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NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION

2012 Groundwater Quality Monitoring

Beverly Channel Monitoring Wells

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PROJECT 307075-01129 - 2012 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 2006 (Stantec Consulting Ltd. 2006a, 2006b, 2007, 2008, and 2009; and WorleyParsons 2010 and 2011). 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 placed into 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 and 2011) and is summarized as follows:

- Depth to the groundwater surface has historically ranged from approximately 14 to 34 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 (range of 125 to 200 mg/L; mean of 155 mg/L) 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.

1.3 Scope of Work

The main objective of the 2012 program was to conduct annual groundwater quality monitoring. One sampling event was conducted in the spring 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.

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 2010. 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 wells have been completed within the Beverly Channel and six wells have been completed in the upper bedrock. Table A summarizes the range and mean concentrations calculated from available water well records.

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 (2005) and are provided in Appendix 2.

3.2 Groundwater Sampling

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

- Prior to sampling, the static groundwater level was measured with an electrical tape. The tape was cleaned by rinsing with distilled water after each reading.
- Wells were purged of standing water using a Grundfos submersible pump. The temperature, pH, and EC of the water were monitored during purging. The wells were purged until these parameters stabilized.
- After purging and field measurements, groundwater samples were collected using the Grundfos pump. 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 carbons (DOC) analyses were field-filtered. 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 using pH 4 and pH 7 buffer solutions.
- **Electrical Conductivity:** WTW 3150i conductivity meter with a Tetracon 325 probe calibrated 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 benzene, toluene, ethyl-benzene and xylenes (BTEX), and petroleum hydrocarbon fractions (PHC) F1 and F2.

- A blind duplicate for analysis of major ions/routine potability, BTEX, PHC F1 and F2, and dissolved metals and trace elements.
- 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 May 29 and 30, 2012. All groundwater samples were analyzed by ALS, an accredited laboratory pursuant to ISO 17025.

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 alkalinity, bicarbonate, carbonate, calcium, chloride, EC, hydroxide, iron, magnesium, manganese, nitrate-as-nitrogen, nitrite-as-nitrogen, pH, potassium, sodium, sulphate, TDS, and total hardness;
- Petroleum hydrocarbon parameters, including BTEX, PHC F1 and F2; and
- 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.

Table B 2012 Analytical Schedule

Station	Major Ions/Routine Potability (see Table 3)	Petroleum Hydrocarbons (see Table 4)	Dissolved Metals & Trace Elements (see Table 5)
MW-01	✓	✓	✓
MW-02	✓	✓	✓
MW-03	✓	✓	✓
MW-04	✓	✓	✓
MW-05	✓	✓	✓
MW-06	✓	✓	✓
MW-07	✓	✓	✓
MW-08	✓	✓	✓
MW-09	✓	✓	✓
MW-10	✓	✓	✓

Station	Major Ions/Routine Potability (see Table 3)	Petroleum Hydrocarbons (see Table 4)	Dissolved Metals & Trace Elements (see Table 5)
MW-11	✓	✓	✓
MW-12	✓	✓	✓
MW-13	✓	✓	✓

3.3 Assessment Criteria

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

- Health Canada 2010: 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 included 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 data sets 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; and
- Sen's normalized slope (in % change per year) was 10% or greater (either positive or negative).

