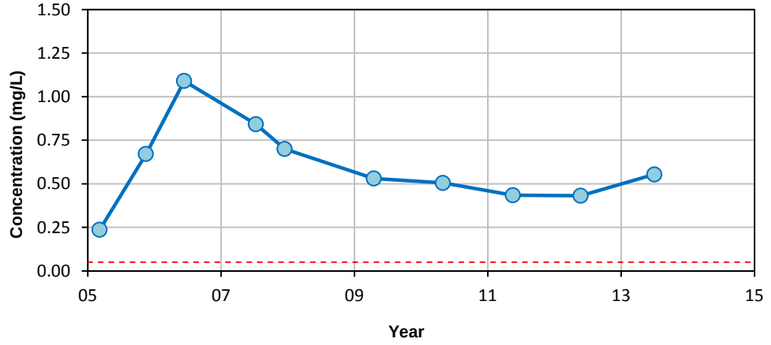
SULPHATE



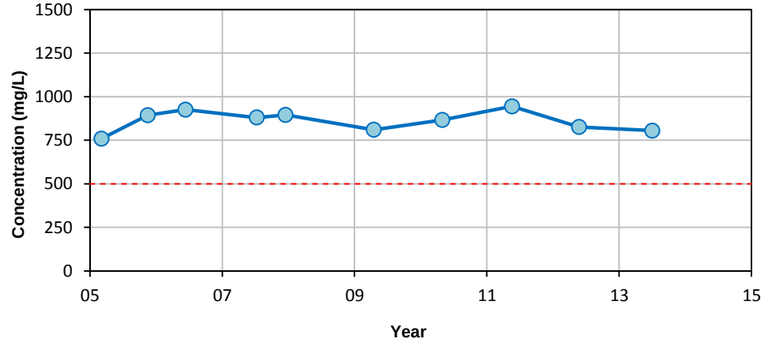
IRON



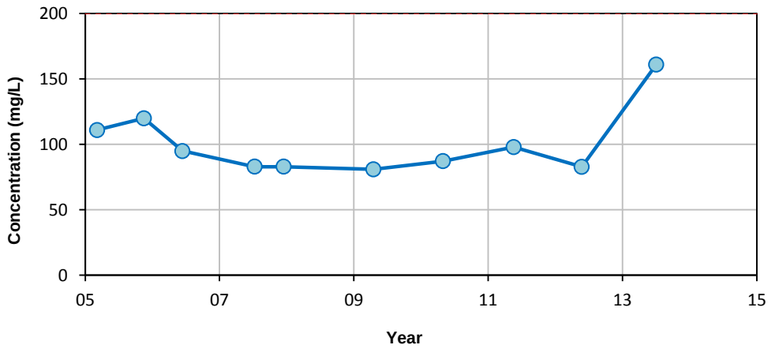
MANGANESE



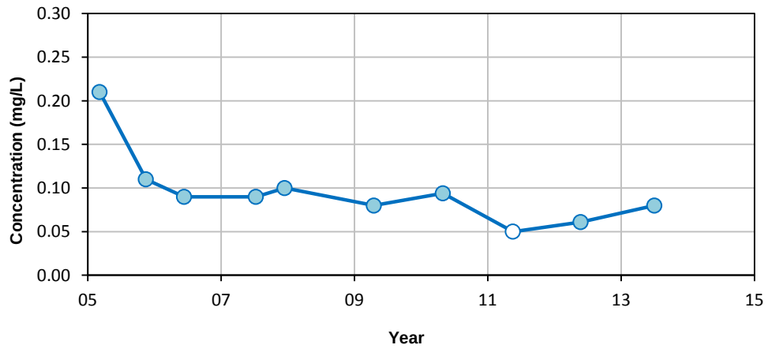
TOTAL DISSOLVED SOLIDS



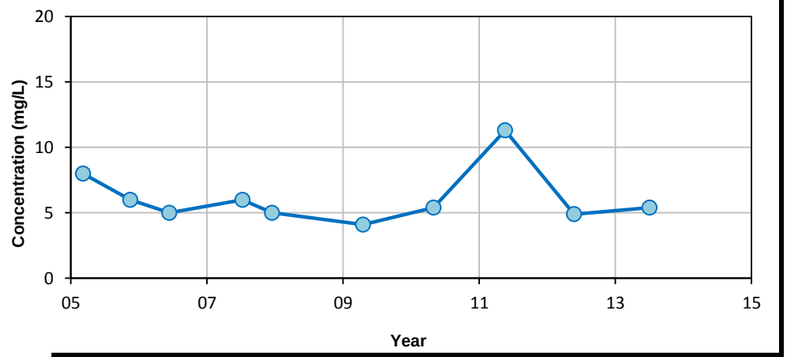
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



Notes:

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  - pH: 6.5-8.5 pH units
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  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-02

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons resources & energy

WorleyParsons Project No.: 307076-06086

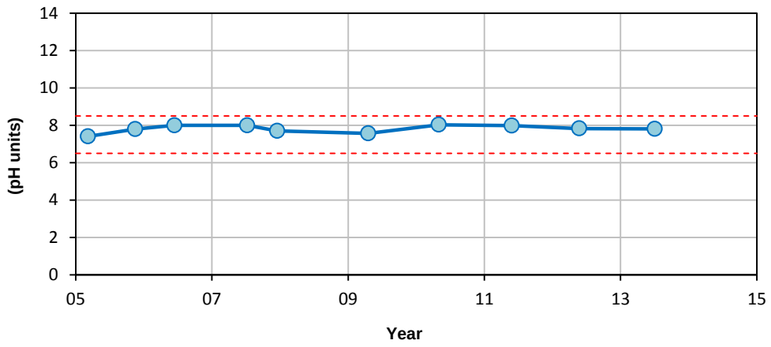
FIG No.: A5-2

REV: A

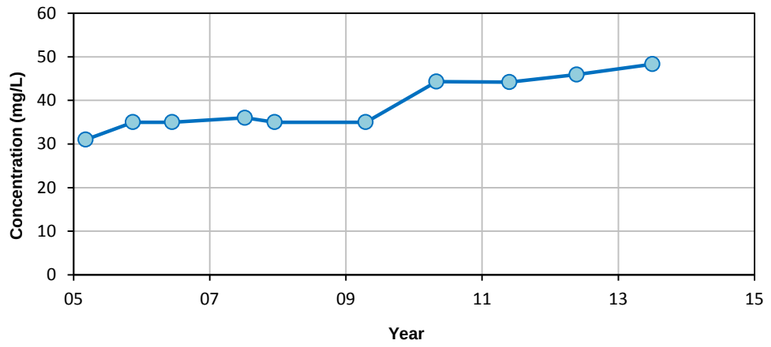
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TREND\CHARTS\WORKING FILES\

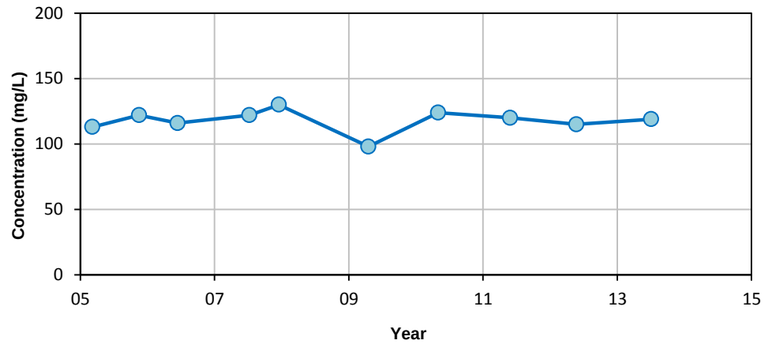
PH



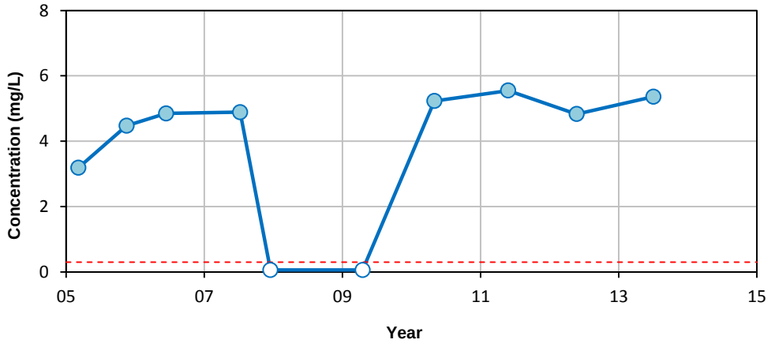
CHLORIDE



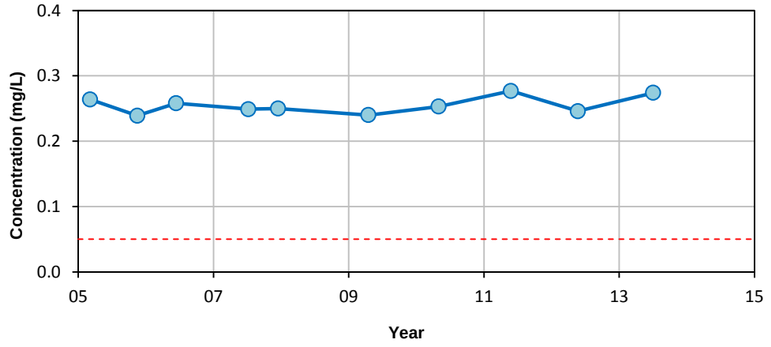
SULPHATE



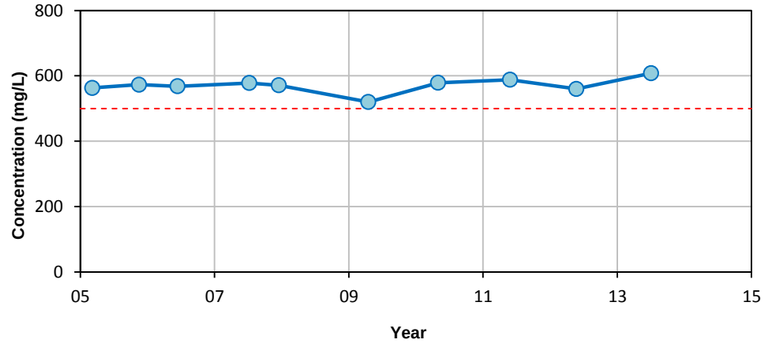
IRON



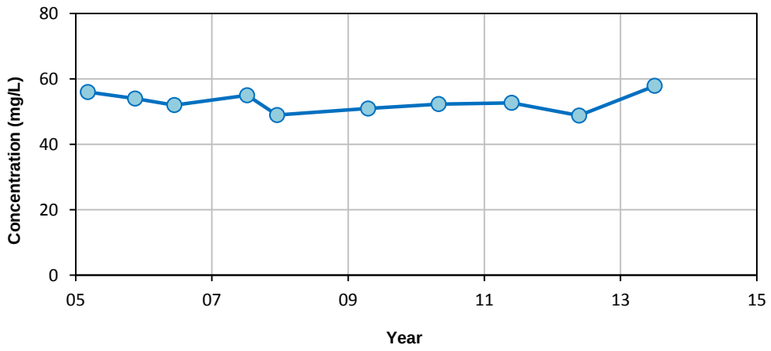
MANGANESE



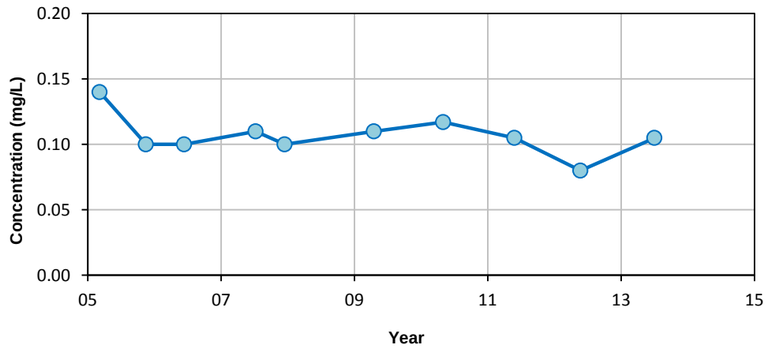
TOTAL DISSOLVED SOLIDS



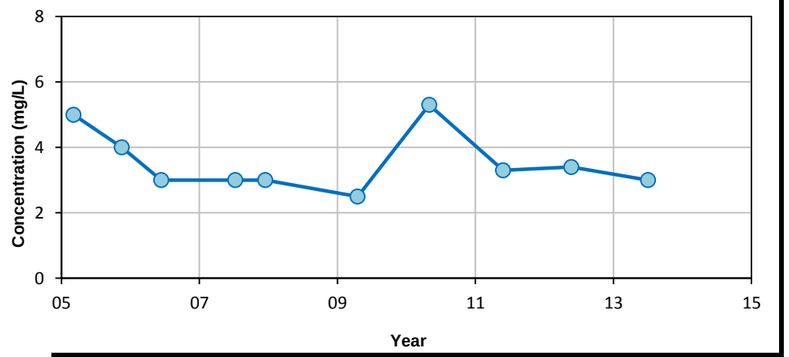
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



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  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-03

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons Project No.: 307076-06086

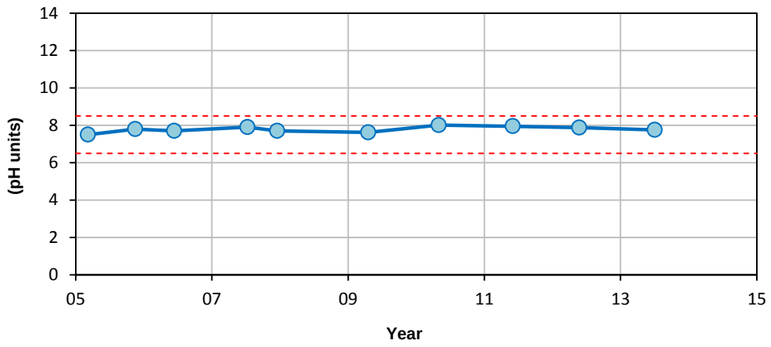
FIG No.: A5-3

REV: A

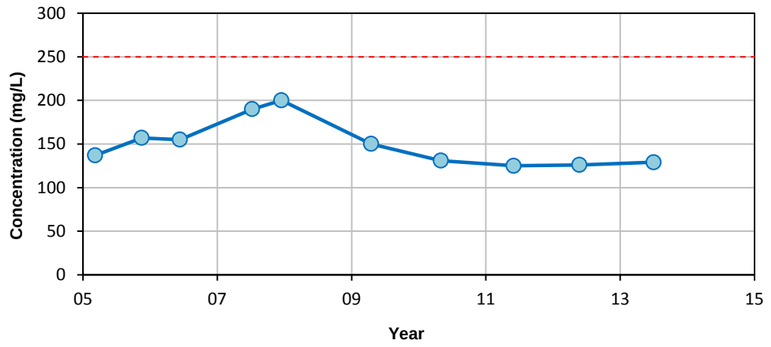
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

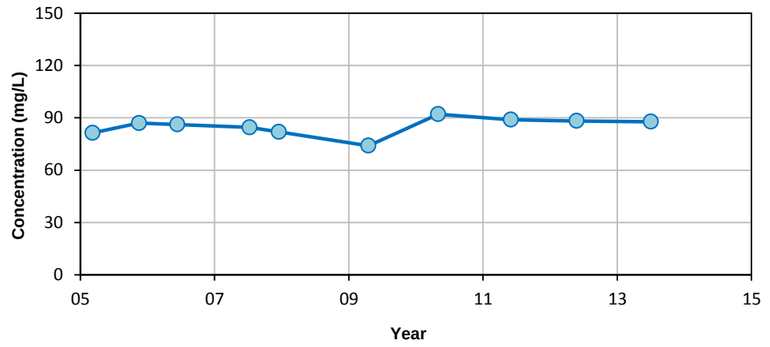
PH



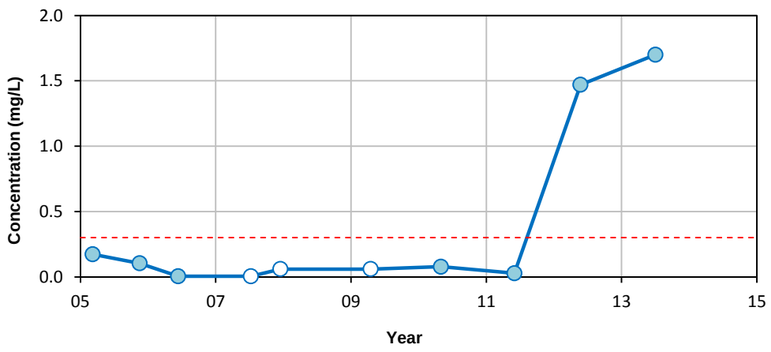
CHLORIDE



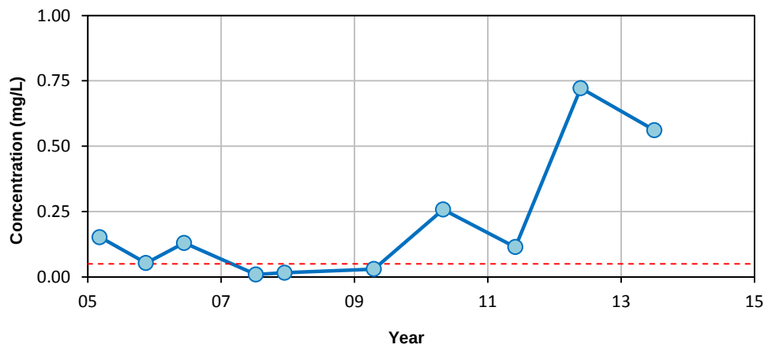
SULPHATE



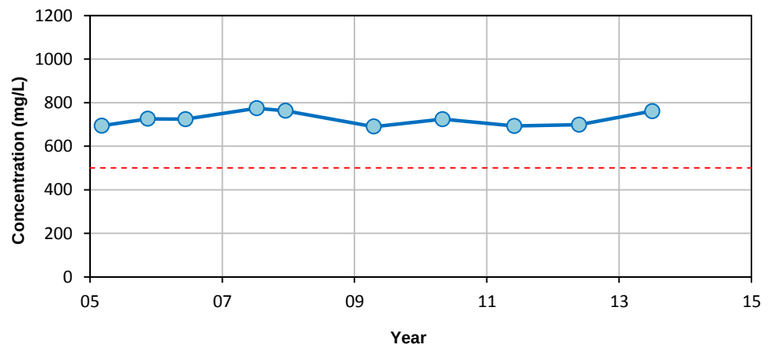
IRON



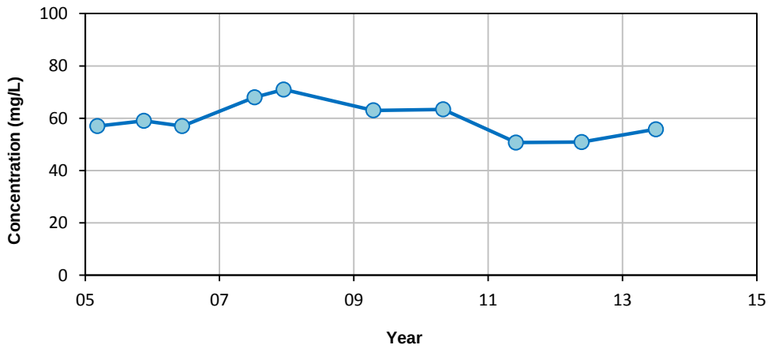
MANGANESE



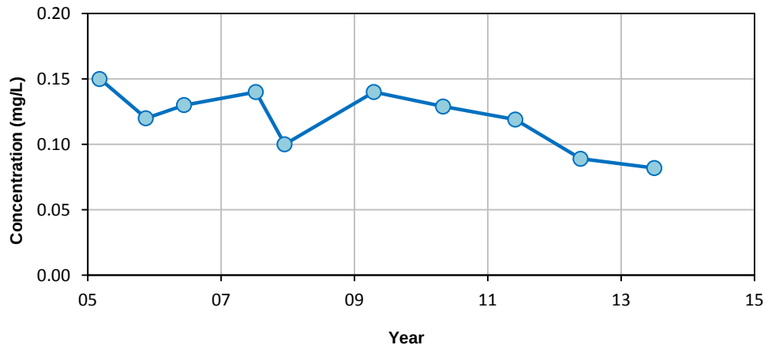
TOTAL DISSOLVED SOLIDS



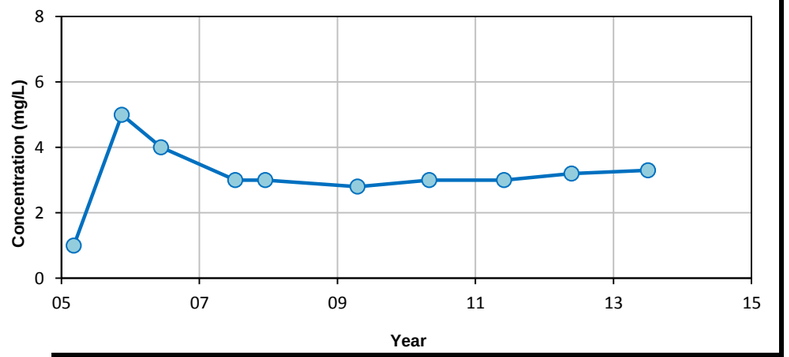
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



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  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-04

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

OneWay™ to zero harm

WorleyParsons resources & energy

WorleyParsons Project No.: 307076-06086

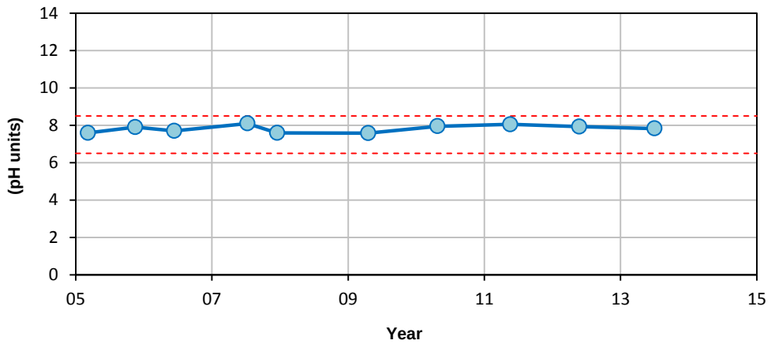
FIG No.: A5-4

REV: A

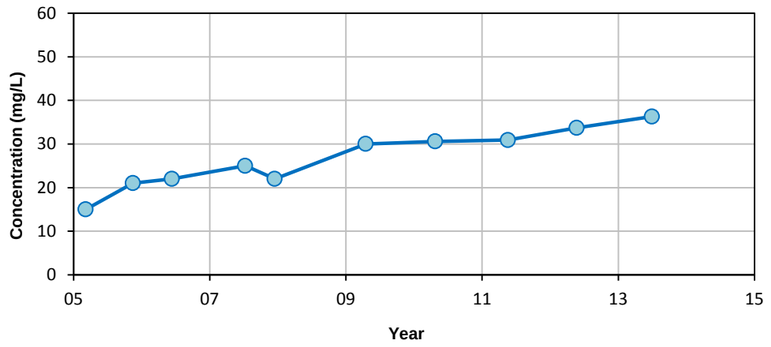
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TREND\CHARTS\WORKING FILES\