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

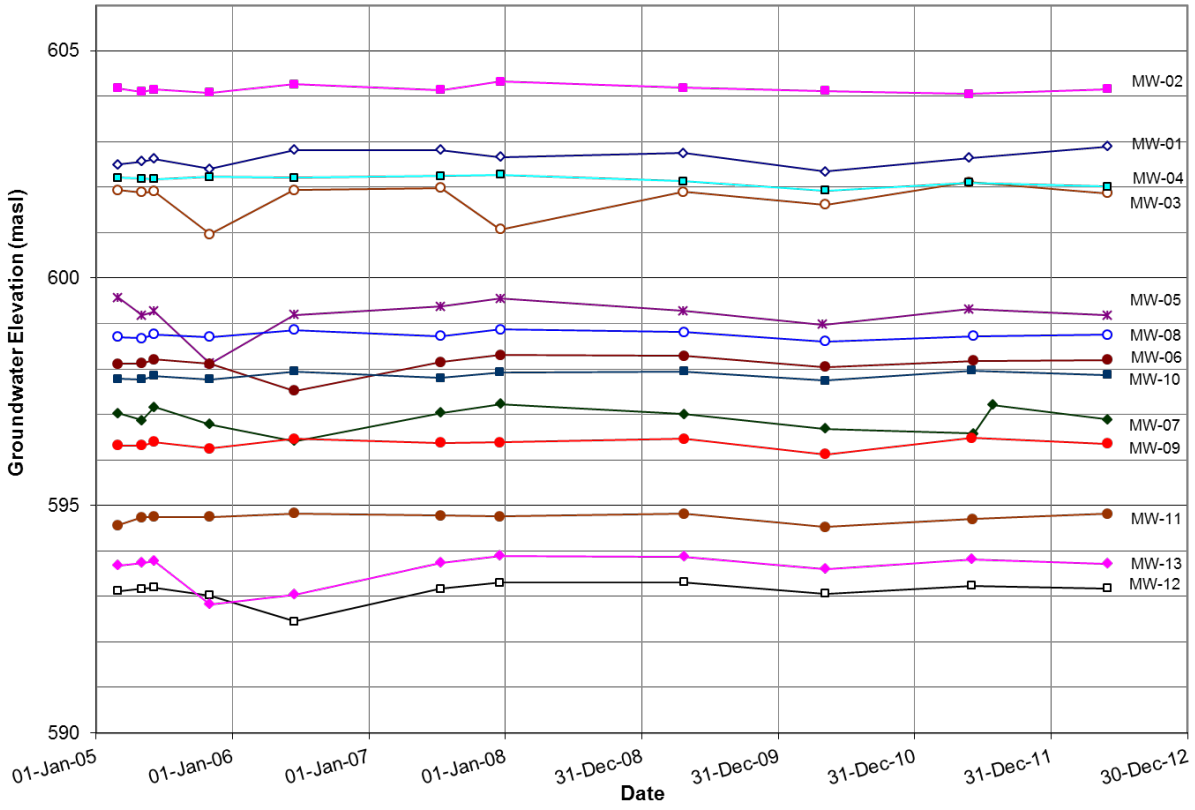
4. 2012 RESULTS

4.1 Groundwater Flow

4.1.1 Groundwater Elevations

Groundwater hydrographs are provided in Appendix 3 and summarized in Figure 4.1 (below). Groundwater surface elevations within the Beverly Channel ranged from 593.18 (MW-12) to 604.15 (MW-02) metres above sea level (masl) in 2012 (Table 1). All water levels are consistent with historical values.

Figure 4.1 Historical Groundwater Surface Elevation in Beverly Channel Monitoring Wells



The data used to create the above figure are consistent with data provided by Stantec and available on the NCIA website. These data were further confirmed with Stantec (King 2010; personal communication).

4.1.2 Horizontal Groundwater Flow

Groundwater flow in the Beverly Channel was generally to the northwest, toward the North Saskatchewan River (Figure 3). The average lateral hydraulic gradient across the Beverly Channel was approximately

0.0013 m/m. Based on a geometric mean hydraulic conductivity of 2.3 x 10^{-4} m/s, an average hydraulic gradient of 0.0013 m/m, and an assumed effective porosity of 0.25, the linear groundwater flow velocity was about 38 m/year, on average.

4.2 Field-Measured Parameters

Results of the field parameters are presented in Table 2. Groundwater temperatures ranged from 6.9 to 9.8°C; EC values ranged from 733 to 2,540 µS/cm; and pH ranged from 6.88 to 7.72.

4.3 Groundwater Quality

Groundwater analytical data are presented in Tables 3, 4 and 5. 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 May 2012 sampling event are summarized as follows:

- Dissolved sulphate exceeded the applied guideline at MW-07.
- Iron concentrations exceeded the applied guideline at all sampling locations.
- Manganese concentrations exceeded the applied guideline at all sampling locations.
- TDS concentrations were in excess of the applied guideline at all sampling locations except MW-01 and MW-13.
- Sodium concentrations were above the applied guideline at MW-07 and MW-09.
- DOC at MW-02, MW-08, and MW-12 were at historical high concentrations in 2011; the 2012 results are lower and consistent with historical averages.
- Results for the other inorganic parameters are consistent with historical results.