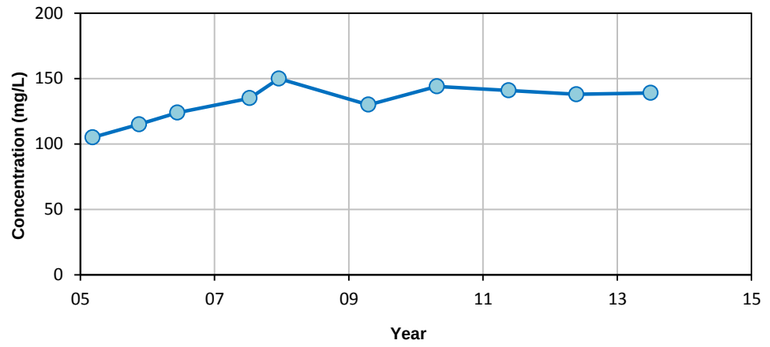
PH



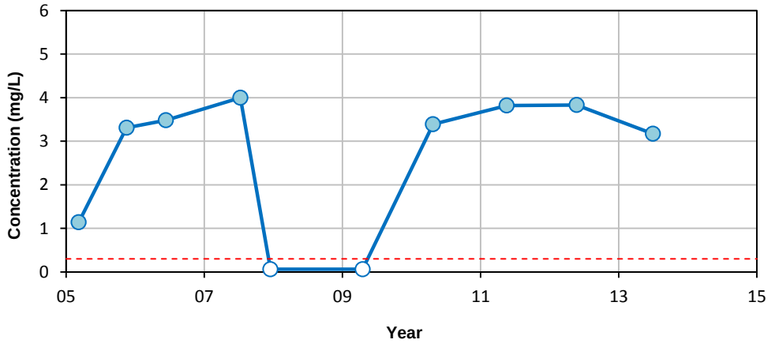
CHLORIDE



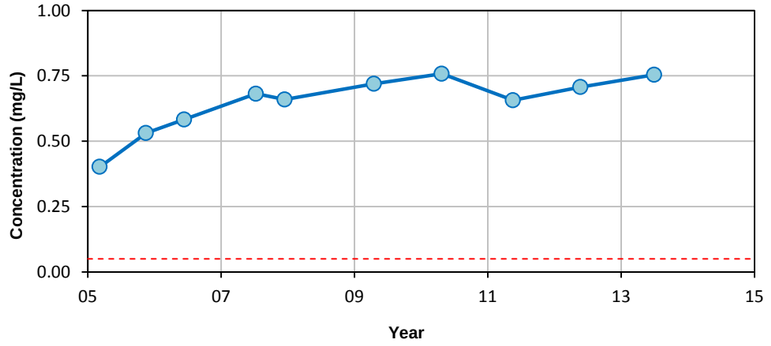
SULPHATE



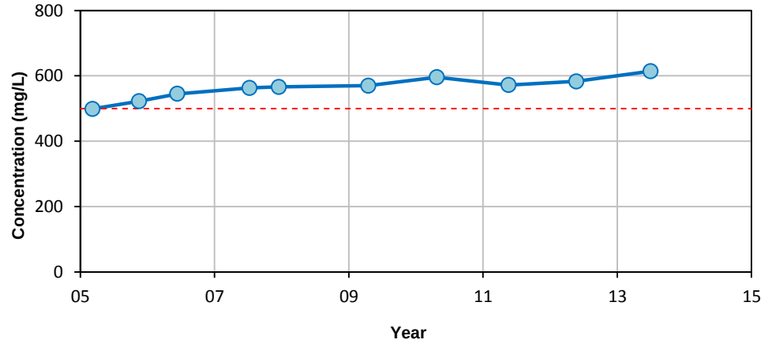
IRON



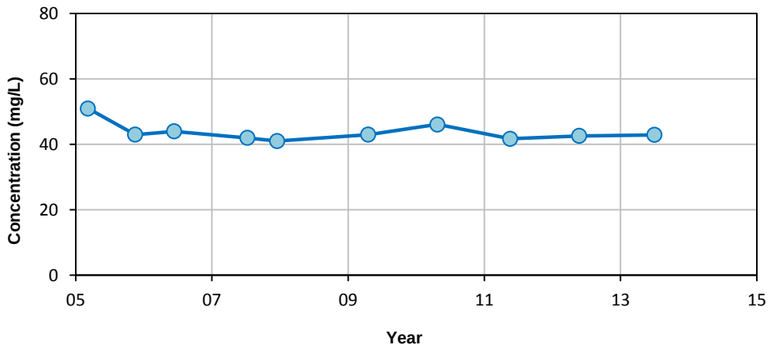
MANGANESE



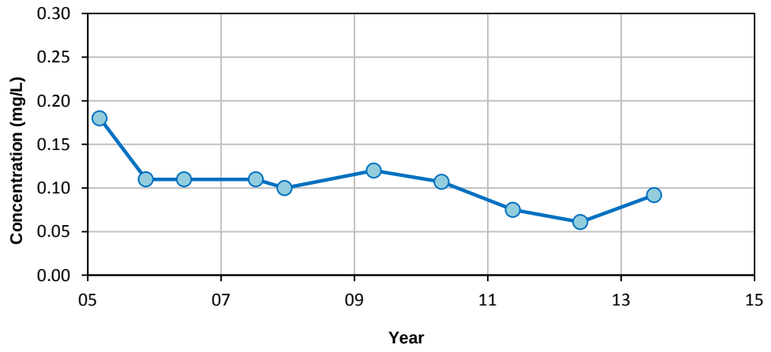
TOTAL DISSOLVED SOLIDS



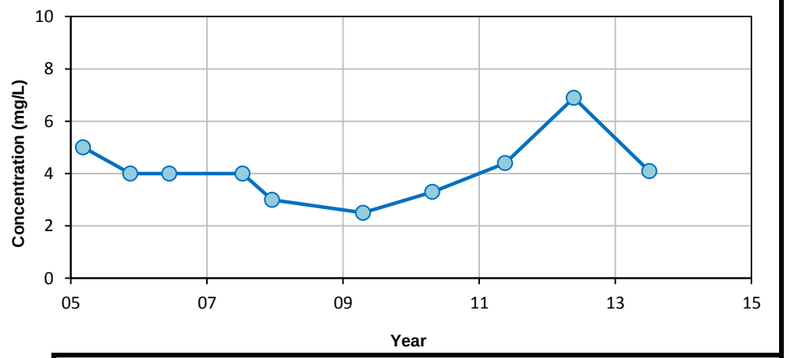
SODIUM



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/MAC 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: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-05

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons resources & energy

WorleyParsons Project No.: 307076-06086

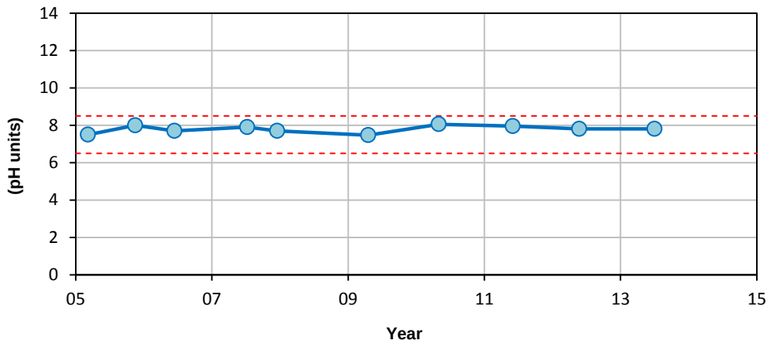
FIG No.: A5-5

REV: A

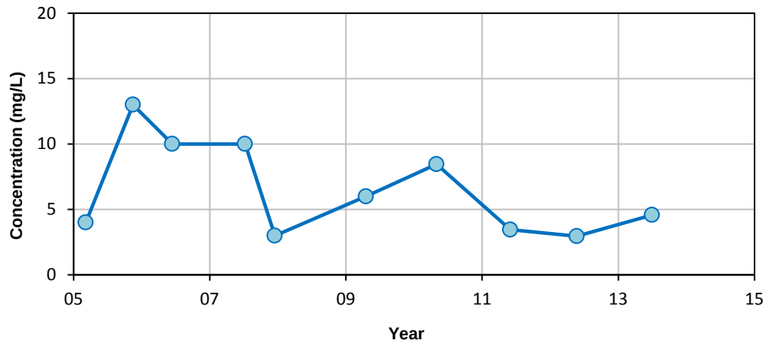
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

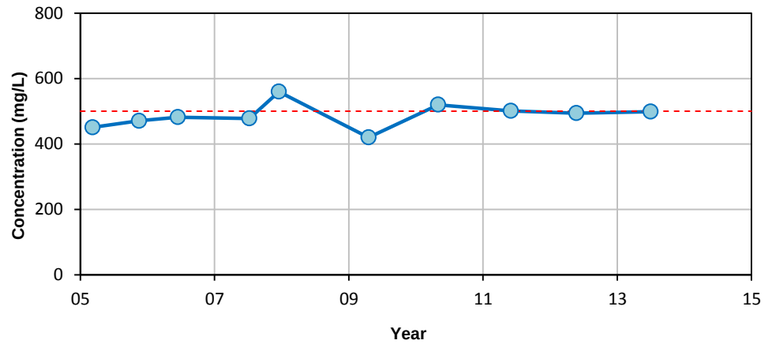
PH



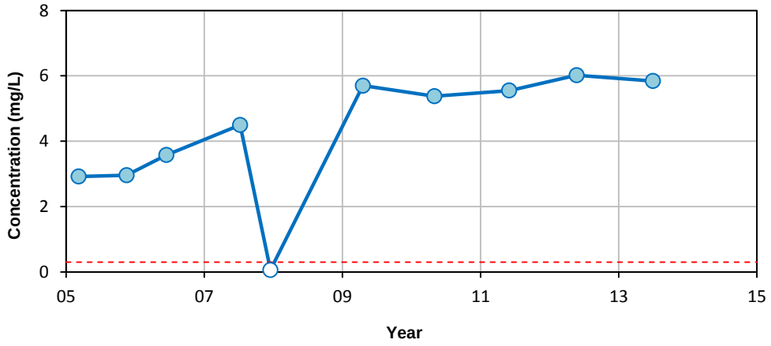
CHLORIDE



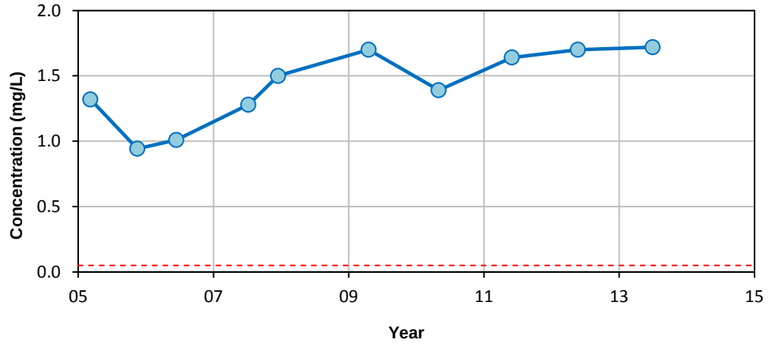
SULPHATE



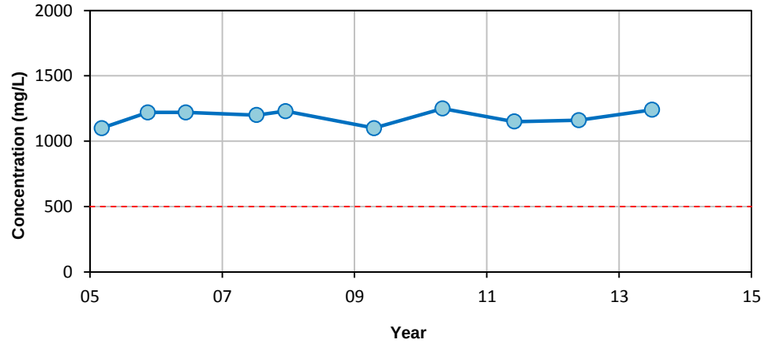
IRON



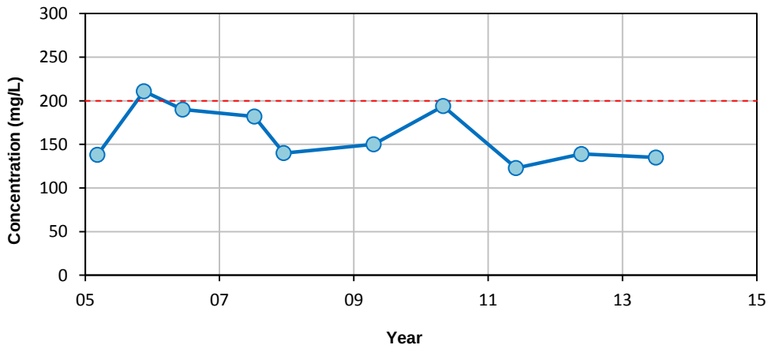
MANGANESE



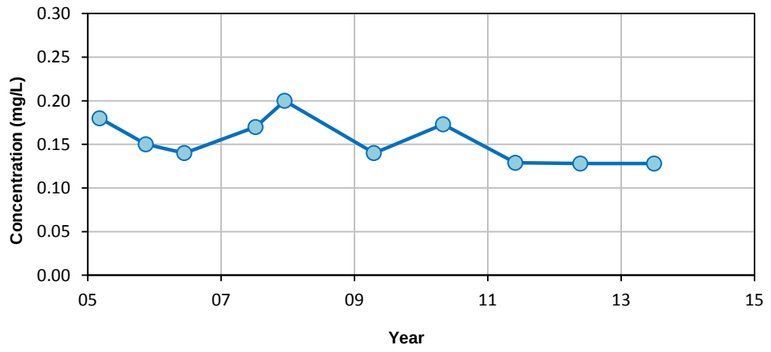
TOTAL DISSOLVED SOLIDS



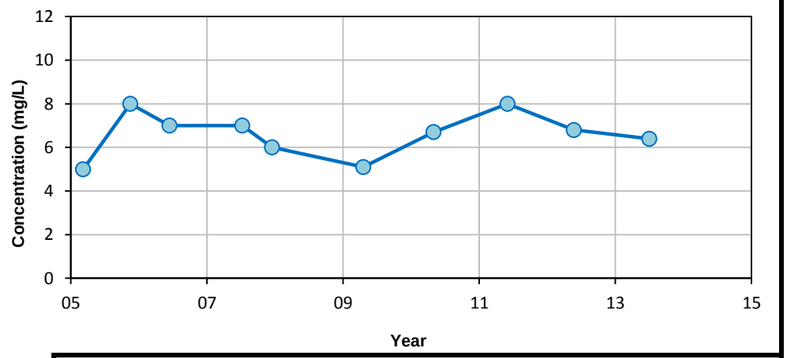
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



Notes:

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  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-06

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons Project No.: 307076-06086

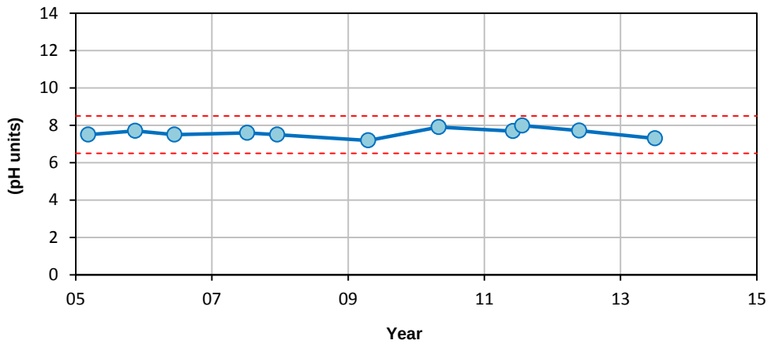
FIG No.: A5-6

REV: A

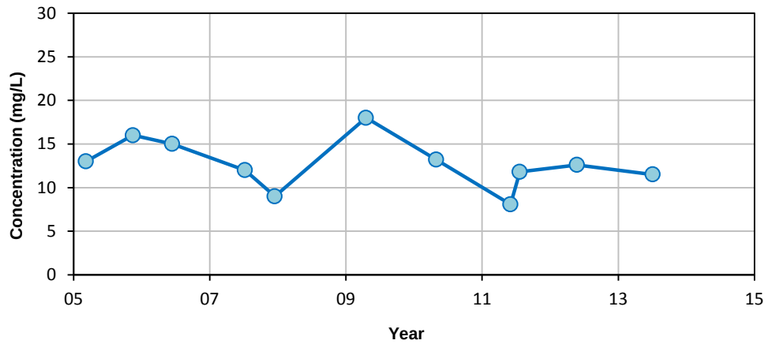
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

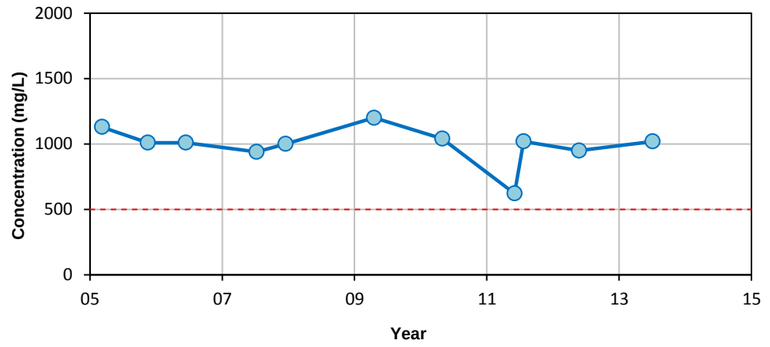
PH



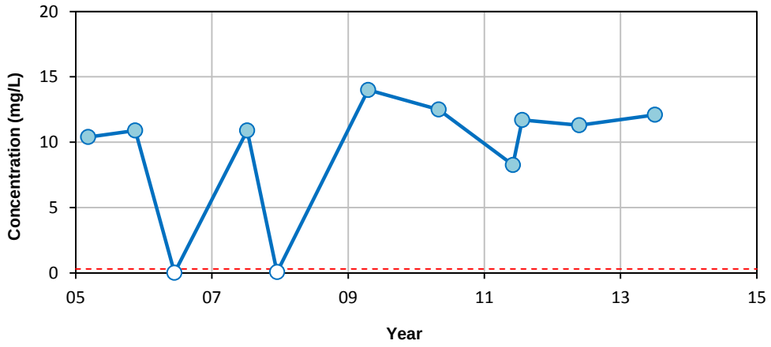
CHLORIDE



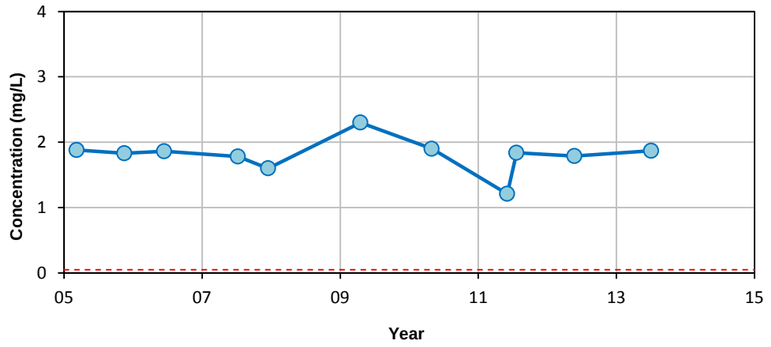
SULPHATE



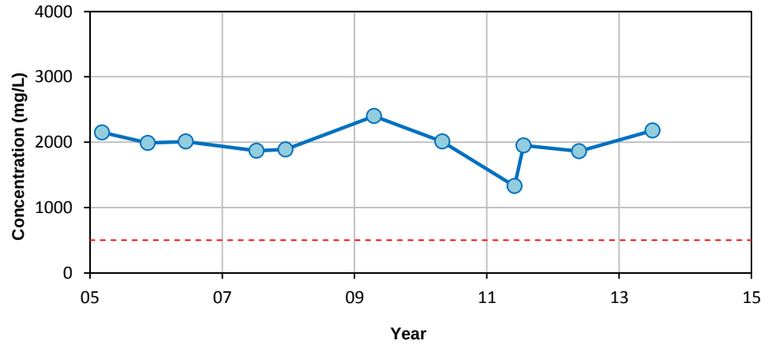
IRON



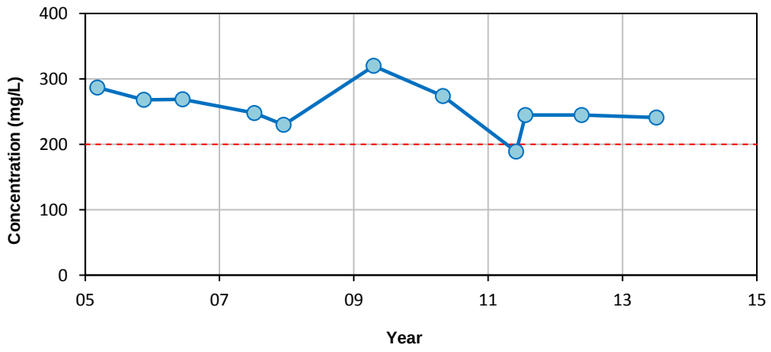
MANGANESE



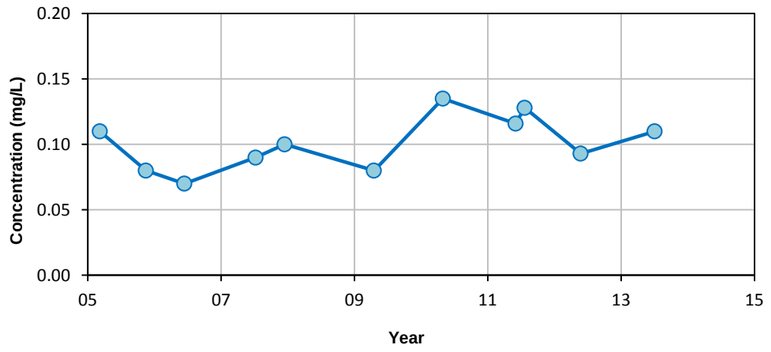
TOTAL DISSOLVED SOLIDS



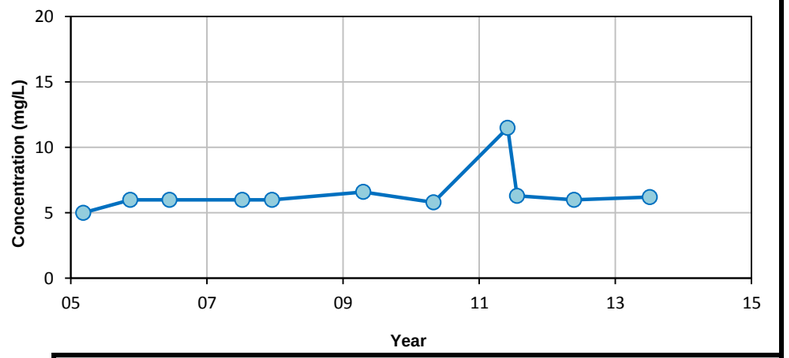
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



Notes:

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  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-07

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons Project No.: 307076-06086

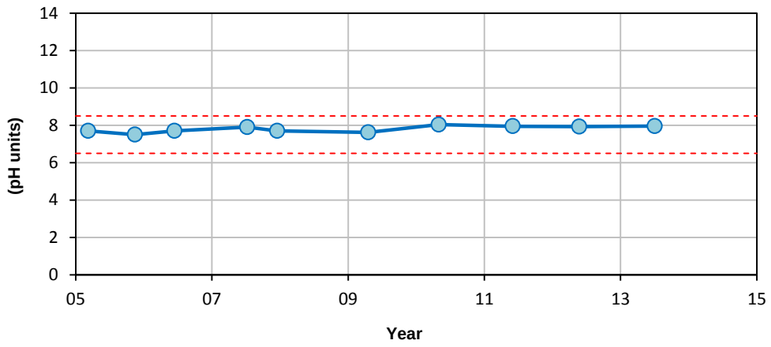
FIG No.: A5-7

REV: A

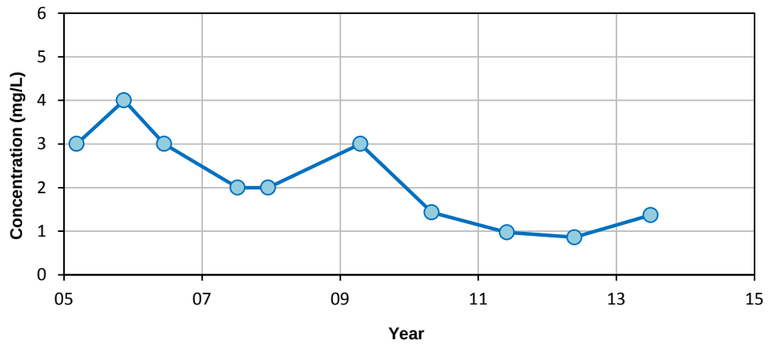
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TREND\CHARTS\WORKING FILES\

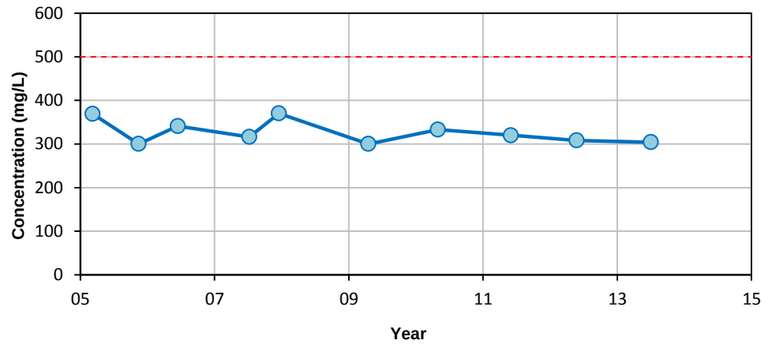
PH



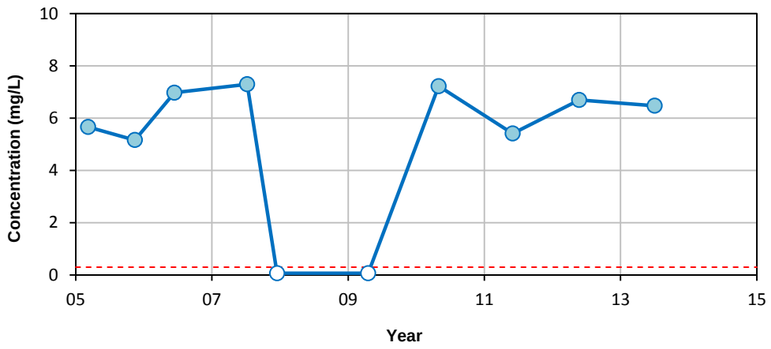
CHLORIDE



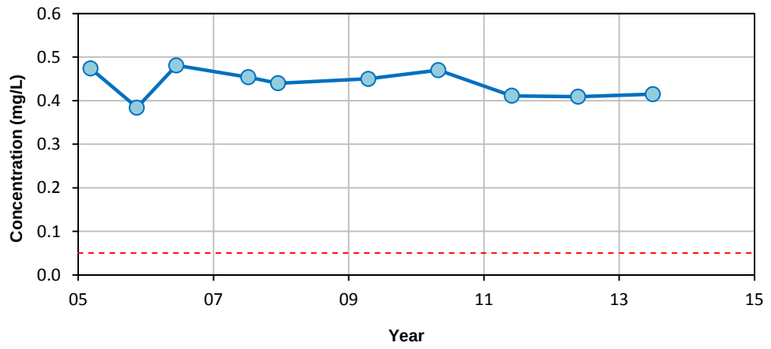
SULPHATE



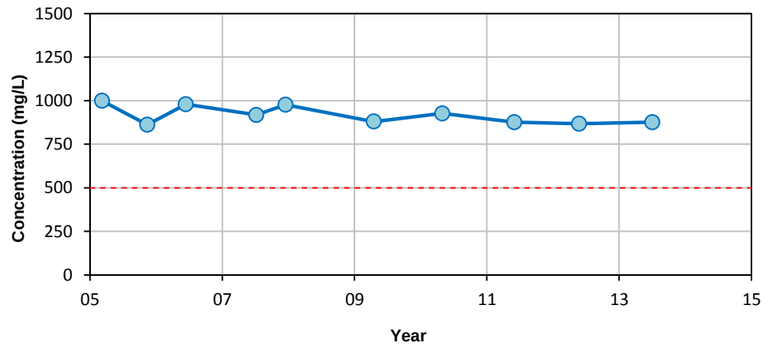
IRON



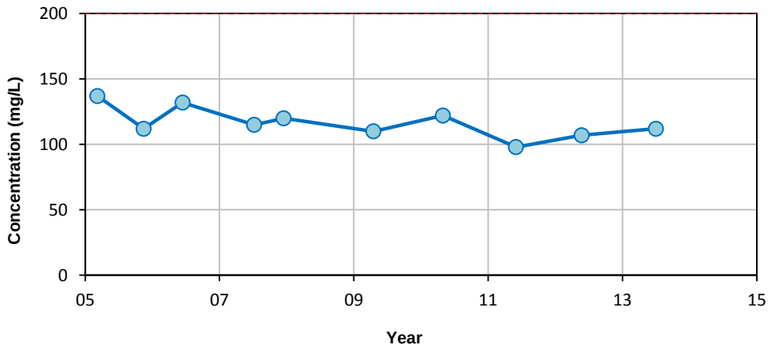
MANGANESE



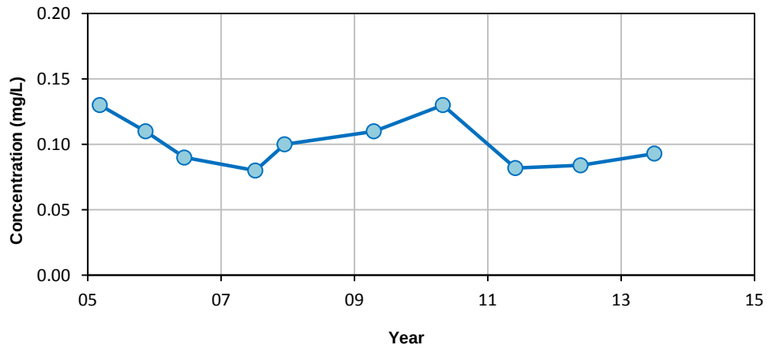
TOTAL DISSOLVED SOLIDS



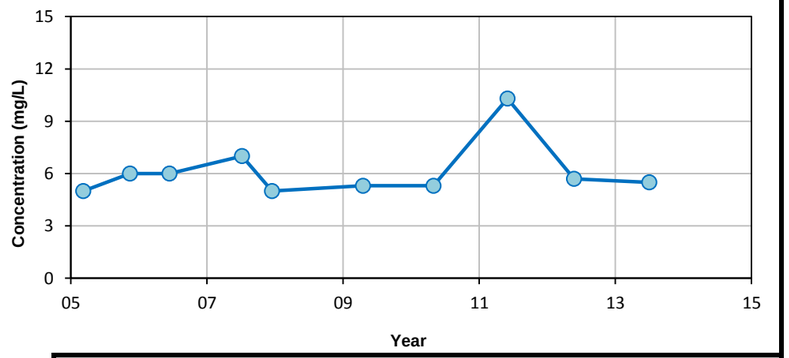
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



Notes:

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  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-08

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

OneWay to zero harm

WorleyParsons resources & energy

WorleyParsons Project No.: 307076-06086

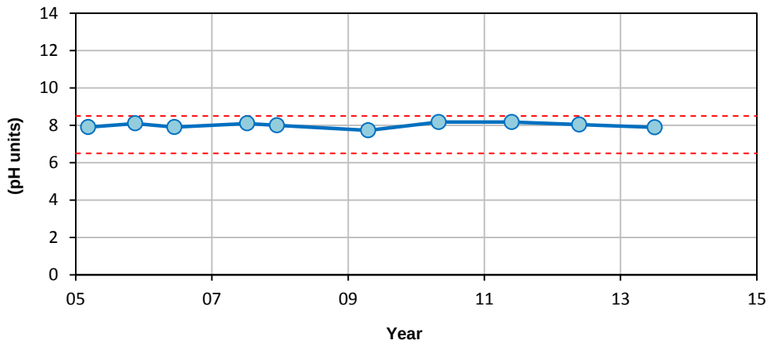
FIG No.: A5-8

REV: A

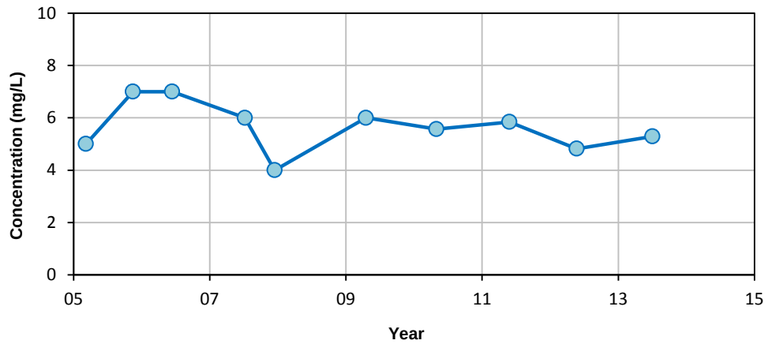
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

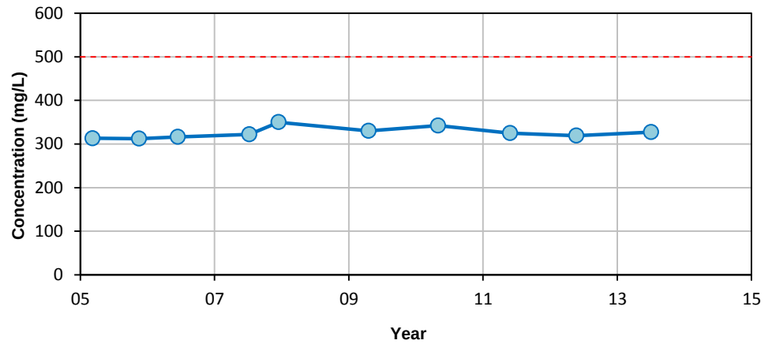
PH



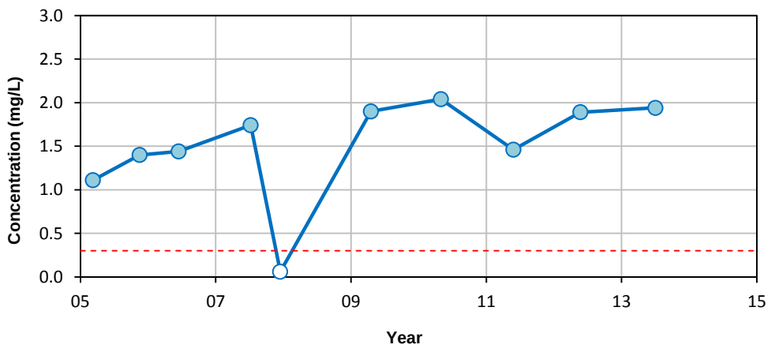
CHLORIDE



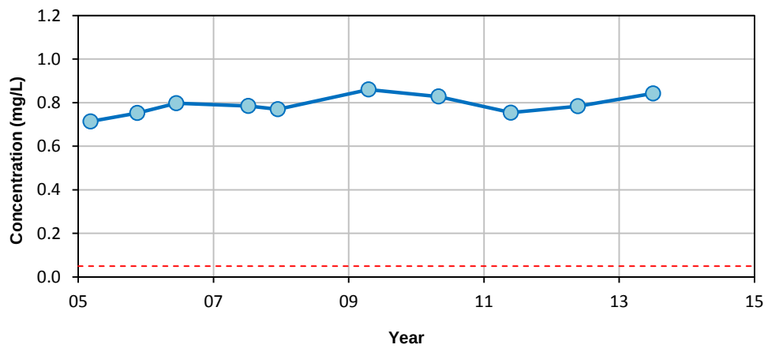
SULPHATE



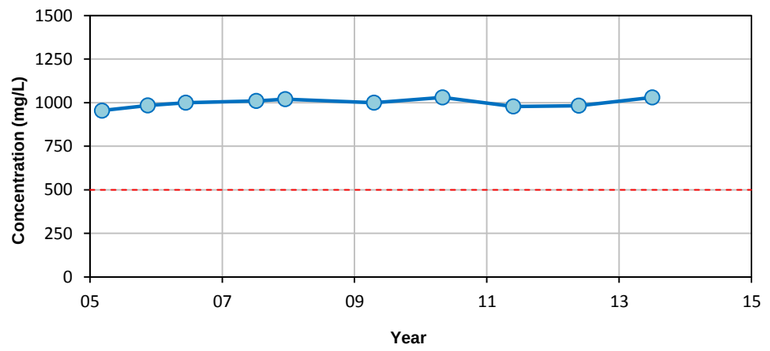
IRON



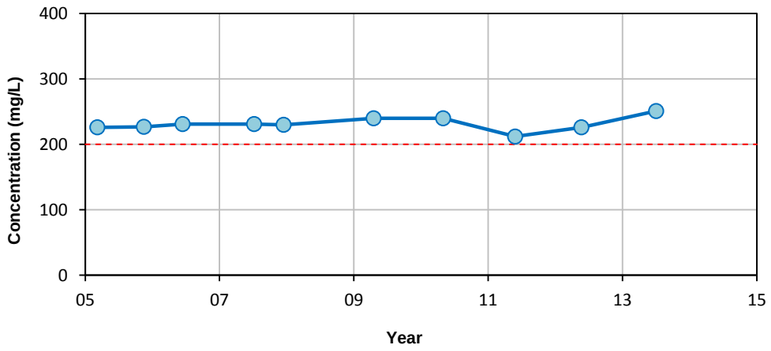
MANGANESE



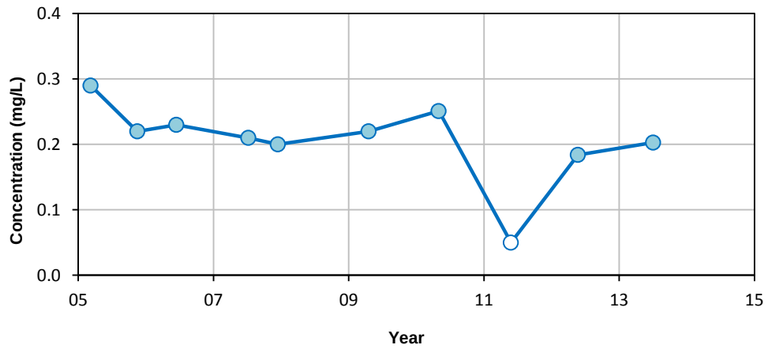
TOTAL DISSOLVED SOLIDS



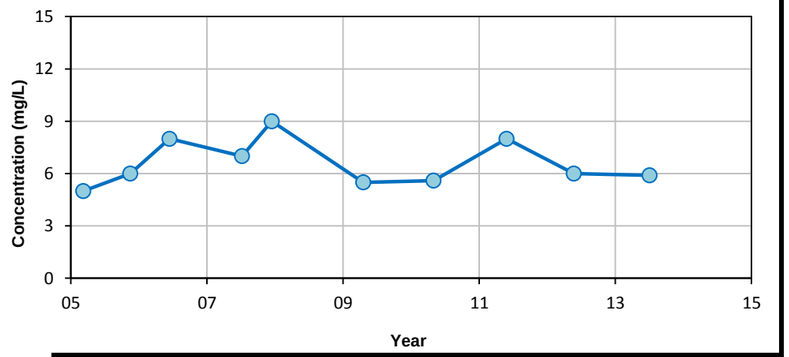
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



Notes:

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  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-09

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

OneWay™ to zero harm

WorleyParsons resources & energy

WorleyParsons Project No.: 307076-06086

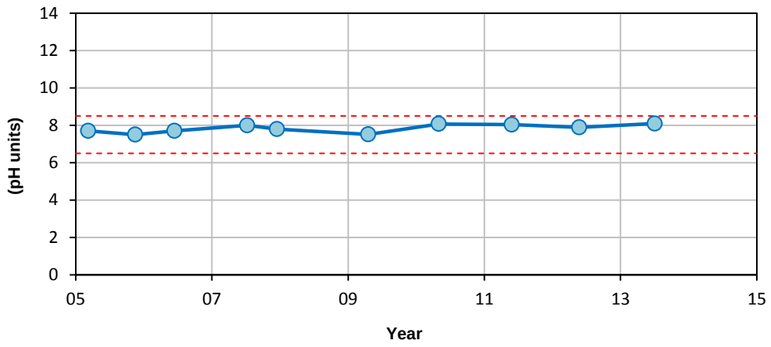
FIG No.: A5-9

REV: A

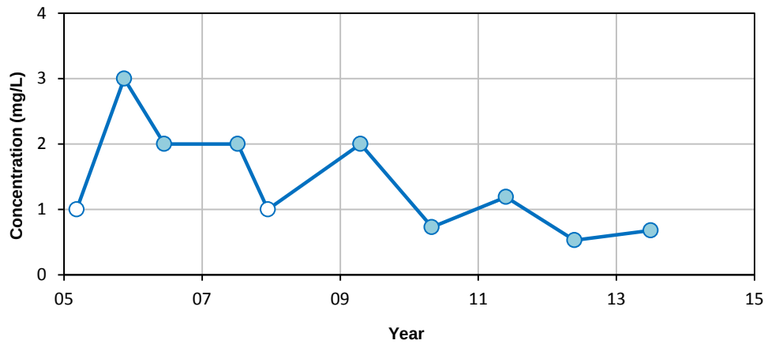
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