4.3.2 Petroleum Hydrocarbon Parameters

Petroleum hydrocarbon parameter data are presented in Table 4. All results were lower than the reporting detection limit (RDL) except at MW-04.

At MW-04 toluene and xylenes were detected at concentrations above the RDL, but lower than 5 times the RDL. In the duplicate sample, however, all PHC compounds were non-detectable. Therefore, the toluene and xylene results for the original sample are considered unreliable, possibly subject to interference either during field activities or laboratory analysis.

4.3.3 Dissolved Metals Parameters

Dissolved metals parameter data are presented in Table 5 and results from the 2012 sampling event are summarized below.

- Dissolved metals and trace elements had concentrations below the applied guidelines at all monitoring wells where guidelines exist.
- Results for dissolved metals and trace elements were generally consistent with historical results. Aluminum was the exception, detectable aluminum values occurred for the first time at MW-07, MW-08, MW-10, MW-11, and MW-12. These values are significantly below the reference guideline. Further sampling should confirm whether aluminum is present above the RDL.

4.3.4 Trends and Statistical Analysis

Hydrochemical control charts and Mann-Kendall/Sen's slope analysis are presented in Appendix 5. Results are summarized as follows.

- Chloride levels at MW-06, MW-08 and MW-10 have statistically decreased.
- The iron concentration at MW-02 and MW-06 have statistically increased, however, the last three results have been stable.

4.4 QA/QC Results 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 at (MW-04) indicated that all results (Table 3) met the above criteria, except for potassium, toluene and xylenes (Table 4 and 5). The RPD for potassium was 24.3%; therefore the values should be considered estimates. Toluene and xylenes results were within five times the detection limit and the absolute difference was 0.00042 mg/L (< 1 x RDL) for toluene and 0.00215 mg/L (> 1 x RDL) for xylenes; therefore their values should be considered as estimates.

Standard Methods (2005) indicates an ion balance or ±10% as a typically acceptable criterion 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). All ion balance results were within this criterion.

A field blank was collected and analyzed for PHC, including BTEX, PHC F1 and F2. All parameters were below their reporting detection limits (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