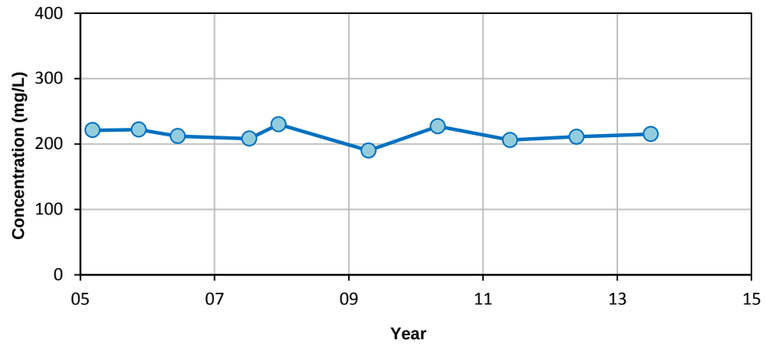
PH



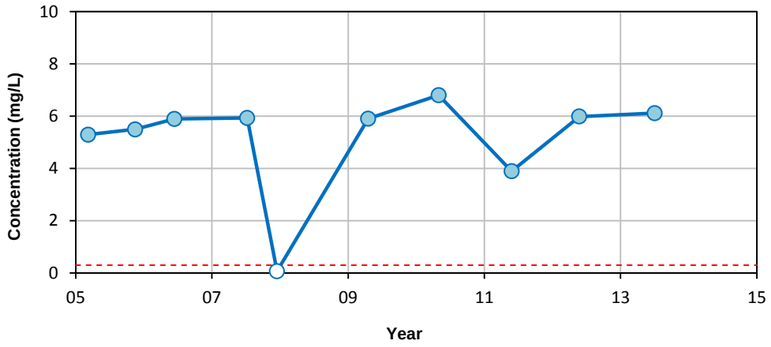
CHLORIDE



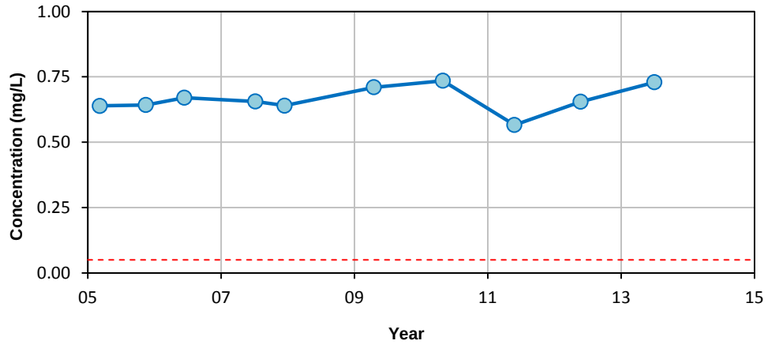
SULPHATE



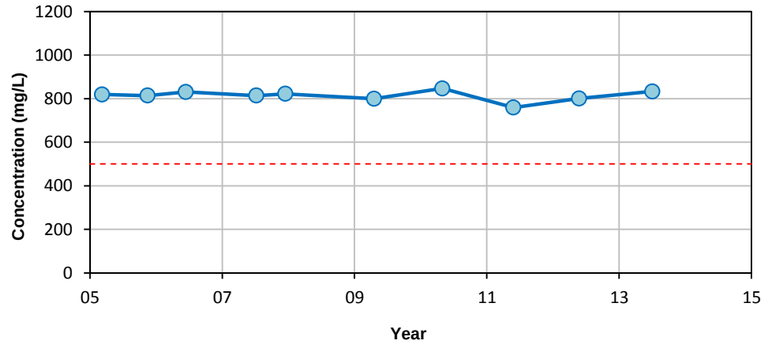
IRON



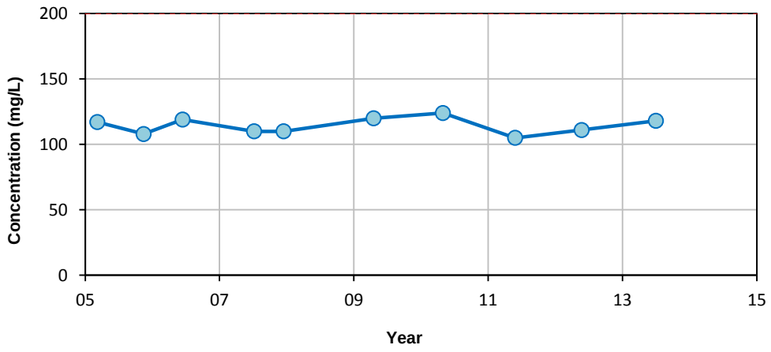
MANGANESE



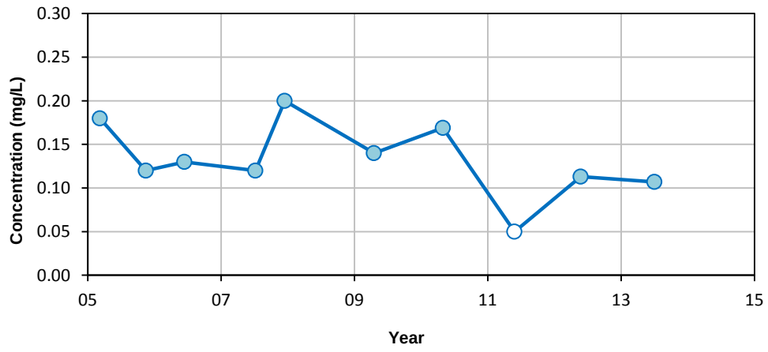
TOTAL DISSOLVED SOLIDS



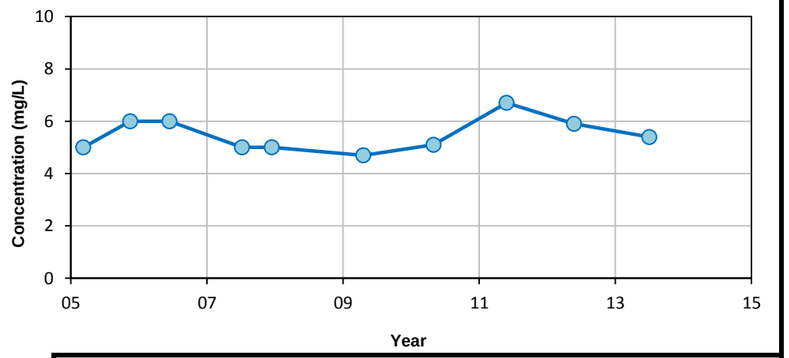
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



Notes:

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  - Sodium: 200 mg/L
  - Chloride: 250 mg/L
  - Manganese: 0.05 mg/L
  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
  - Dissolved Organic Carbon: N/A

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-10

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons Project No.: 307076-06086

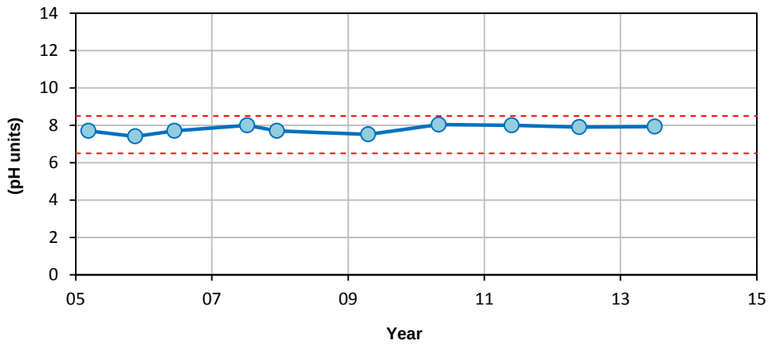
FIG No.: A5-10

REV: A

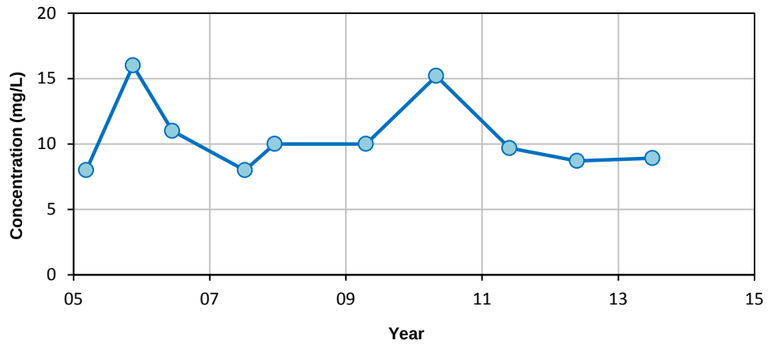
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TREND\CHARTS\WORKING FILES\

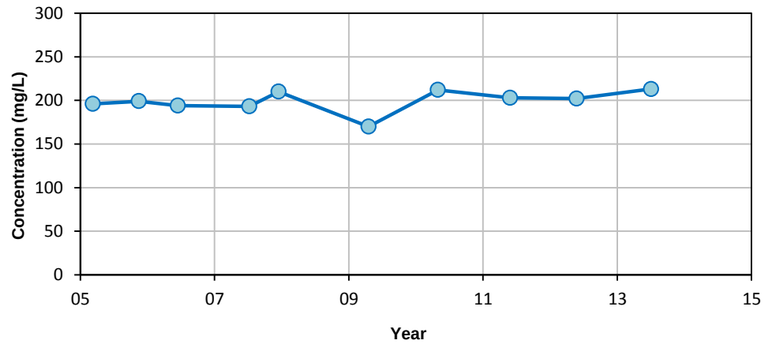
PH



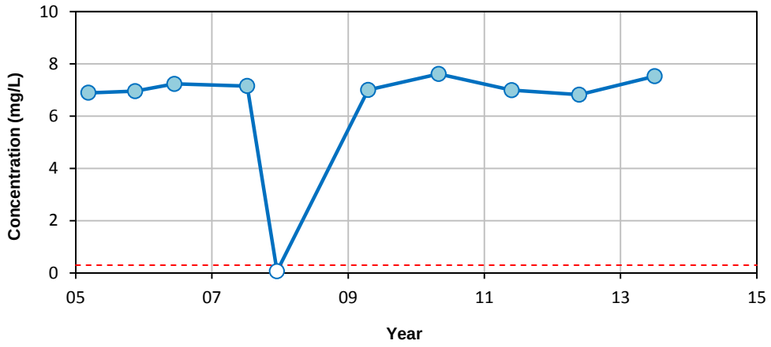
CHLORIDE



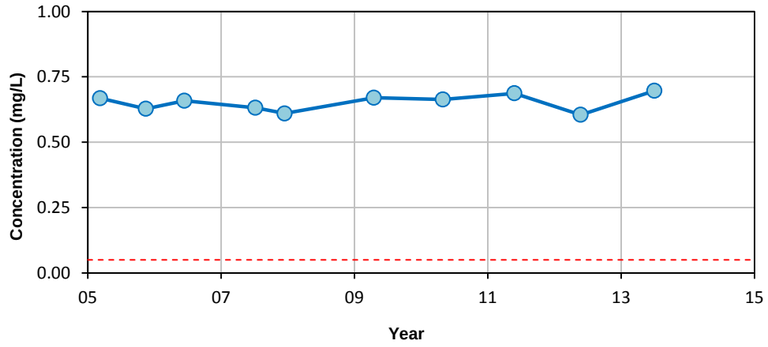
SULPHATE



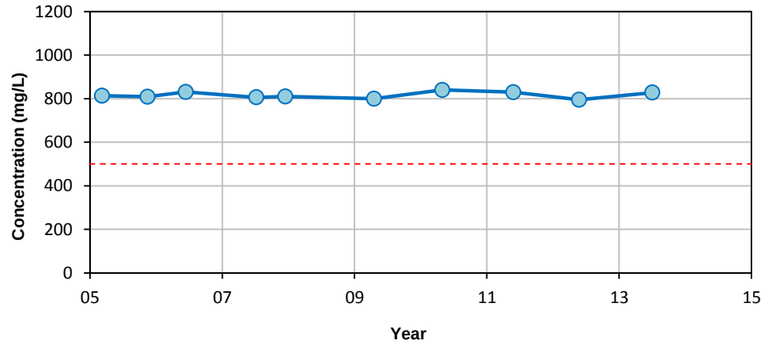
IRON



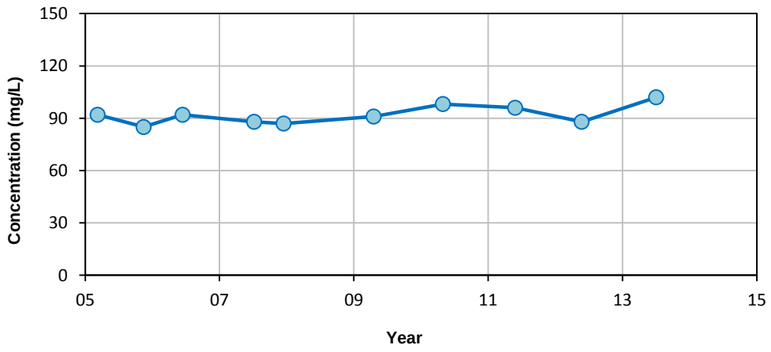
MANGANESE



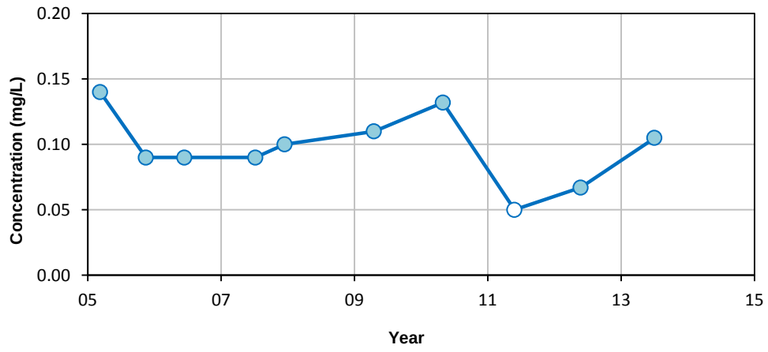
TOTAL DISSOLVED SOLIDS



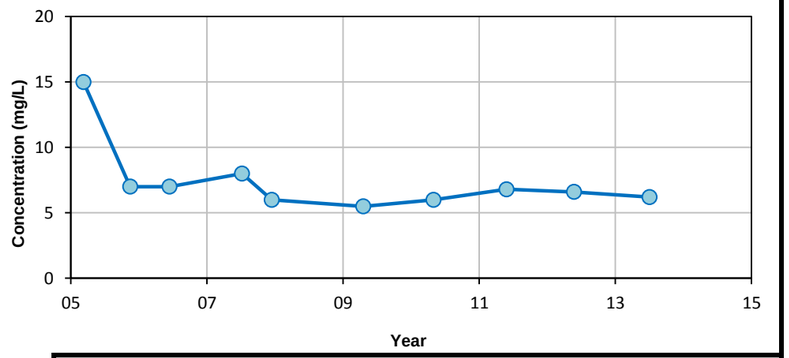
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



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  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
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NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-11

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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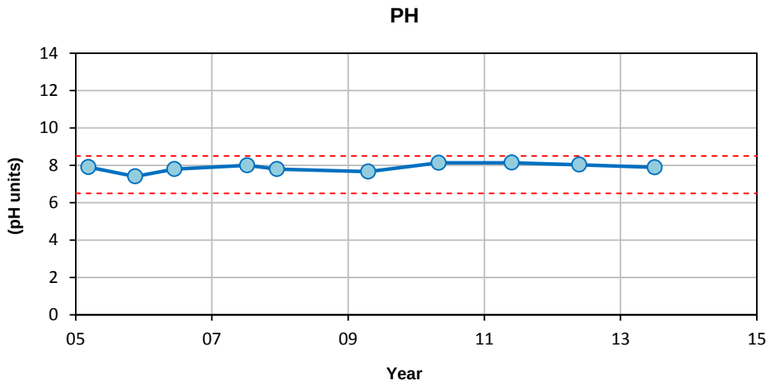
WorleyParsons Project No.: 307076-06086

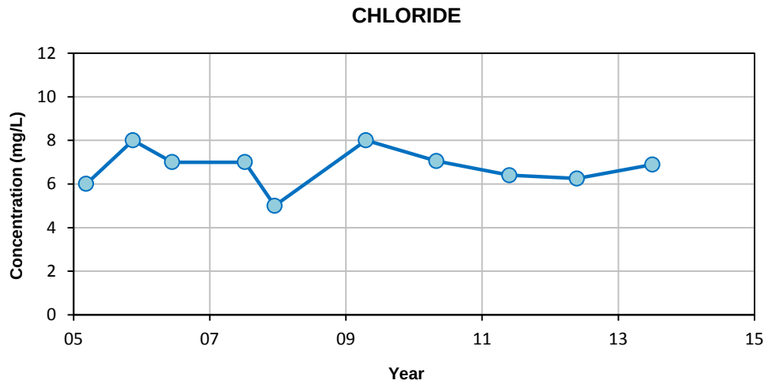
FIG No.: A5-11

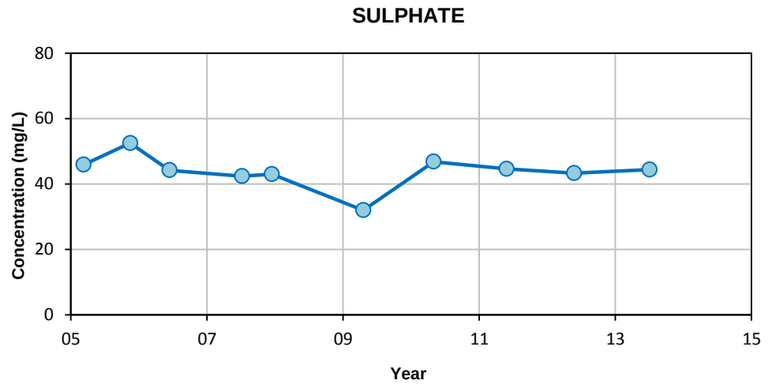
REV: A

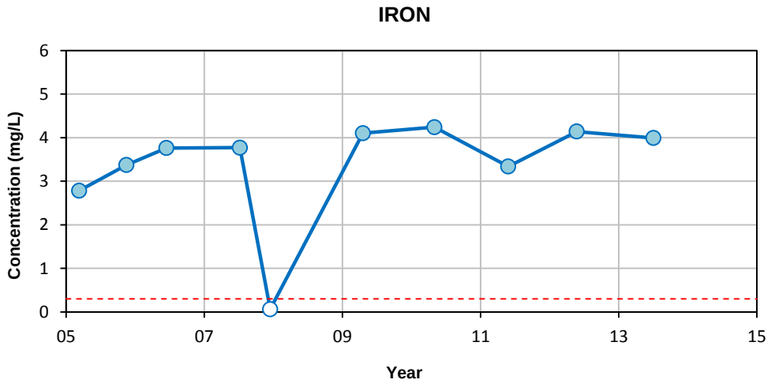
FILE LOCATION: EDMONTON

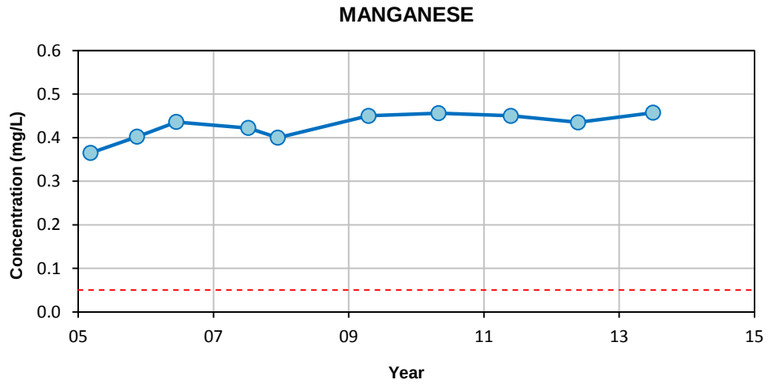
FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

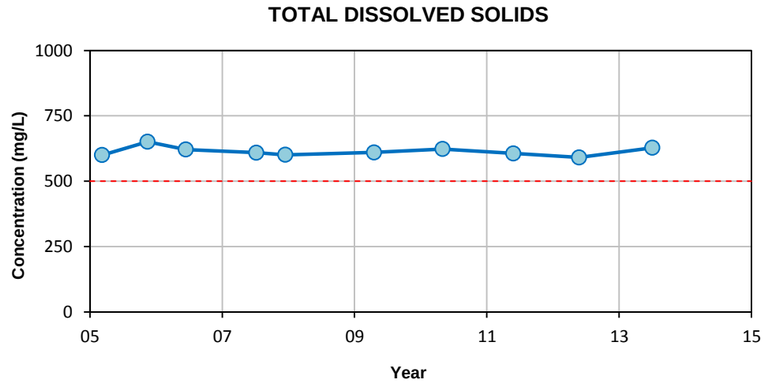


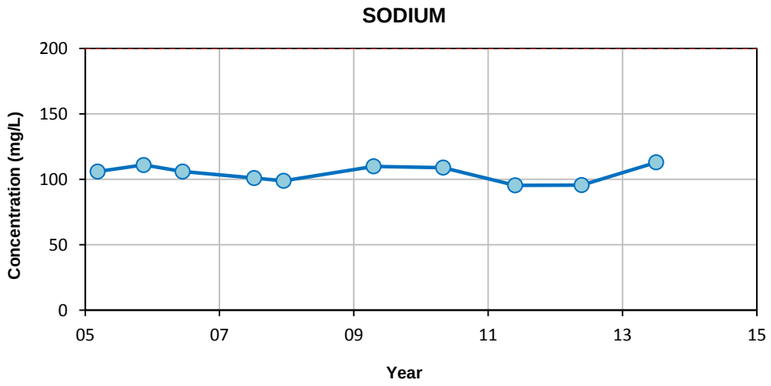


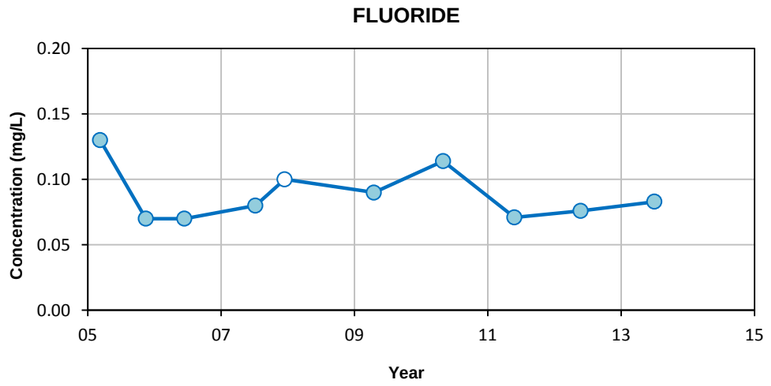


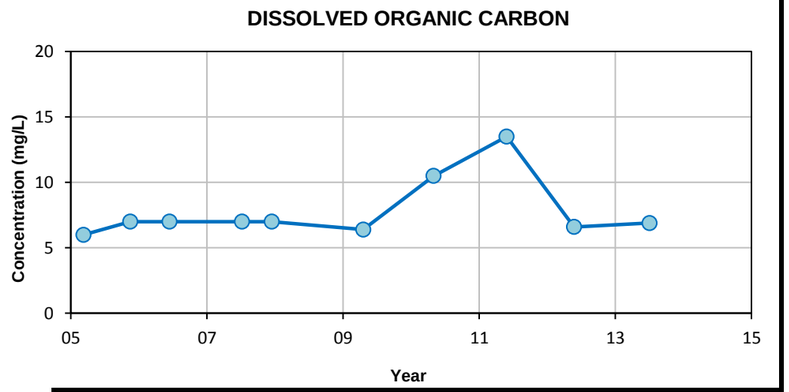












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  - Fluoride: 1.5 mg/L
  - Sulphate: 500 mg/L
  - Total Dissolved Solids: 500 mg/L
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NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-12

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons Project No.: 307076-06086

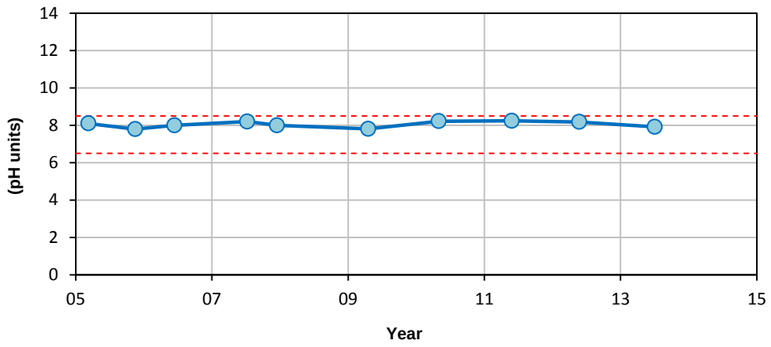
FIG No.: A5-12

REV: A

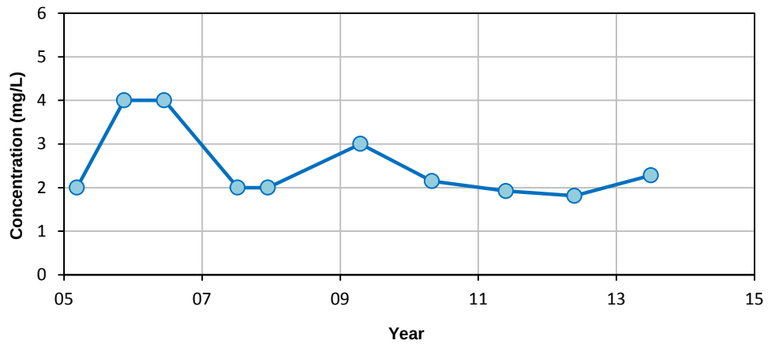
FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TREND\CHARTS\WORKING FILES\

PH



CHLORIDE



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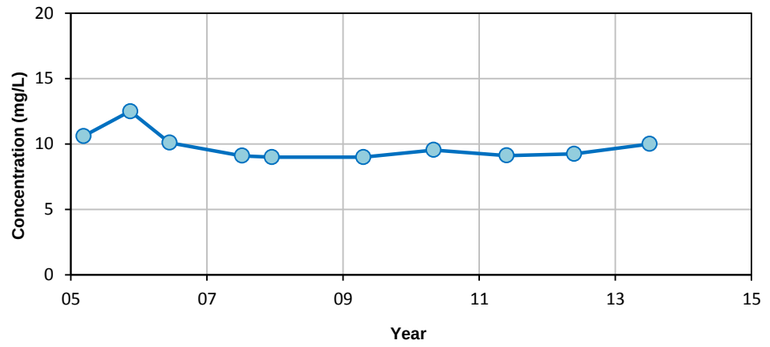
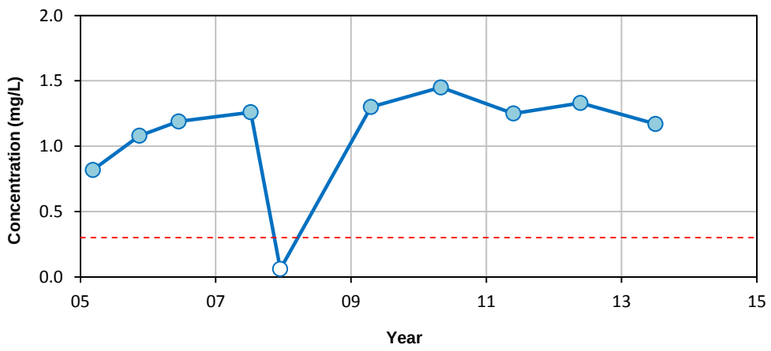
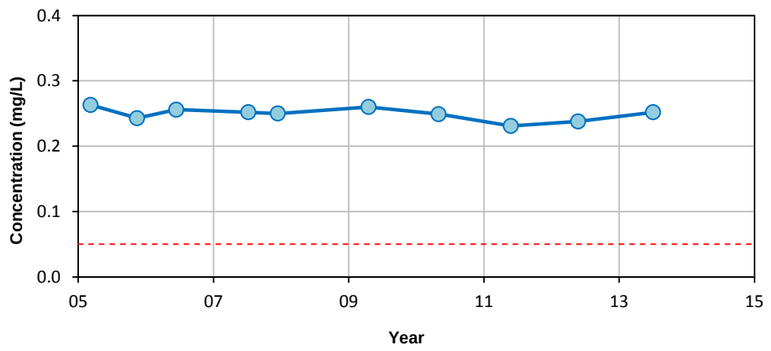


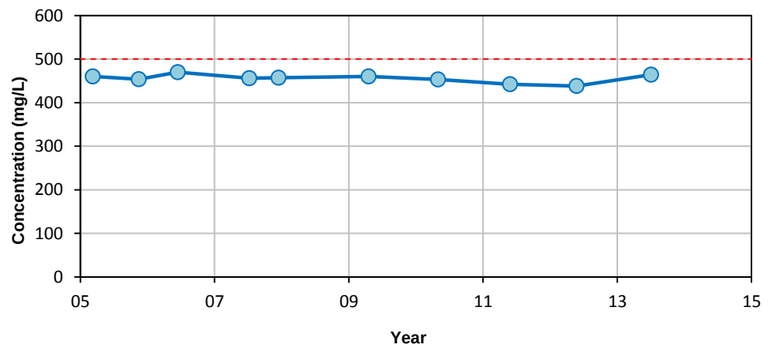
IRON



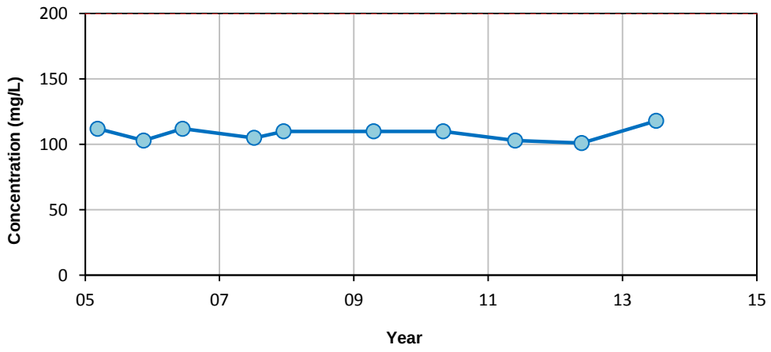
MANGANESE



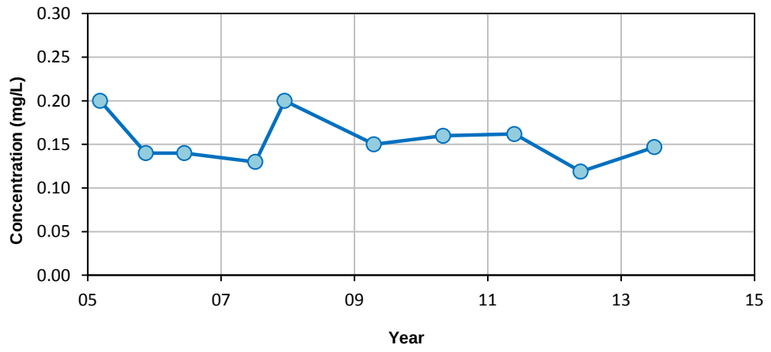
TOTAL DISSOLVED SOLIDS



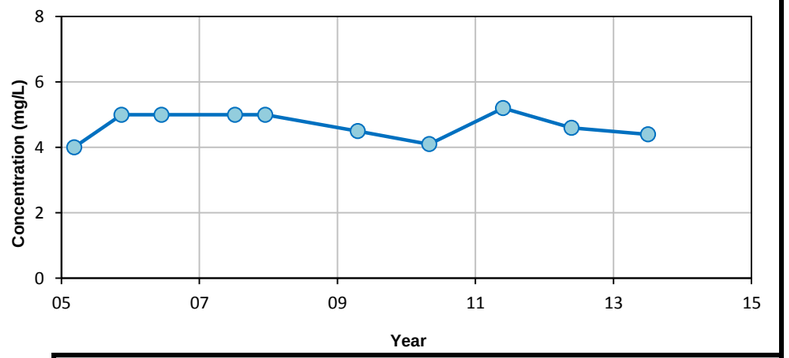
SODIUM



FLUORIDE



DISSOLVED ORGANIC CARBON



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  - Sulphate: 500 mg/L
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NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2013 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

HYDROCHEMICAL CONTROL CHARTS
MW-13

Date:	Drawn by:	Edited by:	App'd by:
18-Aug-13	SG		

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WorleyParsons Project No.: 307076-06086

FIG No.: A5-13

REV: A

FILE LOCATION: EDMONTON

FILE DIRECTORY: U:\EDM\GBS\307076-06086\100-2013_GW_MON\9.0_DATA\9.5 OTHER\TRENDCHARTS\WORKING FILES\

Appendix 6 Statistical Tables

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Appendix 6

Statistical Tables: MW-01

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
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	14.41	15.70	15.30	0.36	10
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	602.34	603.63	602.74	0.36	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	749	741	749	720	720	749	740	14	4
pH	(---)	---	---	---	---	---	---	6.95	7.11	6.88	7.21	6.88	7.21	7.04	0.15	4
Temperature	(°C)	---	---	---	---	---	---	5.6	7.7	7.6	6.8	5.6	7.7	6.9	1.0	4
Select Indicator Parameters																
Calcium	(mg/L)	94.6	94.8	99.7	95.1	87	84	98.6	91.1	93	96.5	84.0	99.7	93.4	4.9	10
Chloride	(mg/L)	4	4	4	3	2	5	3.46	3.02	3.13	3.49	2.00	5.00	3.51	0.81	10
Fluroide	(mg/L)	0.19	0.13	0.14	0.13	0.2	0.14	0.15	0.109	0.106	0.124	0.106	0.200	0.142	0.031	10
Iron	(mg/L)	1.02	1.67	1.81	1.84	<0.06	<0.06	2.02	1.53	1.57	1.82	1.02	2.02	1.66	0.30	10
Magnesium	(mg/L)	24.8	26.9	27.3	26.1	23	24	28.4	25.4	23.7	26.2	23.0	28.4	25.6	1.7	10
Manganese	(mg/L)	0.605	0.662	0.7	0.664	0.67	0.66	0.73	0.675	0.694	0.729	0.605	0.730	0.679	0.037	10
Potassium	(mg/L)	3.1	2.3	2.9	2.3	2.2	2.4	---	2.68	2.7	2.71	2.20	3.10	2.59	0.31	9
Sodium	(mg/L)	40	36	37	33	34	36	38.1	33.3	35	36	33	40	36	2	10
Bicarbonate	(mg/L)	444	451	448	445	470	450	453	446	450	438	438	470	450	8	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	< 5.0	< 5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	< 5.0	< 5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.003	0.003	0.003	N/A	10
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	0.003	0.003	0.003	N/A	10
Sulphate	(mg/L)	57.4	61.1	56.8	54.6	60	44	62	57.1	56.2	52.3	44.0	62.0	56.2	5.2	10
Dissolved Organic Carbon	(mg/L)	3	3	3	3	2	2.3	3	3.4	3.1	3.5	2.0	3.5	2.9	0.5	10
Electrical Conductivity	(µS/cm)	762	760	748	718	770	770	762	768	769	727	718	770	755	19	10
Ion Balance	(%)	100	97.6	103	98.6	87	93	102	94.9	94.7	103	87	103	97	5	10
pH	(---)	7.7	7.9	8	7.8	7.8	7.67	8.06	8.04	8	7.94	7.67	8.06	7.89	0.14	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0030	0.0025	0.0007	10
Total Dissolved Solids	(mg/L)	442	447	448	433	442	410	456	432	435	445	410	456	439	13	10
Total Alkalinity as $CaCO_3$	(mg/L)	364	370	367	365	390	370	371	366	369	359	359	390	369	8	10
Total Hardness as $CaCO_3$	(mg/L)	338	347	361	345	310	310	363	332	330	349	310	363	339	18	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	0.02	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	0.0051	< 0.0050	< 0.0050	0.0051	0.0200	0.0117	0.0076	10
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	0.00080	0.00058	0.00017	10
Arsenic	(mg/L)	0.0008	0.0009	0.0009	0.0009	<0.001	0.0008	0.00095	0.00093	0.00088	0.00098	0.00080	0.00098	0.00089	0.00006	10
Barium	(mg/L)	0.199	0.143	0.134	0.127	0.11	---	0.132	0.147	0.12	0.147	0.110	0.199	0.140	0.025	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	N/A	N/A	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	0.045	0.054	0.050	0.004	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Chromium	(mg/L)	0.0009	<0.0004	0.0027	0.0011	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0009	0.0027	0.0016	0.0010	10
Cobalt	(mg/L)	0.0017	0.0015	0.0008	0.0009	0.0009	0.0008	0.00088	0.00084	0.00068	0.00075	0.00068	0.00170	0.00098	0.00034	10
Copper	(mg/L)	<0.0006	0.0007	<0.0006	<0.0006	<0.0002	0.0005	<0.0010	0.0017	< 0.0010	< 0.0010	0.0005	0.0017	0.0010	0.0006	10
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00040	0.00040	0.00040	N/A	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	< 0.000020	0.000001	0.000001	0.000001	N/A	10
Molybdenum	(mg/L)	0.0007	0.0013	0.0004	0.0009	0.0008	0.0004	0.00046	0.00039	0.000423	0.00036	0.00036	0.00130	0.00061	0.00031	10
Nickel	(mg/L)	0.0004	0.0012	<0.0001	0.003	0.0027	0.0009	0.0025	<0.0020	< 0.0020	< 0.0020	0.0004	0.0030	0.0018	0.0011	10
Selenium	(mg/L)	<0.0004	<0.0004	<0.0004	0.0005	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00050	0.00050	0.00050	N/A	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	0.579	0.551	0.554	0.558	0.53	---	---	---	---	---	0.530	0.579	0.554	0.018	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	< 0.000050	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00080	0.00130	0.00102	0.00020	10
Uranium	(mg/L)	0.0026	0.0023	0.0022	0.0022	0.0024	0.0021	0.00209	0.00205	0.00194	0.00223	0.00194	0.00260	0.00221	0.00019	10
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	0.00030	0.00019	0.00010	10
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	0.007	0.005	0.002	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00075	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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Appendix 6

Statistical Tables: MW-02

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	27.14	27.23	27.05	27.18	26.99	27.13	27.20	26.26	27.16	27.05	26.26	27.23	27.04	0.28	10
Groundwater Surface Elevation	(m asl)	604.17	604.08	604.26	604.13	604.32	604.18	604.11	605.05	604.15	604.26	604.08	605.05	604.27	0.28	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,306	1,397	1023	1161	1023	1397	1222	164	4
pH	(---)	---	---	---	---	---	---	7.04	7.02	7.49	7.1	7.02	7.49	7.16	0.22	4
Temperature	(°C)	---	---	---	---	---	---	4.8	8.3	7.3	10.9	4.8	10.9	7.8	2.5	4
Select Indicator Parameters																
Calcium	(mg/L)	113	125	162	154	140	130	147	141	135	172	113.0	172.0	141.9	17.6	10
Chloride	(mg/L)	13	38	23	12	13	18	11.6	22.3	29.6	24.2	11.60	38.00	20.47	8.71	10
Fluroide	(mg/L)	0.21	0.11	0.09	0.09	0.1	0.08	0.094	<0.050	0.061	0.08	0.061	0.210	0.102	0.043	10
Iron	(mg/L)	0.275	0.085	3.19	8.72	<0.06	1.5	9.35	9.25	8.07	12.3	0.09	12.30	5.86	4.59	10
Magnesium	(mg/L)	34.5	51.3	55.4	54.4	46	44	54	51.3	44.8	56.4	34.5	56.4	49.2	6.8	10
Manganese	(mg/L)	0.236	0.671	1.09	0.841	0.7	0.53	0.505	0.434	0.431	0.554	0.236	1.090	0.599	0.240	10
Potassium	(mg/L)	6.8	7.2	5.5	4.3	4.5	4.4	---	4.25	5.81	5.25	4.25	7.20	5.33	1.10	9
Sodium	(mg/L)	111	120	95	83	83	81	87.2	97.9	82.9	161	81	161	100	25	10
Bicarbonate	(mg/L)	514	575	629	630	660	610	597	628	605	588	514	660	604	40	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.005	0.100	0.053	0.067	10
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	0.005	0.100	0.053	0.067	10
Sulphate	(mg/L)	227	270	274	263	290	230	268	318	321	194	194.0	321.0	265.5	40.0	10
Dissolved Organic Carbon	(mg/L)	8	6	5	6	5	4.1	5.4	11.3	4.9	5.4	4.1	11.3	6.1	2.1	10
Electrical Conductivity	(µS/cm)	1210	1400	1420	1360	1400	1400	1290	1,500	1,350	1,220	1210	1500	1355	91	10
Ion Balance	(%)	101	98.4	102	98.7	0.84	89	100	89.1	91	142	1	142	91	35	10
pH	(---)	7.7	7.9	7.9	7.9	7.4	7.36	7.97	7.9	7.8	7.69	7.36	7.97	7.75	0.22	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	0.002	0.002	0.002	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0020	0.0020	0.0000	10
Total Dissolved Solids	(mg/L)	759	894	925	880	895	810	866	944	826	805	759	944	860	59	10
Total Alkalinity as $CaCO_3$	(mg/L)	422	471	516	516	540	500	489	515	496	482	422	540	495	32	10
Total Hardness as $CaCO_3$	(mg/L)	424	523	633	609	530	500	589	563	522	662	424	662	556	70	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	0.02	0.03	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0106	<0.0050	0.0106	0.0300	0.0202	0.0097	10
Antimony	(mg/L)	0.001	0.0006	0.0007	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00050	0.00100	0.00070	0.00022	10
Arsenic	(mg/L)	0.0025	0.0014	0.0024	0.0036	0.003	0.0038	0.00369	0.00327	0.00312	0.0034	0.00140	0.00380	0.00302	0.00074	10
Barium	(mg/L)	0.204	0.152	0.107	0.0749	0.04	---	0.0544	0.042	0.0586	0.085	0.040	0.204	0.091	0.055	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	<0.0001	0.00005	<0.00005	---	---	---	---	---	---	0.00005	0.00005	0.00005	N/A	4
Boron	(mg/L)	0.12	0.189	0.152	0.136	0.13	---	0.144	0.135	0.133	0.2	0.120	0.200	0.149	0.028	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Chromium	(mg/L)	0.0013	<0.0004	0.004	<0.0004	0.004	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0013	0.0040	0.0031	0.0016	10
Cobalt	(mg/L)	0.0008	0.0031	0.0031	0.0032	0.0026	0.0017	0.00157	0.001	0.00103	0.00072	0.00072	0.00320	0.00188	0.00102	10
Copper	(mg/L)	0.0015	0.0021	0.0011	0.0007	0.0005	0.0002	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0002	0.0021	0.0010	0.0007	10
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0003	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00030	0.00040	0.00035	0.00007	10
Mercury	(mg/L)	0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	< 0.000020	0.000001	0.000100	0.000051	0.000070	10
Molybdenum	(mg/L)	0.0046	0.0148	0.0009	0.0008	0.0006	0.0005	0.00041	0.0004	0.000615	0.000324	0.00032	0.01480	0.00239	0.00454	10
Nickel	(mg/L)	<0.0001	0.0644	0.0012	0.0055	0.0046	0.0019	0.0043	<0.0020	0.0027	<0.0020	0.0012	0.0644	0.0121	0.0231	10
Selenium	(mg/L)	0.0008	0.0006	0.0005	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00050	0.00080	0.00063	0.00015	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	1.03	1.54	1.46	1.46	1.3	---	---	---	---	---	1.030	1.540	1.358	0.203	5
Thallium	(mg/L)	<0.0005	0.00006	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	< 0.000050	0.000060	0.000060	0.000060	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	N/A	N/A	6
Titanium	(mg/L)	0.0012	0.0015	0.0012	0.0011	0.002	<0.001	0.00104	<0.00030	< 0.00030	< 0.00030	0.00104	0.00200	0.00134	0.00036	10
Uranium	(mg/L)	0.0032	0.0053	0.0023	0.0019	0.0014	0.0014	0.00139	0.00114	0.00123	0.00102	0.00102	0.00530	0.00203	0.00133	10
Vanadium	(mg/L)	0.0017	0.0005	<0.0001	<0.0001	0.002	<0.001	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00050	0.00200	0.00140	0.00079	10
Zinc	(mg/L)	0.004	<0.002	0.1012	<0.002	<0.003	<0.003	0.0044	0.0025	0.0031	<0.003	0.003	0.101	0.023	0.044	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00075	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	0.31	0.31	0.31	0.31	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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Appendix 6
Statistical Tables: MW-03

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
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	22.24	23.47	22.68	0.42	10
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	600.96	602.19	601.75	0.42	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	974	976	958	966	958	976	969	8	4
pH	(---)	---	---	---	---	---	---	7.14	7.08	7.72	7.14	7.08	7.72	7.27	0.30	4
Temperature	(°C)	---	---	---	---	---	---	6.6	8.9	8.3	8.4	6.6	8.9	8.1	1.0	4
Select Indicator Parameters																
Calcium	(mg/L)	106	104	109	108	98	92	104	115	102	109	92.0	115.0	104.7	6.4	10
Chloride	(mg/L)	31	35	35	36	35	35	44.3	44.2	45.9	48.3	31.00	48.30	38.97	6.02	10
Fluroide	(mg/L)	0.14	0.1	0.1	0.11	0.1	0.11	0.117	0.105	0.08	0.105	0.080	0.140	0.107	0.015	10
Iron	(mg/L)	3.19	4.47	4.85	4.89	<0.06	<0.06	5.23	5.55	4.83	5.36	3.19	5.55	4.80	0.73	10
Magnesium	(mg/L)	36.1	36.4	36.6	37.7	32	32	36.8	40.1	31.8	38.3	31.8	40.1	35.8	2.9	10
Manganese	(mg/L)	0.264	0.239	0.258	0.249	0.25	0.24	0.253	0.277	0.246	0.274	0.239	0.277	0.255	0.013	10
Potassium	(mg/L)	3.5	3	3	3	2.7	2.8	---	3.2	3.05	3.2	2.70	3.50	3.05	0.23	9
Sodium	(mg/L)	56	54	52	55	49	51	52.3	52.7	48.8	57.9	49	58	53	3	10
Bicarbonate	(mg/L)	442	445	439	440	460	430	435	433	434	427	427	460	439	9	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.009	0.009	0.009	N/A	10
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	0.009	0.009	0.009	N/A	10
Sulphate	(mg/L)	113	122	116	122	130	98	124	120	115	119	98.0	130.0	117.9	8.5	10
Dissolved Organic Carbon	(mg/L)	5	4	3	3	3	2.5	5.3	3.3	3.4	3	2.5	5.3	3.6	0.9	10
Electrical Conductivity	(µS/cm)	937	949	943	930	960	950	967	1,000	988	963	930	1000	959	22	10
Ion Balance	(%)	103	98.1	102	102	0.87	95	96.4	105	91.7	103	1	105	90	31	10
pH	(---)	7.4	7.8	8	8	7.7	7.57	8.03	7.98	7.83	7.81	7.40	8.03	7.81	0.21	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0030	0.0025	0.0007	10
Total Dissolved Solids	(mg/L)	563	573	568	578	571	520	579	588	560	608	520	608	571	23	10
Total Alkalinity as $CaCO_3$	(mg/L)	362	365	360	361	380	350	357	355	355	350	350	380	360	9	10
Total Hardness as $CaCO_3$	(mg/L)	413	410	423	425	370	360	411	452	386	430	360	452	408	28	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0100	0.0100	0.0100	N/A	10
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	0.00070	0.00058	0.00013	10
Arsenic	(mg/L)	0.0012	0.0014	0.0013	0.0014	<0.001	0.0013	0.00154	0.00141	0.00132	0.00147	0.00120	0.00154	0.00137	0.00010	10
Barium	(mg/L)	0.0744	0.0418	0.0411	0.0379	0.03	---	0.038	0.0389	0.035	0.0431	0.030	0.074	0.042	0.013	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.00045	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00009	<0.00005	<0.00005	---	---	---	---	---	---	0.00009	0.00009	0.00009	N/A	4
Boron	(mg/L)	0.128	0.119	0.109	0.115	0.11	---	0.116	0.103	0.088	0.098	0.088	0.128	0.110	0.012	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Chromium	(mg/L)	0.0009	<0.0004	0.0029	0.0012	0.002	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0009	0.0029	0.0018	0.0009	10
Cobalt	(mg/L)	0.0012	0.0008	0.0008	0.0008	0.0008	0.0006	0.00076	0.00061	0.00062	0.00073	0.00060	0.00120	0.00077	0.00017	10
Copper	(mg/L)	<0.0006	0.0008	0.0007	<0.0006	0.0002	0.0007	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0002	0.0008	0.0006	0.0003	10
Lead	(mg/L)	<0.0001	<0.0001	<0.0001	0.0005	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00020	0.00050	0.00035	0.00021	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	0.00009	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	< 0.000020	0.000001	0.000090	0.000046	0.000063	10
Molybdenum	(mg/L)	0.0008	0.0015	0.0007	0.0029	0.0012	0.0007	0.00079	0.00056	0.000535	0.000682	0.00054	0.00290	0.00104	0.00072	10
Nickel	(mg/L)	<0.0001	0.0003	<0.0001	<0.00001	0.0042	0.001	0.0027	<0.0020	< 0.0020	< 0.0020	0.0003	0.0042	0.0021	0.0018	10
Selenium	(mg/L)	<0.0004	0.0005	0.0005	<0.0002	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00050	0.00050	0.00050	0.00000	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	0.811	0.828	0.845	0.001	0.82	---	---	---	---	---	0.001	0.845	0.661	0.369	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	0.0007	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	< 0.000050	0.000700	0.000700	0.000700	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	0.882	<0.001	<0.001	---	---	---	---	0.882	0.882	0.882	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	0.00079	0.00200	0.00134	0.00057	10
Uranium	(mg/L)	0.0007	0.0007	0.0007	0.0002	0.0006	0.0006	0.00056	0.00058	0.00051	0.00064	0.00020	0.00070	0.00058	0.00015	10
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.001	0.001	<0.001	0.00036	<0.00010	< 0.00010	< 0.00010	0.00036	0.00100	0.00068	0.00045	10
Zinc	(mg/L)	0.003	<0.002	0.01	<0.002	<0.003	<0.003	<0.0020	<0.0020	< 0.0030	< 0.0030	0.003	0.010	0.007	0.005	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00075	0.00050	0.00050	0.00050	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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Appendix 6
Statistical Tables: MW-04