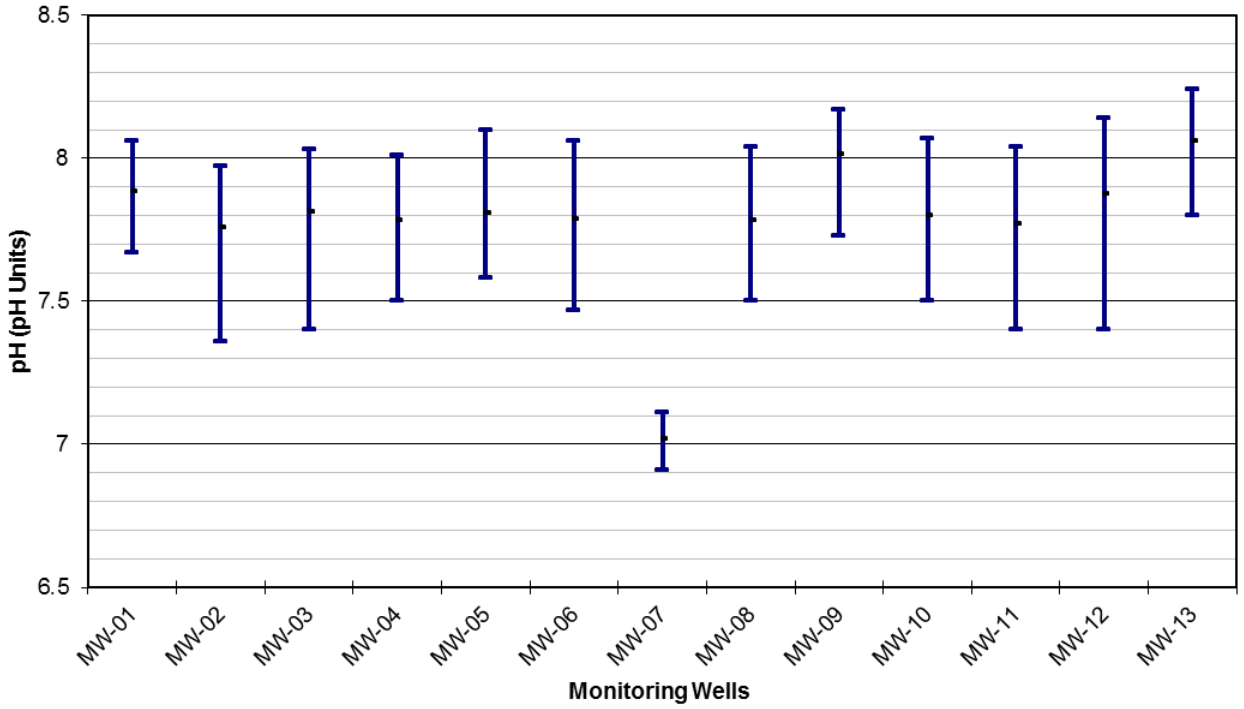
5.1 pH

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 2010). 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 6.91 to 8.24 (Figure 5.1) and are within the range of natural waters as defined by Hem (1992) and within the AO guideline range established by Health Canada (2010).

Figure 5.1 Range of pH in Beverly Channel Monitoring Wells

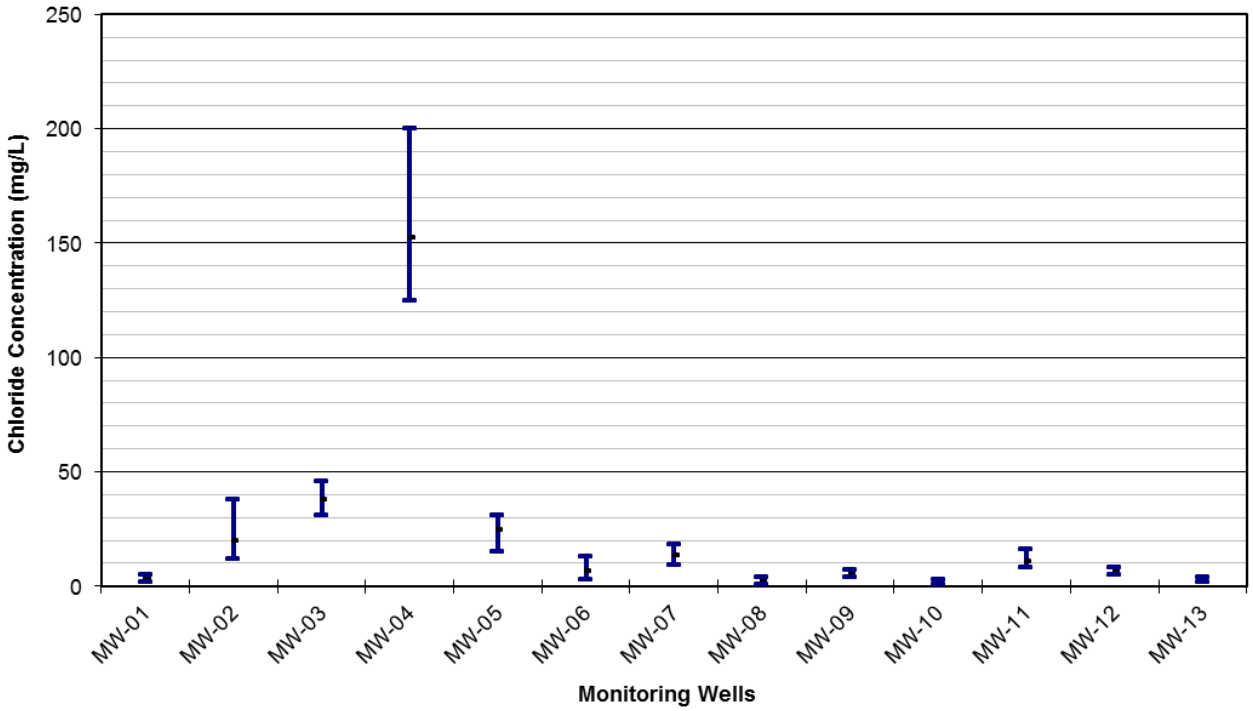


5.2 Chloride

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 a tracer, or 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 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 (2010) suggests an AO guideline of less than or equal to 250 mg/L for chloride 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 5.2) 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). At MW-04, MW-06, MW-08, and MW-10 chloride concentration has decreased.

Figure 5.2 Range of Chloride Concentrations in Beverly Channel Monitoring Wells



5.3 Sulphate

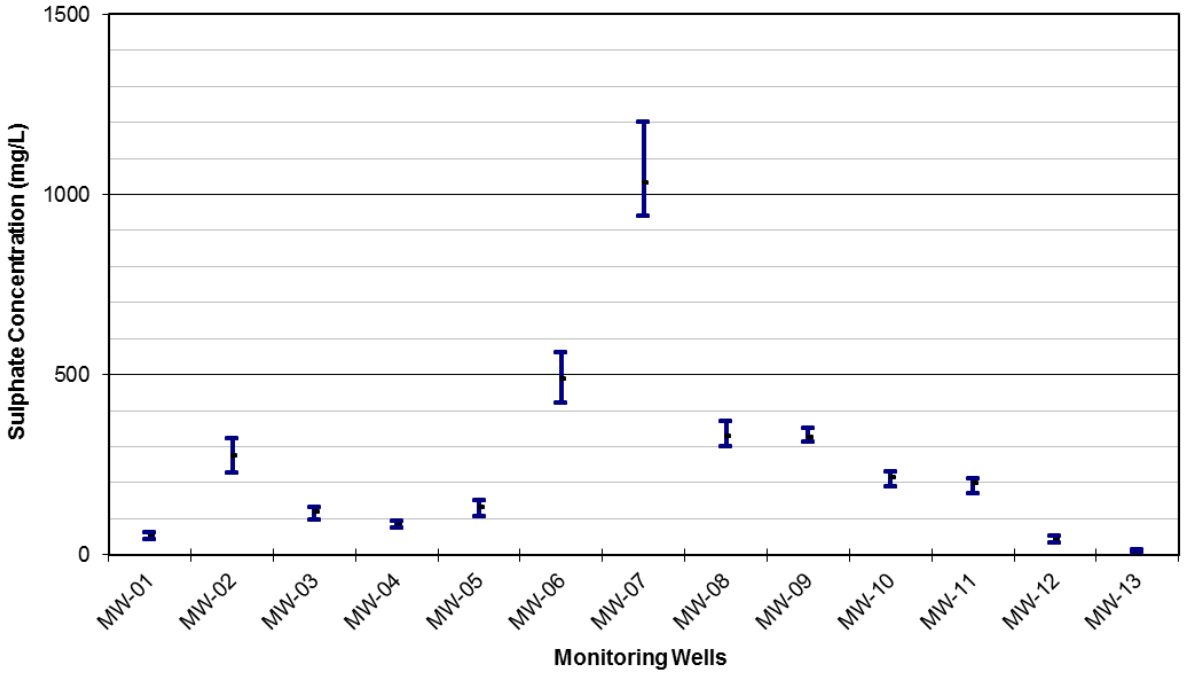
Sources of sulphur that can be found in the natural environment include certain igneous rock minerals and evaporite sediment (e.g. gypsum), volcanic activity, and geothermal water (Hem 1992). Anthropogenic sources of sulphate are mainly introduced by the combustion of fuels and the smelting of ores (Hem 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 (2010) is less than or equal to 500 mg/L. 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 5.3). 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 5.3 Range of Sulphate Concentrations in Beverly Channel Monitoring Wells