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	18.59	18.57	18.59	18.55	18.52	18.66	18.87	18.70	18.78	18.54	18.52	18.87	18.64	0.11	10
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	601.92	602.27	602.15	0.11	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1213	1230	1420	1216	1213	1420	1270	100	4
pH	(---)	---	---	---	---	---	---	7.14	7.12	7.14	7.1	7.10	7.14	7.13	0.02	4
Temperature	(°C)	---	---	---	---	---	---	8.2	8.1	7.8	8.3	7.8	8.3	8.1	0.2	4
Select Indicator Parameters																
Calcium	(mg/L)	142	147	147	154	140	140	152	140	141	154	140.0	154.0	145.7	5.9	10
Chloride	(mg/L)	137	157	155	190	200	150	131	125	126	129	125.00	200.00	150.00	26.55	10
Fluroide	(mg/L)	0.15	0.12	0.13	0.14	0.1	0.14	0.129	0.119	0.089	0.082	0.082	0.150	0.120	0.023	10
Iron	(mg/L)	0.173	0.104	0.005	<0.005	<0.06	<0.06	0.078	0.028	1.47	1.7	0.01	1.70	0.51	0.74	10
Magnesium	(mg/L)	37.7	40	42.7	43.6	35	37	44	41.3	38.1	44	35.0	44.0	40.3	3.3	10
Manganese	(mg/L)	0.152	0.053	0.13	0.009	0.016	0.03	0.258	0.114	0.722	0.561	0.009	0.722	0.205	0.245	10
Potassium	(mg/L)	9.9	9.5	10.2	10.4	10	9.4	---	8.78	8.93	10.8	8.78	10.80	9.77	0.67	9
Sodium	(mg/L)	57	59	57	68	71	63	63.4	50.7	50.9	55.8	51	71	60	7	10
Bicarbonate	(mg/L)	458	449	455	449	460	450	470	482	500	493	449	500	467	19	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.090	1.200	0.544	0.340	10
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	0.090	1.200	0.544	0.340	10
Sulphate	(mg/L)	81.4	87	86.2	84.5	82	74	92.1	88.9	88.2	87.8	74.0	92.1	85.2	5.1	10
Dissolved Organic Carbon	(mg/L)	1	5	4	3	3	2.8	3	3	3.2	3.3	1.0	5.0	3.1	1.0	10
Electrical Conductivity	(µS/cm)	1200	1280	1280	1360	1400	1200	1220	1280	1280	1230	1200	1400	1273	66	10
Ion Balance	(%)	98.5	98.2	99.4	99.9	0.9	99	107	96.3	92.8	103	1	107	90	31	10
pH	(---)	7.5	7.8	7.7	7.9	7.7	7.62	8.01	7.95	7.88	7.76	7.50	8.01	7.78	0.16	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0020	0.0020	N/A	10
Total Dissolved Solids	(mg/L)	694	726	724	774	763	690	724	693	699	761	690	774	725	32	10
Total Alkalinity as $CaCO_3$	(mg/L)	375	368	373	368	380	370	385	395	409	404	368	409	383	15	10
Total Hardness as $CaCO_3$	(mg/L)	510	532	543	564	500	500	561	520	509	566	500	566	531	27	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0135	<0.0050	0.0135	0.0135	0.0135	N/A	10
Antimony	(mg/L)	0.0009	0.0007	0.0008	<0.0004	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00070	0.00090	0.00080	0.00010	10
Arsenic	(mg/L)	0.0011	0.0006	0.0006	0.0008	<0.001	<0.0002	0.00117	<0.00040	0.00054	0.00065	0.00054	0.00117	0.00078	0.00026	10
Barium	(mg/L)	0.0737	0.0809	0.764	0.085	0.08	---	0.0843	0.0832	0.0954	0.103	0.074	0.764	0.161	0.226	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00007	<0.00005	<0.00005	---	---	---	---	---	---	0.00007	0.00007	0.00007	N/A	4
Boron	(mg/L)	0.101	0.093	0.092	0.1	0.09	---	0.098	0.09	0.086	0.091	0.086	0.101	0.093	0.005	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000024	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00002	0.00002	0.00002	N/A	10
Chromium	(mg/L)	0.0018	0.0007	0.0017	0.0047	0.001	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0007	0.0047	0.0020	0.0016	10
Cobalt	(mg/L)	0.0007	0.0049	<0.0001	0.0001	<0.0003	<0.0003	0.00054	0.00015	0.00088	0.00058	0.00010	0.00490	0.00112	0.00169	10
Copper	(mg/L)	0.0008	0.0012	0.0009	<0.0006	0.0006	0.0009	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0006	0.0012	0.0009	0.0002	10
Lead	(mg/L)	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00020	0.00020	0.00020	0.00000	10
Mercury	(mg/L)	<0.0001	0.0002	<0.0001	0.0002	<0.00005	0.000003	<0.00010	<0.000020	< 0.000020	< 0.000020	0.000003	0.000200	0.000134	0.000114	10
Molybdenum	(mg/L)	0.0005	0.003	0.0005	0.0005	0.0006	0.0004	0.00038	0.00038	0.000398	0.000359	0.00036	0.00300	0.00070	0.00081	10
Nickel	(mg/L)	<0.0001	0.014	0.0007	0.0042	0.0052	0.0021	0.0047	<0.0020	0.0024	<0.0020	0.0007	0.0140	0.0048	0.0044	10
Selenium	(mg/L)	0.0006	0.0009	0.001	0.0006	<0.001	<0.0002	0.00106	<0.00040	< 0.00040	< 0.00040	0.00060	0.00106	0.00083	0.00022	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	0.561	0.616	0.585	0.59	0.61	---	---	---	---	---	0.561	0.616	0.592	0.022	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	0.00024	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	< 0.000050	0.000240	0.000240	0.000240	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00200	0.00071	0.00065	10
Uranium	(mg/L)	0.0029	0.0025	0.0028	0.0027	0.0023	0.0029	0.00284	0.00333	0.00396	0.00392	0.00230	0.00396	0.00302	0.00056	10
Vanadium	(mg/L)	<0.0001	<0.0001	0.0022	0.0009	<0.001	<0.001	0.00072	<0.00010	< 0.00010	< 0.00010	0.00072	0.00220	0.00127	0.00081	10
Zinc	(mg/L)	0.004	0.029	0.005	0.005	<0.003	<0.003	<0.0020	<0.0020	< 0.0030	< 0.0030	0.004	0.029	0.011	0.012	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	0.00117	0.00117	0.00117	0.00117	0.00117	0.00000	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	0.00286	0.00286	0.00286	0.00286	0.00286	0.00000	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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Appendix 6
Statistical Tables: MW-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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	25.32	26.77	25.7	25.52	25.34	25.61	25.92	25.58	25.71	25.06	25.06	26.77	25.65	0.46	10
Groundwater Surface Elevation	(m asl)	599.57	598.12	599.19	599.37	599.55	599.28	598.97	599.31	599.18	599.83	598.12	599.83	599.24	0.46	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	985	1,070	982	987	982	1070	1006	43	4
pH	(---)	---	---	---	---	---	---	7.08	7.06	7.28	7.34	7.06	7.34	7.19	0.14	4
Temperature	(°C)	---	---	---	---	---	---	7.6	8.3	9.7	7.1	7.1	9.7	8.2	1.1	4
Select Indicator Parameters																
Calcium	(mg/L)	96.2	98.6	107	110	100	120	120	105	112	118	96.2	120.0	108.7	8.9	10
Chloride	(mg/L)	15	21	22	25	22	30	30.6	30.9	33.7	36.3	15.00	36.30	26.65	6.68	10
Fluroide	(mg/L)	0.18	0.11	0.11	0.11	0.1	0.12	0.107	0.075	0.061	0.092	0.061	0.180	0.107	0.032	10
Iron	(mg/L)	1.14	3.31	3.48	4	<0.06	<0.06	3.39	3.82	3.83	3.17	1.14	4.00	3.27	0.91	10
Magnesium	(mg/L)	27.5	30.1	33.5	34.3	30	34	36.7	32.7	31.3	33.5	27.5	36.7	32.4	2.7	10
Manganese	(mg/L)	0.402	0.531	0.583	0.682	0.66	0.72	0.758	0.657	0.707	0.754	0.402	0.758	0.645	0.111	10
Potassium	(mg/L)	6.1	6.9	7.6	7.3	7.4	7.6	---	7.29	8	8.61	6.10	8.61	7.42	0.69	9
Sodium	(mg/L)	51	43	44	42	41	43	46.1	41.7	42.6	42.9	41	51	44	3	10
Bicarbonate	(mg/L)	403	422	421	426	440	420	428	433	442	448	403	448	428	13	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.007	0.007	0.007	N/A	10
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	0.007	0.007	0.007	N/A	10
Sulphate	(mg/L)	105	115	124	135	150	130	144	141	138	139	105.0	150.0	132.1	13.9	10
Dissolved Organic Carbon	(mg/L)	5	4	4	4	3	2.5	3.3	4.4	6.9	4.1	2.5	6.9	4.1	1.2	10
Electrical Conductivity	(µS/cm)	831	881	902	931	930	960	969	990	1000	998	831	1000	939	55	10
Ion Balance	(%)	103	95.4	101	98.5	0.88	100	103	91.1	92.3	95.3	1	103	88	31	10
pH	(---)	7.6	7.9	7.7	8.1	7.6	7.58	7.95	8.05	7.93	7.83	7.58	8.10	7.82	0.19	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	0.002	<0.001	0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0030	0.0025	0.0007	10
Total Dissolved Solids	(mg/L)	499	522	545	563	566	570	596	572	583	614	499	614	563	34	10
Total Alkalinity as $CaCO_3$	(mg/L)	330	346	345	349	360	350	351	355	362	367	330	367	352	10	10
Total Hardness as $CaCO_3$	(mg/L)	353	370	405	416	380	430	451	397	409	433	353	451	404	30	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	N/A	N/A	N/A	N/A	10
Antimony	(mg/L)	0.0008	0.0005	0.0007	0.0005	<0.0002	<0.0002	0.00052	<0.00040	< 0.00040	< 0.00040	0.00050	0.00080	0.00060	0.00014	10
Arsenic	(mg/L)	0.0035	0.0081	0.0051	0.0018	0.001	0.0014	0.0017	0.00159	0.00107	0.00136	0.00100	0.00810	0.00266	0.00230	10
Barium	(mg/L)	0.0618	0.0564	0.454	0.0455	0.04	---	0.0478	0.0552	0.0455	0.0547	0.040	0.454	0.096	0.135	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	---	0.00006	0.00006	0.00006	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	0.140	0.077	0.034	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Chromium	(mg/L)	0.0009	<0.0004	0.0016	0.0005	0.003	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0005	0.0030	0.0015	0.0011	10
Cobalt	(mg/L)	0.0008	0.001	0.0007	0.0008	0.0007	0.0007	0.00082	0.00075	0.00067	0.00082	0.00067	0.00100	0.00078	0.00010	10
Copper	(mg/L)	<0.0006	0.0007	0.0006	0.0009	<0.0002	0.0008	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0006	0.0009	0.0008	0.0001	10
Lead	(mg/L)	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00020	0.00020	0.00020	0.00000	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	< 0.000020	0.000001	0.000001	0.000001	N/A	10
Molybdenum	(mg/L)	0.0022	0.0029	0.0013	0.0006	0.0005	0.0006	0.00063	0.00042	0.000321	0.000414	0.00032	0.00290	0.00099	0.00088	10
Nickel	(mg/L)	<0.0001	0.0022	0.0002	0.0034	0.0029	0.0014	0.0039	<0.0020	< 0.0020	< 0.0020	0.0002	0.0039	0.0023	0.0014	10
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	0.00086	0.00054	0.00022	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	0.71	0.667	0.659	0.684	0.63	---	---	---	---	---	0.630	0.710	0.670	0.030	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	< 0.000050	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00050	0.00200	0.00095	0.00054	10
Uranium	(mg/L)	0.0014	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.00066	0.00063	0.0006	0.00060	0.00140	0.00076	0.00023	10
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	0.00100	0.00045	0.00041	10
Zinc	(mg/L)	0.003	<0.002	0.004	0.005	<0.003	<0.003	0.0025	<0.0020	< 0.0030	0.0049	0.003	0.005	0.004	0.001	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00050	0.00050	0.00050	0.00050	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.
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).

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Appendix 6
Statistical Tables: MW-06

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	32.17	32.17	32.76	32.13	31.97	31.99	32.24	32.10	32.08	32.06	31.97	32.76	32.17	0.22	10
Groundwater Surface Elevation	(m asl)	598.11	598.11	597.52	598.15	598.31	598.29	598.04	598.18	598.20	598.22	597.52	598.31	598.11	0.22	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,773	1,762	1699	1683	1683	1773	1729	45	4
pH	(---)	---	---	---	---	---	---	7.21	7.22	7.29	7.23	7.21	7.29	7.24	0.04	4
Temperature	(°C)	---	---	---	---	---	---	5.7	11.1	7.6	8.6	5.7	11.1	8.3	2.2	4
Select Indicator Parameters																
Calcium	(mg/L)	171	148	168	157	160	180	156	164	167	168	148.0	180.0	163.9	9.0	10
Chloride	(mg/L)	4	13	10	10	3	6	8.45	3.45	2.95	4.57	2.95	13.00	6.54	3.57	10
Fluroide	(mg/L)	0.18	0.15	0.14	0.17	0.2	0.14	0.173	0.129	0.128	0.128	0.128	0.200	0.154	0.025	10
Iron	(mg/L)	2.92	2.96	3.58	4.5	<0.06	5.7	5.38	5.55	6.02	5.84	2.92	6.02	4.72	1.26	10
Magnesium	(mg/L)	58.9	52	57.7	55.3	54	62	57.1	60.4	56.5	55.2	52.0	62.0	56.9	3.0	10
Manganese	(mg/L)	1.32	0.943	1.01	1.28	1.5	1.7	1.39	1.64	1.7	1.72	0.943	1.720	1.420	0.284	10
Potassium	(mg/L)	6.1	5	5.5	4.8	5	5.5	---	5.02	5.8	5.17	4.80	6.10	5.32	0.43	9
Sodium	(mg/L)	138	211	190	182	140	150	194	123	139	135	123	211	160	31	10
Bicarbonate	(mg/L)	560	641	633	637	630	590	626	603	602	611	560	641	613	25	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.004	<0.050	<0.050	<0.050	<0.050	0.004	0.004	0.004	N/A	10
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.004	<0.071	<0.071	<0.071	<0.071	0.004	0.004	0.004	N/A	10
Sulphate	(mg/L)	451	471	482	478	560	420	520	501	494	499	420.0	560.0	487.6	37.9	10
Dissolved Organic Carbon	(mg/L)	5	8	7	7	6	5.1	6.7	8	6.8	6.4	5.0	8.0	6.6	1.0	10
Electrical Conductivity	(µS/cm)	1580	1780	1700	1760	1700	1700	1770	1,780	1730	1720	1580	1780	1722	60	10
Ion Balance	(%)	105	101	104	99.4	0.85	110	98.8	91.3	94.7	92.2	1	110	90	32	10
pH	(---)	7.5	8	7.7	7.9	7.7	7.47	8.06	7.96	7.81	7.81	7.47	8.06	7.79	0.20	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0030	0.0025	0.0007	10
Total Dissolved Solids	(mg/L)	1,100	1,220	1,220	1,200	1,230	1,100	1,250	1,150	1160	1240	1100	1250	1187	56	10
Total Alkalinity as $CaCO_3$	(mg/L)	459	526	519	522	510	490	513	494	493	501	459	526	503	20	10
Total Hardness as $CaCO_3$	(mg/L)	670	584	657	620	620	710	625	658	650	647	584	710	644	34	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	0.0288	0.0104	<0.0050	0.0100	0.0288	0.0164	0.0107	10
Antimony	(mg/L)	0.0009	0.0005	0.0009	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00050	0.00090	0.00070	0.00023	10
Arsenic	(mg/L)	0.0042	0.0038	0.0034	0.0042	0.003	0.005	0.00507	0.0057	0.00525	0.00544	0.00300	0.00570	0.00451	0.00092	10
Barium	(mg/L)	0.071	0.0557	0.0666	0.043	0.03	---	0.0353	0.0309	0.0265	0.0315	0.027	0.071	0.043	0.017	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	---	0.00006	0.00006	0.00006	N/A	4
Boron	(mg/L)	0.148	0.16	0.149	0.159	0.13	---	0.15	0.138	0.122	0.123	0.122	0.160	0.142	0.015	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000009	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00001	0.00001	0.00001	N/A	10
Chromium	(mg/L)	0.0035	<0.0004	0.0015	0.0014	0.002	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0014	0.0035	0.0021	0.0010	10
Cobalt	(mg/L)	0.0012	0.0012	0.0007	0.0009	0.0008	0.0004	0.00052	0.00036	0.0003	0.00036	0.00030	0.00120	0.00067	0.00034	10
Copper	(mg/L)	0.0011	0.0012	0.0014	0.0014	0.0011	<0.0002	0.0012	<0.0010	< 0.0010	< 0.0010	0.0011	0.0014	0.0012	0.0001	10
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00020	0.00040	0.00030	0.00014	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	< 0.000020	N/A	N/A	N/A	N/A	10
Molybdenum	(mg/L)	0.0014	0.0015	0.0014	0.0016	0.0012	0.001	0.00094	0.0008	0.000878	0.00097	0.00080	0.00160	0.00117	0.00029	10
Nickel	(mg/L)	<0.0001	0.0004	<0.0001	0.006	0.0052	0.0015	0.0039	<0.0020	< 0.0020	< 0.0020	0.0004	0.0060	0.0034	0.0024	10
Selenium	(mg/L)	0.0005	0.0005	0.0007	<0.0004	<0.001	<0.0002	0.00041	<0.00040	< 0.00040	< 0.00040	0.00041	0.00070	0.00053	0.00012	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.00021	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	1.2	1.26	1.28	1.42	1.4	---	---	---	---	---	1.200	1.420	1.312	0.094	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	<0.0001	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	N/A	N/A	6
Titanium	(mg/L)	0.0008	0.0015	0.001	0.0014	0.002	<0.001	0.00125	0.00063	< 0.00030	< 0.00060	0.00063	0.00200	0.00123	0.00046	10
Uranium	(mg/L)	0.0023	0.0015	0.0016	0.0016	0.0018	0.0017	0.00146	0.0018	0.00173	0.00158	0.00146	0.00230	0.00171	0.00024	10
Vanadium	(mg/L)	0.0002	0.0001	<0.001	<0.0001	0.001	<0.001	0.00016	0.00016	< 0.00010	< 0.00020	0.00010	0.00100	0.00032	0.00038	10
Zinc	(mg/L)	0.004	<0.002	0.008	0.003	<0.003	<0.003	0.0063	<0.0020	0.0036	<0.003	0.003	0.008	0.005	0.002	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00050	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	< 0.10	< 0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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Appendix 6
Statistical Tables: MW-07