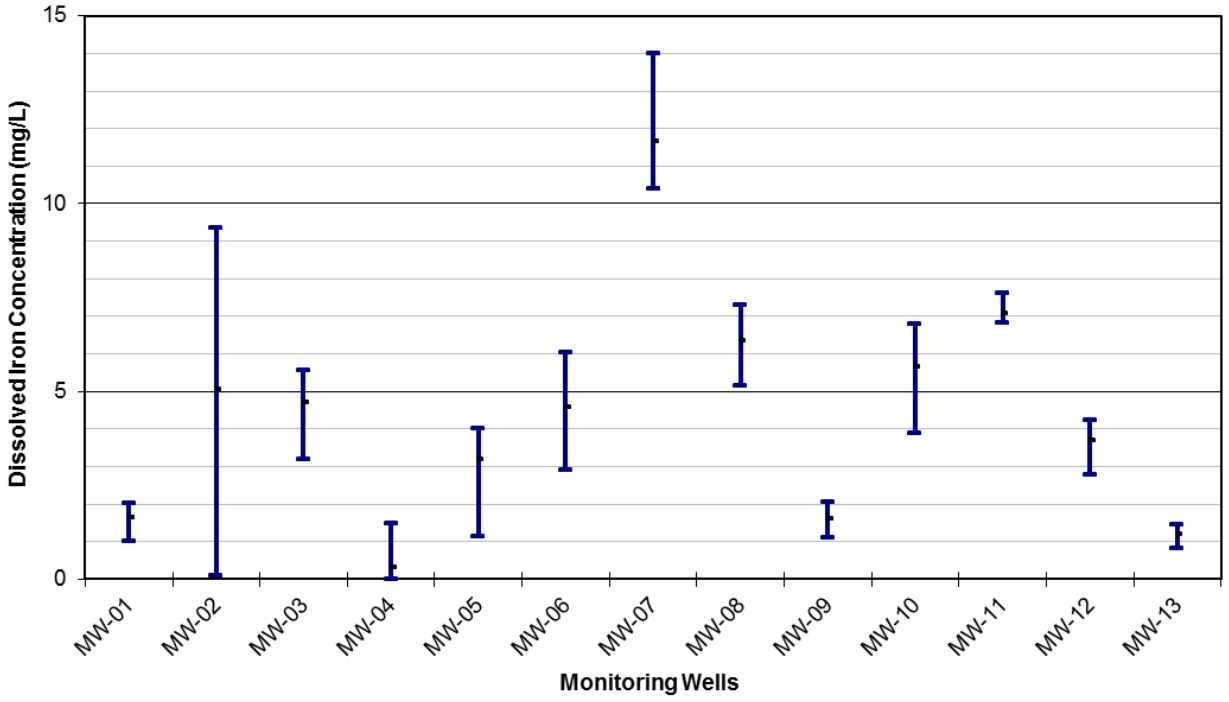
5.4 Dissolved Iron

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 reprecipitated 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 1978b)

The AO suggested by Health Canada (2010) for iron in drinking water is less than or equal to 0.3 mg/L. 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. All iron concentrations in the Beverly Channel monitoring wells were higher than the drinking water guideline (Figure 5.4). At MW-02 and MW-06, iron concentrations have statistically increased.

Figure 5.4 Range of Dissolved Iron Concentrations in Beverly Channel Monitoring Wells



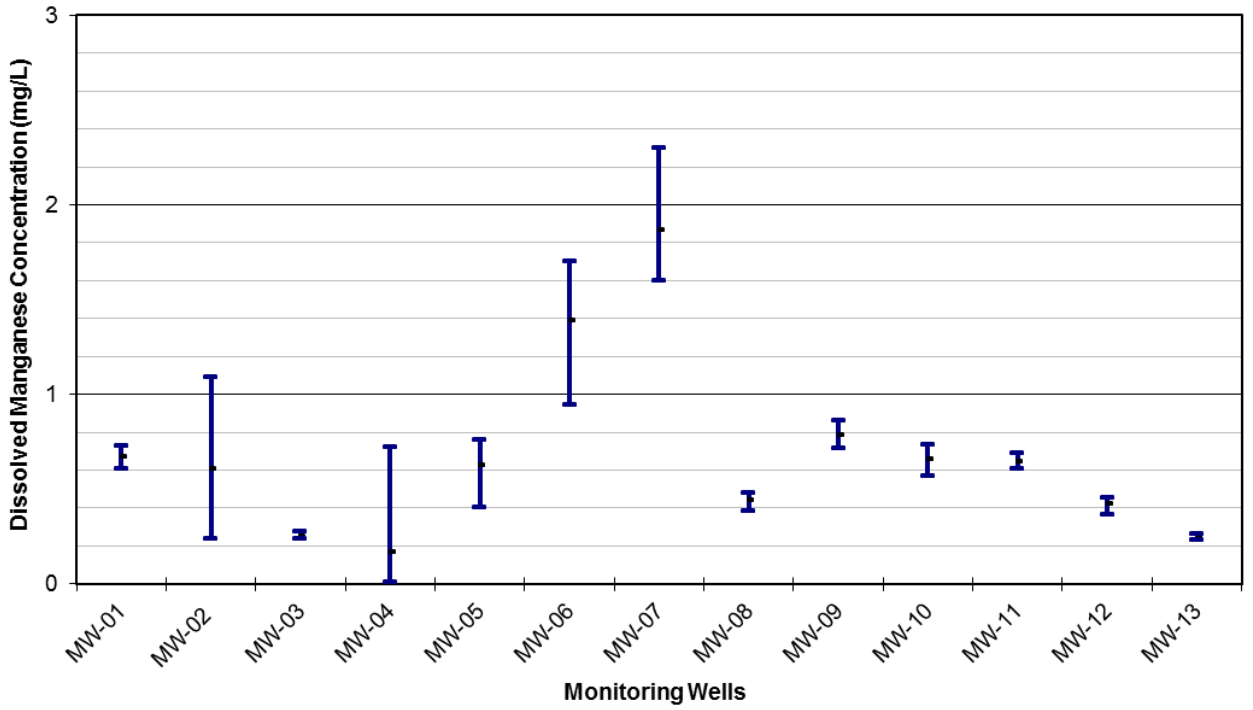
5.5 Dissolved Manganese

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 (2010) suggests an AO guideline of less than or equal to 0.05 mg/L 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 5.5) 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.

Figure 5.5 Range of Dissolved Manganese Concentrations in Beverly Channel Monitoring Wells