PROJECT NO.: 307076-06086

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Summer 2011	Spring 2012	Summer 2013	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																	
Depth To Groundwater	(m btoc)	33.98	34.23	34.6	33.97	33.78	34	34.32	34.43	33.80	34.12	33.59	33.59	34.60	34.07	0.30	11
Groundwater Surface Elevation	(m asl)	597.03	596.78	596.41	597.04	597.23	597.01	596.69	596.58	597.21	596.89	597.42	596.41	597.42	596.94	0.30	11
Field-Measured Parameters																	
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	2,640	---	2,680	2540	2610	2540	2680	2618	59	4
pH	(---)	---	---	---	---	---	---	6.91	---	7.11	7.04	6.98	6.91	7.11	7.01	0.09	4
Temperature	(°C)	---	---	---	---	---	---	7.2	---	7.2	8.1	7.5	7.2	8.1	7.5	0.4	4
Select Indicator Parameters																	
Calcium	(mg/L)	287	270	284	257	220	330	262	---	256	247	269	220.0	330.0	268.2	28.9	10
Chloride	(mg/L)	13	16	15	12	9	18	13.2	---	11.8	12.6	11.5	9.00	18.00	13.21	2.55	10
Fluroide	(mg/L)	0.11	0.08	0.07	0.09	0.1	0.08	0.135	---	0.128	0.093	0.11	0.070	0.135	0.100	0.021	10
Iron	(mg/L)	10.4	10.9	<0.005	10.9	<0.06	14	12.5	---	11.7	11.3	12.1	10.40	14.00	11.73	1.15	10
Magnesium	(mg/L)	100	94.8	96.4	89.8	72	110	93.5	---	87.9	80.4	82.4	72.0	110.0	90.7	10.8	10
Manganese	(mg/L)	1.88	1.83	1.86	1.78	1.6	2.3	1.9	---	1.84	1.79	1.87	1.600	2.300	1.865	0.175	10
Potassium	(mg/L)	6.6	5.5	6.2	4.6	5.1	6.6	---	---	5.55	6.96	5.37	4.60	6.96	5.83	0.79	9
Sodium	(mg/L)	287	268	269	248	230	320	274	---	245	245	241	230	320	263	27	10
Bicarbonate	(mg/L)	664	666	661	641	660	730	657	---	659	648	716	641	730	670	29	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	---	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	---	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	0.1	<0.1	<0.2	0.004	<0.050	---	<0.050	<0.050	<0.050	0.004	0.100	0.068	0.055	10
Nitrite-plus-Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	0.1	<0.1	<0.2	0.004	<0.071	---	<0.071	<0.071	<0.071	0.004	0.100	0.068	0.055	10
Sulphate	(mg/L)	1,130	1,010	1,010	940	1,000	1,200	1,040	---	1,020	949	1,020	940.0	1200.0	1031.9	78.5	10
Dissolved Organic Carbon	(mg/L)	5	6	6	6	6	6.6	5.8	---	6.3	6	6.2	5.0	6.6	6.0	0.4	10
Electrical Conductivity	(µS/cm)	2680	2670	2530	2290	2500	3000	2600	---	2670	17	2680	17	3000	2364	844	10
Ion Balance	(%)	102	102	105	103	0.84	110	100	---	95.2	96.9	92.6	1	110	91	32	10
pH	(---)	7.5	7.7	7.5	7.6	7.5	7.19	7.9	---	7.98	7.71	7.3	7.19	7.98	7.59	0.25	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	---	<0.0010	<0.0010	0.0017	0.0017	0.0030	0.0022	0.0007	10
Total Dissolved Solids	(mg/L)	2,150	1,990	2,010	1,870	1,890	2,400	2,010	---	1,950	1,860	2,180	1860	2400	2031	169	10
Total Alkalinity as $CaCO_3$	(mg/L)	544	546	542	526	540	600	538	---	540	531	586	526	600	549	24	10
Total Hardness as $CaCO_3$	(mg/L)	1130	1060	1110	1010	850	1300	1040	---	1000	948	1010	850	1300	1046	120	10
Dissolved Metals Parameters																	
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	<0.0050	0.0116	<0.0050	0.0116	0.0116	0.0116	N/A	11
Antimony	(mg/L)	0.0008	0.0007	0.0007	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	< 0.00040	< 0.00050	0.00050	0.00080	0.00068	0.00013	11
Arsenic	(mg/L)	0.0017	0.0019	0.0022	0.0027	0.001	0.0021	0.00361	0.0057	0.00333	0.00376	0.00382	0.00100	0.00570	0.00289	0.00132	11
Barium	(mg/L)	0.0733	0.053	0.0543	0.0596	0.04	---	0.049	0.0954	0.0483	0.0544	0.0466	0.040	0.095	0.057	0.016	10
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	<0.00050	< 0.00050	---	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00005	<0.00005	<0.00005	---	---	---	---	---	---	---	0.00005	0.00005	0.00005	N/A	4
Boron	(mg/L)	0.366	0.311	0.312	0.289	0.26	---	0.279	0.215	0.262	0.24	0.276	0.215	0.366	0.281	0.042	10
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000016	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00002	0.00002	0.00002	N/A	11
Chromium	(mg/L)	0.0017	<0.0004	0.0018	0.0011	0.004	<0.001	<0.0050	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0011	0.0040	0.0022	0.0013	11
Cobalt	(mg/L)	0.0026	0.002	0.0012	0.0014	0.0013	0.0013	0.00128	0.00116	0.00092	0.00104	---	0.00092	0.00260	0.00142	0.00050	10
Copper	(mg/L)	0.0024	0.0018	0.0023	0.0015	0.0016	0.0007	0.0014	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0007	0.0024	0.0017	0.0006	11
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0003	<0.0002	<0.00010	<0.00010	<0.00010	< 0.00010	< 0.00025	0.00030	0.00040	0.00035	0.00007	11
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	<0.000020	< 0.000020	< 0.000020	N/A	N/A	N/A	N/A	11
Molybdenum	(mg/L)	0.001	0.001	0.0008	0.0012	0.0011	0.0004	0.00097	0.0151	0.000781	0.000974	---	0.00040	0.01510	0.00233	0.00449	10
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0056	0.0059	0.0024	0.0056	0.0021	<0.0020	0.0026	<0.0020	0.0021	0.0059	0.0040	0.0018	11
Selenium	(mg/L)	0.0008	<0.0004	0.0007	0.0008	<0.001	<0.0002	0.00127	<0.00040	<0.00040	< 0.00040	< 0.00050	0.00070	0.00127	0.00089	0.00026	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	N/A	N/A	N/A	N/A	11
Strontium	(mg/L)	2.49	2.45	2.58	2.49	2.2	---	---	---	---	---	---	2.200	2.580	2.442	0.143	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	0.000071	<0.000050	< 0.000050	---	0.000071	0.000071	0.000071	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	---	N/A	N/A	N/A	N/A	6
Titanium	(mg/L)	0.0012	0.0009	0.001	0.0011	0.002	<0.001	0.00109	0.0003	<0.00030	< 0.00030	---	0.00030	0.00200	0.00108	0.00050	10
Uranium	(mg/L)	0.0018	0.0017	0.0017	0.0016	0.0014	0.0016	0.00156	0.00138	0.00152	0.00143	0.0014	0.00138	0.00180	0.00155	0.00014	11
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	0.002	<0.001	<0.00010	<0.00010	<0.00010	< 0.00010	---	0.00200	0.00200	0.00200	N/A	10
Zinc	(mg/L)	0.006	<0.002	0.006	0.002	0.003	<0.003	0.0057	0.005	<0.0030	< 0.0030	< 0.0050	0.002	0.006	0.005	0.002	11
Petroleum Hydrocarbon Parameters																	
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	N/A	N/A	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	< 0.00050	N/A	N/A	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	N/A	N/A	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	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	11
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	11
PHC F1 (C_6-C_{10}) - 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	N/A	N/A	N/A	N/A	11
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.25	N/A	N/A	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. Values below detection limits are not included in statistical analyses.*
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. *Routine Parameters from Spring 2011 have been determined to be anomlous and have not been included in the statistical analysis.*

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	27.74	27.74	27.58	27.72	27.57	27.63	27.83	27.72	27.69	27.63	27.57	27.83	27.69	0.08	10
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	598.61	598.87	598.76	0.08	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,359	1,378	1363	1198	1198	1378	1325	85	4
pH	(---)	---	---	---	---	---	---	7.09	7.41	7.31	7.34	7.09	7.41	7.29	0.14	4
Temperature	(°C)	---	---	---	---	---	---	5.4	9.0	7.3	6.9	5.4	9.0	7.2	1.5	4
Select Indicator Parameters																
Calcium	(mg/L)	147	133	161	150	130	150	146	136	135	149	130.0	161.0	143.7	9.8	10
Chloride	(mg/L)	3	4	3	2	2	3	1.43	0.97	0.86	1.37	0.86	4.00	2.16	1.04	10
Fluroide	(mg/L)	0.13	0.11	0.09	0.08	0.1	0.11	0.13	0.082	0.084	0.093	0.080	0.130	0.101	0.019	10
Iron	(mg/L)	5.66	5.16	6.97	7.29	<0.06	<0.06	7.22	5.41	6.69	6.47	5.16	7.29	6.36	0.84	10
Magnesium	(mg/L)	45	37.4	44.2	42.9	36	40	43.2	38.3	35	40.4	35.0	45.0	40.2	3.5	10
Manganese	(mg/L)	0.474	0.384	0.481	0.454	0.44	0.45	0.47	0.411	0.409	0.415	0.384	0.481	0.439	0.033	10
Potassium	(mg/L)	6	5.2	6.1	5	5.4	5.6	---	5.12	5.69	6.47	5.00	6.47	5.62	0.50	9
Sodium	(mg/L)	137	112	132	115	120	110	122	98	107	112	98	137	117	12	10
Bicarbonate	(mg/L)	593	549	594	583	630	560	558	565	560	535	535	630	573	28	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.007	0.100	0.054	0.066	10
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	0.007	0.100	0.054	0.066	10
Sulphate	(mg/L)	369	300	341	316	370	300	333	320	308	304	300.0	370.0	326.1	26.6	10
Dissolved Organic Carbon	(mg/L)	5	6	6	7	5	5.3	5.3	10.3	5.7	5.5	5.0	10.3	6.1	1.6	10
Electrical Conductivity	(µS/cm)	1470	1310	1240	1390	1400	1400	1360	1400	1360	1290	1240	1470	1362	66	10
Ion Balance	(%)	98.8	95.9	104	100	0.84	100	101	89.8	92.3	104	1	104	89	31	10
pH	(---)	7.7	7.5	7.7	7.9	7.7	7.62	8.04	7.95	7.93	7.96	7.50	8.04	7.80	0.18	10
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	0.0020	0.0015	0.0005	10
Total Dissolved Solids	(mg/L)	999	862	980	918	977	880	927	876	867	876	862	999	916	52	10
Total Alkalinity as $CaCO_3$	(mg/L)	486	450	487	478	520	450	458	463	459	439	439	520	469	24	10
Total Hardness as $CaCO_3$	(mg/L)	552	486	584	551	480	530	542	497	481	538	480	584	524	36	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0104	<0.0050	0.0104	0.0104	0.0104	N/A	10
Antimony	(mg/L)	0.0006	0.0005	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00050	0.00060	0.00055	0.00006	10
Arsenic	(mg/L)	0.0042	0.0046	0.0044	0.0052	0.002	0.0062	0.00672	0.00667	0.006	0.00767	0.00200	0.00767	0.00537	0.00164	10
Barium	(mg/L)	0.084	0.115	0.0629	0.0519	0.03	---	0.0675	0.0614	0.0499	0.0639	0.030	0.115	0.065	0.024	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00009	<0.00005	<0.00005	---	---	---	---	---	---	0.00009	0.00009	0.00009	N/A	4
Boron	(mg/L)	0.244	0.184	0.206	0.176	0.17	---	0.179	0.18	0.154	0.163	0.154	0.244	0.184	0.027	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Chromium	(mg/L)	0.0011	0.0005	0.0012	0.0016	0.003	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0005	0.0030	0.0015	0.0009	10
Cobalt	(mg/L)	0.0008	0.0009	0.0004	0.0005	0.0004	<0.0003	0.00035	0.00036	0.00018	0.00018	0.00018	0.00090	0.00045	0.00025	10
Copper	(mg/L)	0.001	0.001	0.0011	0.0012	0.0006	0.0016	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0006	0.0016	0.0011	0.0003	10
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00020	0.00040	0.00030	0.00014	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	< 0.000020	N/A	N/A	N/A	N/A	10
Molybdenum	(mg/L)	0.0012	0.0025	0.0011	0.0016	0.0014	0.002	0.00168	0.00154	0.00137	0.00175	0.00110	0.00250	0.00161	0.00041	10
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0031	0.0036	0.0017	0.0027	0.0025	< 0.0020	< 0.0020	0.0017	0.0036	0.0027	0.0007	10
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	0.00159	0.00083	0.00066	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	1.4	1.27	1.45	1.59	1.4	---	---	---	---	---	1.270	1.590	1.422	0.115	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	< 0.000050	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00080	0.00200	0.00117	0.00043	10
Uranium	(mg/L)	0.0011	0.0015	0.0009	0.0008	0.0008	0.0007	0.00072	0.0008	0.00069	0.00067	0.00067	0.00150	0.00087	0.00026	10
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	0.001	<0.001	0.00017	0.00018	< 0.00010	< 0.00010	0.00017	0.00100	0.00044	0.00039	10
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	0.016	0.008	0.005	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00050	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.
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).

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Appendix 6
Statistical Tables: MW-09

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	28.41	28.48	28.27	28.35	28.34	28.27	28.61	28.25	28.37	28.17	28.17	28.61	28.35	0.13	10
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	596.12	596.56	596.38	0.13	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,538	1,548	1507	1463	1463	1548	1514	38	4
pH	(---)	---	---	---	---	---	---	7.35	7.49	7.43	7.43	7.35	7.49	7.43	0.06	4
Temperature	(°C)	---	---	---	---	---	---	6.8	9.1	7.7	8.9	6.8	9.1	8.1	1.1	4
Select Indicator Parameters																
Calcium	(mg/L)	71.6	92.6	98.1	94.9	83	97	93.1	87.4	88.3	96.2	71.6	98.1	90.2	8.1	10
Chloride	(mg/L)	5	7	7	6	4	6	5.57	5.84	4.82	5.29	4.00	7.00	5.65	0.94	10
Fluroide	(mg/L)	0.29	0.22	0.23	0.21	0.2	0.22	0.251	<0.050	0.184	0.203	0.184	0.290	0.223	0.032	10
Iron	(mg/L)	1.11	1.4	1.44	1.74	<0.06	1.9	2.04	1.46	1.89	1.94	1.11	2.04	1.66	0.32	10
Magnesium	(mg/L)	26	27.3	27.7	27.6	22	27	27.8	25.2	23.7	26.8	22.0	27.8	26.1	1.9	10
Manganese	(mg/L)	0.714	0.752	0.797	0.785	0.77	0.86	0.828	0.754	0.784	0.842	0.714	0.860	0.789	0.045	10
Potassium	(mg/L)	4.2	3.9	3.9	3.3	3.5	4.1	---	4.09	4.22	4.06	3.30	4.22	3.92	0.32	9
Sodium	(mg/L)	226	227	231	231	230	240	240	212	226	251	212	251	231	10	10
Bicarbonate	(mg/L)	626	640	644	656	670	630	639	646	643	644	626	670	644	12	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.005	0.100	0.053	0.067	10
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	0.005	0.100	0.053	0.067	10
Sulphate	(mg/L)	313	312	316	322	350	330	342	325	319	327	312.0	350.0	325.6	12.4	10
Dissolved Organic Carbon	(mg/L)	5	6	8	7	9	5.5	5.6	8	6	5.9	5.0	9.0	6.6	1.3	10
Electrical Conductivity	(µS/cm)	1520	1550	1520	1530	1500	1500	1540	1580	1550	1530	1500	1580	1532	24	10
Ion Balance	(%)	93.2	98	99.9	97.9	0.86	100	98.4	90	94.1	103	1	103	88	31	10
pH	(---)	7.9	8.1	7.9	8.1	8	7.73	8.17	8.17	8.04	7.89	7.73	8.17	8.00	0.14	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0030	0.0025	0.0007	10
Total Dissolved Solids	(mg/L)	954	984	1,000	1,010	1,020	1,000	1,030	978	982	1,030	954	1030	999	25	10
Total Alkalinity as $CaCO_3$	(mg/L)	513	524	528	538	550	520	524	530	527	527	513	550	528	10	10
Total Hardness as $CaCO_3$	(mg/L)	286	344	359	351	300	350	347	322	318	351	286	359	333	25	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	0.14	0.02	<0.01	<0.01	<0.001	0.1	<0.0050	<0.0050	0.0112	<0.0050	0.0112	0.1400	0.0678	0.0626	10
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	0.00070	0.00058	0.00013	10
Arsenic	(mg/L)	0.0019	0.0018	0.0018	0.002	0.002	0.0023	0.00255	0.0028	0.00234	0.00237	0.00180	0.00280	0.00219	0.00034	10
Barium	(mg/L)	0.0608	0.052	0.0389	0.0302	0.02	---	0.025	0.0294	0.0209	0.0243	0.020	0.061	0.034	0.014	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	<0.001	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	N/A	N/A	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	0.226	0.339	0.271	0.033	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000008	<0.00010	<0.00010	< 0.00010	<0.00010	0.00001	0.00001	0.00001	N/A	10
Chromium	(mg/L)	0.0016	0.0006	0.0013	0.0016	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	<0.0050	0.0006	0.0016	0.0013	0.0005	10
Cobalt	(mg/L)	0.0011	0.0023	0.0011	0.0009	0.0009	0.0008	0.00085	0.00128	0.0008	0.00138	0.00080	0.00230	0.00114	0.00045	10
Copper	(mg/L)	0.001	0.0011	0.0012	0.0008	0.0008	0.0003	<0.0010	<0.0010	< 0.0010	<0.0010	0.0003	0.0012	0.0009	0.0003	10
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	0.00010	0.00010	N/A	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	<0.000020	N/A	N/A	N/A	N/A	10
Molybdenum	(mg/L)	0.0019	0.0038	0.0015	0.0017	0.0018	0.0016	0.00158	0.00156	0.00143	0.00154	0.00143	0.00380	0.00184	0.00070	10
Nickel	(mg/L)	0.0002	0.0087	<0.0001	0.003	0.0023	0.0017	0.0027	<0.0020	< 0.0020	<0.0020	0.0002	0.0087	0.0031	0.0029	10
Selenium	(mg/L)	<0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	<0.00040	0.00050	0.00050	0.00050	N/A	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	0.00013	< 0.00010	< 0.00010	0.00013	0.00013	0.00013	N/A	10
Strontium	(mg/L)	0.843	0.869	0.861	0.961	0.81	---	---	---	---	---	0.810	0.961	0.869	0.056	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	<0.0001	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00078	0.00580	0.00273	0.00213	10
Uranium	(mg/L)	0.0019	0.0015	0.0014	0.0014	0.0014	0.0012	0.00121	0.00132	0.00121	0.00138	0.00120	0.00190	0.00139	0.00021	10
Vanadium	(mg/L)	0.0005	0.0002	<0.0001	0.0005	<0.001	<0.001	<0.00010	0.00012	< 0.00010	< 0.00020	0.00012	0.00050	0.00033	0.00020	10
Zinc	(mg/L)	0.003	<0.002	0.005	<0.002	0.003	<0.003	<0.0020	0.002	0.003	<0.003	0.002	0.005	0.003	0.001	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00050	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	0.3	<0.25	<0.25	<0.25	<0.25	0.30	0.30	0.30	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
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	26.70	26.93	26.80	0.09	10
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	597.74	597.97	597.86	0.09	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---		1,192	1267	1247	1192	1267	1235	39	3
pH	(---)	---	---	---	---	---	---		7.36	7.29	7.24	7.24	7.36	7.30	0.06	3
Temperature	(°C)	---	---	---	---	---	---		9.1	7.4	7.0	7.0	9.1	7.8	1.1	3
Select Indicator Parameters																
Calcium	(mg/L)	131	129	139	132	120	140	139	113	127	141	113.0	141.0	131.1	9.3	10
Chloride	(mg/L)	<1	3	2	2	<1	2	0.73	1.19	0.53	0.68	0.53	3.00	1.52	0.87	10
Fluroide	(mg/L)	0.18	0.12	0.13	0.12	0.2	0.14	0.169	<0.050	0.113	0.107	0.107	0.200	0.142	0.033	10
Iron	(mg/L)	5.29	5.49	5.89	5.93	<0.06	5.9	6.8	3.89	5.98	6.11	3.89	6.80	5.70	0.80	10
Magnesium	(mg/L)	36.1	35.2	37.8	36.9	29	36	39.1	30.2	31.6	37.3	29.0	39.1	34.9	3.4	10
Manganese	(mg/L)	0.639	0.642	0.67	0.656	0.64	0.71	0.735	0.566	0.655	0.729	0.566	0.735	0.664	0.050	10
Potassium	(mg/L)	5.3	5	5.6	4.7	4.8	5.6	---	5.58	5.79	6.22	4.70	6.22	5.40	0.49	9
Sodium	(mg/L)	117	108	119	110	110	120	124	105	111	118	105	124	114	6	10
Bicarbonate	(mg/L)	628	634	641	651	660	620	633	607	639	638	607	660	635	15	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.005	0.100	0.053	0.067	10
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	0.005	0.100	0.053	0.067	10
Sulphate	(mg/L)	221	222	212	208	230	190	227	206	211	215	190.0	230.0	214.2	11.7	10
Dissolved Organic Carbon	(mg/L)	5	6	6	5	5	4.7	5.1	6.7	5.9	5.4	4.7	6.7	5.5	0.6	10
Electrical Conductivity	(µS/cm)	1270	1260	1120	1270	1300	1300	1270	1260	1290	1250	1120	1300	1259	52	10
Ion Balance	(%)	99.7	93.8	103	97.2	0.84	110	104	89.9	93.5	103	1	110	89	32	10
pH	(---)	7.7	7.5	7.7	8	7.8	7.51	8.07	8.04	7.89	8.09	7.50	8.09	7.83	0.22	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.0010	0.0018	<0.0010	<0.0010	0.0018	0.0020	0.0019	0.0001	10
Total Dissolved Solids	(mg/L)	819	814	831	814	822	800	847	759	801	833	759	847	814	24	10
Total Alkalinity as $CaCO_3$	(mg/L)	514	520	525	533	540	510	519	497	524	523	497	540	521	12	10
Total Hardness as $CaCO_3$	(mg/L)	476	467	503	482	410	490	508	407	447	506	407	508	470	37	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0139	<0.0050	0.0139	0.0139	0.0139	N/A	10
Antimony	(mg/L)	0.0007	0.0006	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	<0.00040	0.00050	0.00070	0.00060	0.00008	10
Arsenic	(mg/L)	0.003	0.0037	0.0036	0.0039	0.002	0.0044	0.00459	0.00287	0.0042	0.00485	0.00200	0.00485	0.00371	0.00088	10
Barium	(mg/L)	0.0296	0.0331	0.0319	0.0291	0.02	---	0.029	0.0321	0.0273	0.0295	0.020	0.033	0.029	0.004	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	<0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	N/A	N/A	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	0.150	0.209	0.176	0.020	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000007	<0.00010	<0.00010	< 0.00010	<0.00010	0.00001	0.00001	0.00001	N/A	10
Chromium	(mg/L)	0.0012	<0.0004	0.0011	0.0015	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	<0.0050	0.0011	0.0015	0.0013	0.0002	10
Cobalt	(mg/L)	0.0003	0.0005	0.0003	0.0004	0.0005	<0.0003	0.00044	0.00031	0.00032	0.00032	0.00030	0.00050	0.00038	0.00008	10
Copper	(mg/L)	0.0007	0.0009	0.0009	0.0008	0.0006	0.0006	0.0015	<0.0010	< 0.0010	<0.0010	0.0006	0.0015	0.0009	0.0003	10
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	<0.00010	0.00040	0.00040	0.00040	N/A	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	<0.000020	N/A	N/A	N/A	N/A	10
Molybdenum	(mg/L)	0.0009	0.001	0.0009	0.0009	0.0011	0.0009	0.00097	0.00481	0.000884	0.00087	0.00087	0.00481	0.00132	0.00123	10
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.003	0.0029	0.001	0.0029	<0.0020	< 0.0020	<0.0020	0.0010	0.0030	0.0025	0.0010	10
Selenium	(mg/L)	<0.0004	0.0006	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	<0.00040	0.00060	0.00060	0.00060	N/A	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	<0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	1.29	1.43	1.41	1.55	1.3	---	---	---	---	---	1.290	1.550	1.396	0.107	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	<0.000050	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00070	0.00200	0.00097	0.00051	10
Uranium	(mg/L)	0.0019	0.0015	0.0014	0.0013	0.0014	0.0011	0.00115	0.00133	0.00113	0.00116	0.00110	0.00190	0.00134	0.00024	10
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	0.00021	< 0.00010	< 0.00010	0.00021	0.00040	0.00031	0.00013	10
Zinc	(mg/L)	0.003	<0.002	0.009	0.015	<0.003	<0.003	0.0023	0.003	< 0.0030	< 0.0030	0.002	0.015	0.006	0.005	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00050	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.
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).

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Appendix 6

Statistical Tables: MW-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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	30.6	30.41	30.34	30.38	30.4	30.35	30.64	30.46	30.35	30.26	30.26	30.64	30.42	0.12	10
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	594.52	594.90	594.74	0.12	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,303	1,341	1282	1258	1258	1341	1296	35	4
pH	(---)	---	---	---	---	---	---	7.06	7.42	7.19	7.18	7.06	7.42	7.21	0.15	4
Temperature	(°C)	---	---	---	---	---	---	7.2	6.9	9.8	7.4	6.9	9.8	7.8	1.3	4
Select Indicator Parameters																
Calcium	(mg/L)	150	140	153	143	130	150	144	148	134	147	130.0	153.0	143.9	7.4	10
Chloride	(mg/L)	8	16	11	8	10	10	15.2	9.69	8.71	8.92	8.00	16.00	10.55	2.83	10
Fluroide	(mg/L)	0.14	0.09	0.09	0.09	0.1	0.11	0.132	<0.050	0.067	0.105	0.067	0.140	0.103	0.023	10
Iron	(mg/L)	6.89	6.95	7.23	7.15	<0.06	7	7.61	6.99	6.82	7.52	6.82	7.61	7.13	0.28	10
Magnesium	(mg/L)	45.8	42.5	45.7	45.3	38	45	45.9	46.4	38.7	44.7	38.0	46.4	43.8	3.1	10
Manganese	(mg/L)	0.668	0.628	0.659	0.632	0.61	0.67	0.663	0.687	0.605	0.697	0.605	0.697	0.652	0.032	10
Potassium	(mg/L)	4.9	4.5	4.8	3.9	4.3	4.9	---	5.36	5.34	5.09	3.90	5.36	4.79	0.48	9
Sodium	(mg/L)	92	85	92	88	87	91	98.1	96	87.9	102	85	102	92	5	10
Bicarbonate	(mg/L)	642	654	672	662	680	640	650	653	648	640	640	680	654	14	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.003	0.100	0.052	0.069	10
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	0.003	0.100	0.052	0.069	10
Sulphate	(mg/L)	196	199	194	193	210	170	212	203	202	213	170.0	213.0	199.2	12.6	10
Dissolved Organic Carbon	(mg/L)	15	7	7	8	6	5.5	6	6.8	6.6	6.2	5.5	15.0	7.4	2.8	10
Electrical Conductivity	(µS/cm)	1270	1270	1100	1280	1300	1300	1290	1320	1300	1270	1100	1320	1270	62	10
Ion Balance	(%)	104	93.4	101	98.6	0.87	110	99.1	102	91.8	103	1	110	90	32	10
pH	(---)	7.7	7.4	7.7	8	7.7	7.51	8.04	8	7.9	7.93	7.40	8.04	7.79	0.22	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.004	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0040	0.0030	0.0014	10
Total Dissolved Solids	(mg/L)	813	809	831	806	810	800	840	830	795	828	795	840	816	15	10
Total Alkalinity as $CaCO_3$	(mg/L)	526	536	551	542	560	530	533	536	531	525	525	560	537	11	10
Total Hardness as $CaCO_3$	(mg/L)	563	525	570	544	480	560	549	561	494	551	480	570	540	31	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	0.02	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0106	<0.0050	0.0106	0.0200	0.0153	0.0066	10
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	0.00080	0.00060	0.00016	10
Arsenic	(mg/L)	0.0022	0.0025	0.0022	0.0023	<0.001	0.0024	0.00259	0.00239	0.00232	0.0026	0.00220	0.00260	0.00239	0.00015	10
Barium	(mg/L)	0.0494	0.0466	0.044	0.0377	0.03	---	0.0396	0.0423	0.0386	0.0424	0.030	0.049	0.041	0.006	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	<0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00008	<0.00005	<0.00005	---	---	---	---	---	---	0.00008	0.00008	0.00008	N/A	4
Boron	(mg/L)	0.189	0.227	0.205	0.186	0.18	---	0.189	0.199	0.161	0.173	0.161	0.227	0.190	0.019	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000009	<0.00010	<0.00010	< 0.00010	<0.00010	0.00001	0.00001	0.00001	N/A	10
Chromium	(mg/L)	0.0011	0.0006	0.0013	0.0016	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	<0.0050	0.0006	0.0016	0.0012	0.0004	10
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	0.00070	0.00047	0.00013	10
Copper	(mg/L)	<0.0006	0.0009	0.0009	<0.0006	0.0008	0.0007	<0.0010	0.0017	< 0.0010	< 0.0010	0.0007	0.0017	0.0010	0.0004	10
Lead	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	<0.00010	N/A	N/A	N/A	N/A	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	<0.000020	0.000001	0.000001	0.000001	N/A	10
Molybdenum	(mg/L)	0.001	0.0009	0.0006	0.0007	0.001	0.0007	0.00072	0.00061	0.000669	0.0007	0.00060	0.00100	0.00076	0.00015	10
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0027	0.0027	0.0008	0.0027	<0.0020	< 0.0020	<0.0020	0.0008	0.0027	0.0022	0.0010	10
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	0.00040	0.00040	N/A	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	<0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	1.27	1.24	1.22	1.35	1.1	---	---	---	---	---	1.100	1.350	1.236	0.091	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	<0.000050	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00080	0.00300	0.00154	0.00092	10
Uranium	(mg/L)	0.0012	0.0012	0.0011	0.0011	0.0013	0.001	0.001	0.00109	0.001	0.00116	0.00100	0.00130	0.00112	0.00010	10
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	0.00040	0.00020	0.00017	10
Zinc	(mg/L)	0.004	<0.002	0.009	<0.002	<0.003	<0.003	0.0023	0.0105	< 0.0030	< 0.0030	0.002	0.011	0.006	0.004	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00075	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	<0.001	<0.001	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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Appendix 6

Statistical Tables: MW-12

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	32.95	33.05	33.62	32.9	32.77	32.76	33.01	32.84	32.89	32.82	32.76	33.62	32.96	0.25	10
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	592.45	593.31	593.11	0.25	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,032	983	1024	998	983	1032	1009	23	4
pH	(---)	---	---	---	---	---	---	7.32	6.95	7.37	7.34	6.95	7.37	7.25	0.20	4
Temperature	(°C)	---	---	---	---	---	---	5.1	8.7	7.3	6.1	5.1	8.7	6.8	1.6	4
Select Indicator Parameters																
Calcium	(mg/L)	95.7	94.9	100	95.4	82	98	96.4	98.1	89.8	101	82.0	101.0	95.1	5.6	10
Chloride	(mg/L)	6	8	7	7	5	8	7.05	6.4	6.25	6.89	5.00	8.00	6.76	0.90	10
Fluroide	(mg/L)	0.13	0.07	0.07	0.08	<0.1	0.09	0.114	0.071	0.076	0.083	0.070	0.130	0.087	0.021	10
Iron	(mg/L)	2.78	3.37	3.76	3.77	<0.06	4.1	4.24	3.34	4.14	3.99	2.78	4.24	3.72	0.48	10
Magnesium	(mg/L)	27.9	28.5	29.1	29.2	23	29	30.2	30.9	25.6	28.9	23.0	30.9	28.2	2.3	10
Manganese	(mg/L)	0.365	0.402	0.436	0.422	0.4	0.45	0.456	0.45	0.435	0.457	0.365	0.457	0.427	0.030	10
Potassium	(mg/L)	5	5.2	5.1	4.2	4.3	4.9	---	4.86	5.23	5	4.20	5.23	4.87	0.37	9
Sodium	(mg/L)	106	111	106	101	99	110	109	95.4	95.7	113	95	113	105	6	10
Bicarbonate	(mg/L)	636	712	669	670	700	650	667	662	660	649	636	712	668	23	10
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.005	0.100	0.053	0.067	10
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	0.005	0.100	0.053	0.067	10
Sulphate	(mg/L)	46	53	44	42.4	43	32	47	---	43	44	32.0	52.5	43.8	5.4	9
Dissolved Organic Carbon	(mg/L)	6	7	7	7	7	6.4	10.5	13.5	6.6	6.9	6.0	13.5	7.8	2.4	10
Electrical Conductivity	(µS/cm)	1000	1020	904	1020	1000	1000	1030	1050	1030	1000	904	1050	1005	39	10
Ion Balance	(%)	102	92.7	100	97.4	0.84	110	100	97.9	91.5	106	1	110	90	32	10
pH	(---)	7.9	7.4	7.8	8	7.8	7.66	8.13	8.14	8.03	7.89	7.40	8.14	7.88	0.23	10
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0030	0.0025	0.0007	10
Total Dissolved Solids	(mg/L)	600	651	621	609	601	610	623	606	591	628	591	651	614	17	10
Total Alkalinity as $CaCO_3$	(mg/L)	521	584	549	550	570	540	547	543	541	532	521	584	548	18	10
Total Hardness as $CaCO_3$	(mg/L)	354	354	370	358	300	360	365	372	330	371	300	372	353	22	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0146	<0.0050	0.0146	0.0146	0.0146	N/A	10
Antimony	(mg/L)	0.0008	0.0005	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	<0.00040	0.00050	0.00080	0.00060	0.00014	10
Arsenic	(mg/L)	0.0022	0.0026	0.0023	0.0025	0.002	0.0026	0.00285	0.00199	0.00267	0.00285	0.00199	0.00285	0.00246	0.00032	10
Barium	(mg/L)	0.153	0.182	0.178	0.146	0.1	---	0.143	0.13	0.112	0.143	0.100	0.182	0.143	0.027	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	<0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	---	0.00006	0.00006	0.00006	N/A	4
Boron	(mg/L)	0.234	0.282	0.251	0.233	0.22	---	0.242	0.244	0.219	0.227	0.219	0.282	0.239	0.019	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.00012	<0.001	<0.0002	0.000006	<0.00010	<0.00010	< 0.00010	<0.00010	0.00001	0.00001	0.00001	N/A	10
Chromium	(mg/L)	0.0038	<0.0004	0.0016	0.0015	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	<0.0050	0.0015	0.0038	0.0023	0.0013	10
Cobalt	(mg/L)	0.0008	0.001	0.0007	0.0012	0.0007	0.0006	0.00065	0.00043	0.00046	0.00045	0.00043	0.00120	0.00070	0.00025	10
Copper	(mg/L)	<0.0006	0.0008	<0.0006	<0.0006	<0.0002	0.0008	<0.0010	<0.0010	< 0.0010	<0.0010	0.0008	0.0008	0.0008	0.0000	10
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	<0.00010	0.00040	0.00040	0.00040	N/A	10
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	0.00007	0.000001	<0.00010	<0.000020	< 0.000020	<0.000020	0.000001	0.000070	0.000036	0.000049	10
Molybdenum	(mg/L)	0.0015	0.0013	0.0012	0.0017	0.0014	0.0012	0.00115	0.00102	0.00121	0.00115	0.00102	0.00170	0.00128	0.00020	10
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0033	0.0021	0.0012	0.0022	<0.0020	< 0.0020	<0.0020	0.0012	0.0033	0.0022	0.0009	10
Selenium	(mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	<0.00040	N/A	N/A	N/A	N/A	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	<0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	0.915	0.903	0.925	0.972	0.84	---	---	---	---	---	0.840	0.972	0.911	0.048	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	<0.000050	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00070	0.00200	0.00104	0.00049	10
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	0.00110	0.00094	0.00011	10
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	<0.00010	< 0.00010	<0.00010	0.00040	0.00040	0.00040	N/A	10
Zinc	(mg/L)	0.01	<0.002	0.007	0.004	<0.003	<0.003	<0.0020	0.0021	< 0.0030	< 0.0030	0.002	0.010	0.006	0.003	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00050	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

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Appendix 6
Statistical Tables: MW-13

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	Minimum	Maximum	Mean	Standard Deviation	Count
Groundwater Elevation																
Depth To Groundwater	(m btoc)	32.6	33.45	33.24	32.54	32.39	32.41	32.68	32.46	32.56	32.49	32.39	33.45	32.68	0.36	10
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	592.83	593.89	593.60	0.36	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	776	541	733	759	541	776	702	109	4
pH	(---)	---	---	---	---	---	---	7.53	7.06	7.69	7.6	7.06	7.69	7.47	0.28	4
Temperature	(°C)	---	---	---	---	---	---	7.0	8.5	6.9	10.1	6.9	10.1	8.1	1.5	4
Select Indicator Parameters																
Calcium	(mg/L)	53.7	51.2	55.6	53	45	54	50	48.1	48	49.7	45.0	55.6	50.8	3.3	10
Chloride	(mg/L)	2	4	4	2	2	3	2.15	1.92	1.81	2.28	1.81	4.00	2.52	0.85	10
Fluroide	(mg/L)	0.2	0.14	0.14	0.13	0.2	0.15	0.16	0.162	0.119	0.147	0.119	0.200	0.155	0.027	10
Iron	(mg/L)	0.818	1.08	1.19	1.26	<0.06	1.3	1.45	1.25	1.33	1.17	0.82	1.45	1.21	0.18	10
Magnesium	(mg/L)	16.5	16.2	17.1	16.9	14	17	16.4	15.3	14.4	16.2	14.0	17.1	16.0	1.1	10
Manganese	(mg/L)	0.263	0.243	0.256	0.252	0.25	0.26	0.249	0.231	0.238	0.252	0.231	0.263	0.249	0.010	10
Potassium	(mg/L)	4.2	3.4	3.9	3.5	3.5	3.9	---	3.74	4	3.98	3.40	4.20	3.79	0.27	9
Sodium	(mg/L)	112	103	112	105	110	110	110	103	101	118	101	118	108	5	10
Bicarbonate	(mg/L)	531	537	715	541	560	520	530	530	529	525	520	715	552	58	10
Carbonate	(mg/L)	<5	<5	541	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	541.0	541.0	541.0	N/A	10
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	10
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	N/A	N/A	N/A	N/A	10
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	0.005	0.200	0.102	0.098	10
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	0.005	0.200	0.102	0.098	10
Sulphate	(mg/L)	11	13	10	9.1	9	9	10	9	9	10	9.0	12.5	9.8	1.1	10
Dissolved Organic Carbon	(mg/L)	4	5	5	5	5	4.5	4.1	5.2	4.6	4.4	4.0	5.2	4.7	0.4	10
Electrical Conductivity	(µS/cm)	784	782	715	782	790	770	776	796	786	769	715	796	775	23	10
Ion Balance	(%)	100	92.2	99.4	96.3	0.87	100	97.5	92.1	90.5	102	1	102	87	31	10
pH	(---)	8.1	7.8	8	8.2	8	7.81	8.22	8.24	8.18	7.92	7.80	8.24	8.05	0.17	10
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	0.0030	0.0020	0.0014	10
Total Dissolved Solids	(mg/L)	460	454	470	456	457	460	453	442	438	464	438	470	455	10	10
Total Alkalinity as $CaCO_3$	(mg/L)	435	440	443	444	460	430	435	434	433	430	430	460	438	9	10
Total Hardness as $CaCO_3$	(mg/L)	202	195	209	202	170	200	192	183	179	191	170	209	192	12	10
Dissolved Metals Parameters																
Aluminum	(mg/L)	<0.01	0.07	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0700	0.0700	0.0700	N/A	10
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	0.00080	0.00060	0.00016	10
Arsenic	(mg/L)	0.0012	0.0016	0.0014	0.0014	0.001	0.0015	0.00162	0.00157	0.0014	0.00176	0.00100	0.00176	0.00145	0.00022	10
Barium	(mg/L)	0.389	0.413	0.424	0.428	0.29	---	0.407	0.411	0.354	0.462	0.290	0.462	0.398	0.050	9
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Bismuth	(mg/L)	<0.00005	<0.0001	<0.00005	<0.00005	---	---	---	---	---	---	N/A	N/A	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	0.197	0.301	0.252	0.030	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000005	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00001	0.00001	0.00001	N/A	10
Chromium	(mg/L)	0.0048	0.0007	0.0011	0.0016	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	< 0.0050	0.0007	0.0048	0.0021	0.0019	10
Cobalt	(mg/L)	0.0008	0.0033	0.0007	0.0009	0.0009	0.0007	0.00092	0.00062	0.00065	0.00128	0.00062	0.00330	0.00108	0.00080	10
Copper	(mg/L)	<0.0006	0.0007	<0.0006	<0.0006	<0.0002	0.0003	<0.0010	<0.0010	< 0.0010	< 0.0010	0.0003	0.0007	0.0005	0.0003	10
Lead	(mg/L)	0.0002	0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00020	0.00020	0.00020	0.00000	10
Mercury	(mg/L)	<0.0001	0.0001	<0.0001	<0.0001	0.00007	<0.000001	<0.00010	<0.000020	< 0.000020	< 0.000020	0.000070	0.000100	0.000085	0.000021	10
Molybdenum	(mg/L)	0.0023	0.0027	0.0021	0.0023	0.0028	0.0022	0.00219	0.00194	0.0018	0.00484	0.00180	0.00484	0.00252	0.00087	10
Nickel	(mg/L)	0.0009	0.0015	<0.0001	0.0022	0.0016	0.0012	0.0021	<0.0020	< 0.0020	0.0112	0.0009	0.0112	0.0030	0.0037	10
Selenium	(mg/L)	<0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	< 0.00040	0.00050	0.00050	0.00050	N/A	10
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	< 0.00010	N/A	N/A	N/A	N/A	10
Strontium	(mg/L)	0.57	0.542	0.553	0.58	0.5	---	---	---	---	---	0.500	0.580	0.549	0.031	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	< 0.000050	N/A	N/A	N/A	N/A	10
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	---	---	---	---	N/A	N/A	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	0.00060	0.00200	0.00085	0.00056	10
Uranium	(mg/L)	0.0008	0.0009	0.0008	0.0008	0.0009	0.0007	0.00069	0.00073	0.00063	0.00075	0.00063	0.00090	0.00077	0.00009	10
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	<0.00010	< 0.00010	< 0.00010	0.00040	0.00040	0.00040	N/A	10
Zinc	(mg/L)	0.005	<0.002	0.009	<0.002	<0.003	<0.003	<0.0020	<0.0020	< 0.0030	< 0.0030	0.005	0.009	0.007	0.003	10
Petroleum Hydrocarbon Parameters																
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	< 0.00050	N/A	N/A	N/A	N/A	10
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	< 0.00050	N/A	N/A	N/A	N/A	10
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	< 0.00071	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10})	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F1 (C_6-C_{10}) - BTEX	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	N/A	N/A	N/A	N/A	10
PHC F2 ($C_{>10}$-C_{16})	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	N/A	N/A	N/A	N/A	10

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. Values below detection limits are not included in statistical analyses.*
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).*

Appendix 7 QA/QC Results Summary

Appendix 7

QA/QC FOR DUPLICATE SAMPLES
July 2013 Sampling Event

Parameters	Units	Detection Limit	MW-10	Duplicate from MW-10	RPD	AD
Date			09-Jul-13	09-Jul-13		
TDS-calculated	mg/L	---	832	833	---	1
Total Hardness (as $CaCO_3$)	mg/L	---	509	506	---	3
Total Alkalinity (as $CaCO_3$)	mg/L	5.	523.	527.	0.8	---
EC	µS/cm	0.2	1250.	1250.	0.0	---
pH	pH Units	0.1	8.09	8.04	0.6	---
Bicarbonate	mg/L	5.	638.	643.	0.8	---
Carbonate	mg/L	5.	<5.	<5.	---	---
Chloride:D	mg/L	0.5	0.68	0.85	---	0.17
Fluoride:D	mg/L	0.05	0.107	0.115	---	0.008
Sulphate:D	mg/L	0.5	215.	216.	0.5	---
Nitrate as N	mg/L-N	0.1	<0.05	<0.05	---	---
Nitrite as N	mg/L-N	0.05	<0.05	<0.05	---	---
Calcium:D	mg/L	0.5	141.	142.	0.7	---
Magnesium:D	mg/L	0.1	37.3	36.7	1.6	---
Potassium:D	mg/L	0.1	6.22	5.96	4.3	---
Sodium:D	mg/L	0.5	118.	115.	2.6	---
Iron:D	mg/L	0.005	6.11	6.03	1.3	---
Manganese:D	mg/L	0.001	0.729	0.71	2.6	---
Phenols	mg/L	0.001	<0.001	<0.001	---	---
DOC	mg/L	1.	5.4	5.4	0.0	---
Ion Balance	%		103.	101.	2.0	---
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	0.00485	0.00479	1.2	---
Barium:D	mg/L	0.005	0.0295	0.0293	0.7	---
Beryllium:D	mg/L	0.0005	<0.0005	<0.0005	---	---
Bismuth:D	mg/L	----	---	---	---	---
Boron:D	mg/L	0.05	0.162	0.159	---	0.003
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	0.00032	0.00031	---	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	0.00002	<0.00002	<0.00002	---	---
Molybdenum:D	mg/L	0.00005	0.00087	0.00086	0.8	---
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	0.00116	0.00115	0.9	---
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	0.00075	<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_6-C_{10})-BTEX	mg/L	0.1	<0.1	<0.1	---	---
F2 (C_{11}-C_{16})	mg/L	0.1	<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.