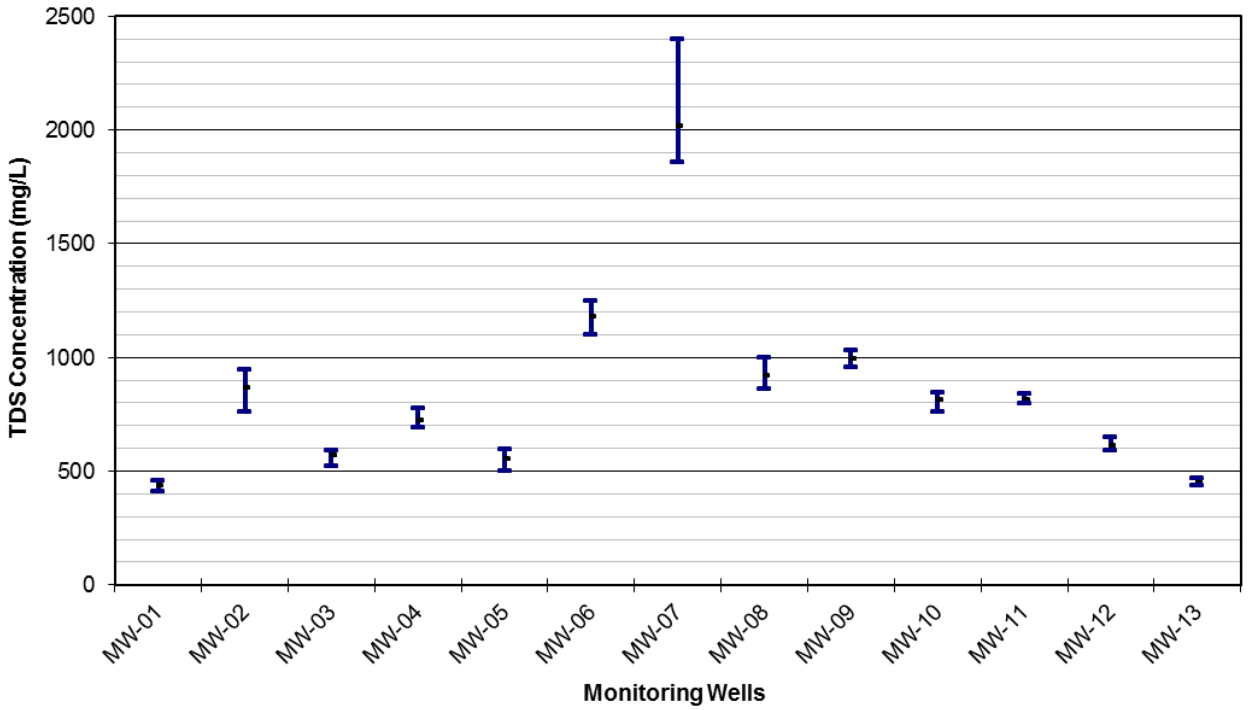
5.6 Total Dissolved Solids

TDS are dissolved constituents which comprise inorganic salts, primarily the major cations and anions used for groundwater characterization, as well as 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 (2010) suggests an AO of less than or equal to 500 mg/L for TDS to minimize hardness, unpalatability, mineral deposition and corrosion (Health Canada 1978b). Recent data on health affects 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 5.6), with only two of the monitoring wells showing TDS of less than 500 mg/L. This is generally in agreement 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 5.6 Range of TDS Concentrations in Beverly Channel Monitoring Wells



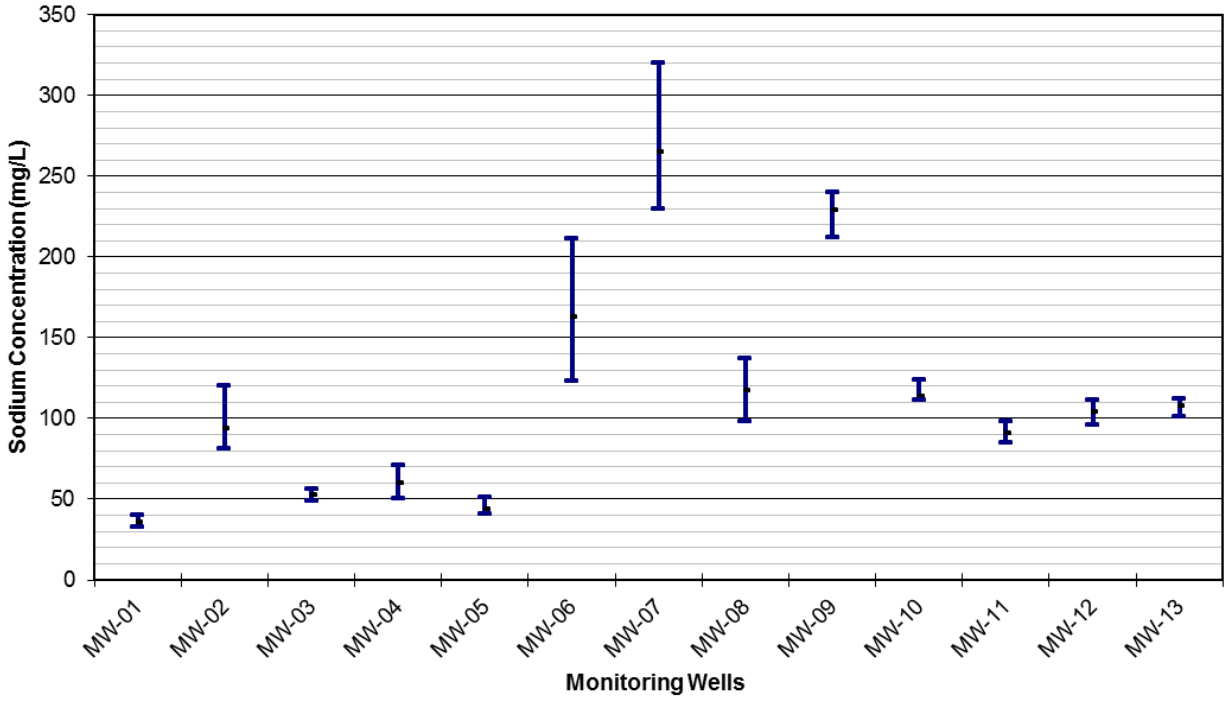
5.7 Sodium

Sodium is sometimes present in feldspar minerals, which can be released into water through weathering, or 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 (2010) suggests an AO of less than or equal to 200 mg/L for sodium. 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 30 to 320 mg/L (Figure 5.7). The upper range of sodium concentrations observed at MW-06, MW-07, and MW-09 is outside the range expected for normal groundwater in Canada (with a typical upper range of 130 mg/L), but are well within the range of concentrations of natural waters observed in North America. They might reflect discharge of groundwater from bedrock.

Figure 5.7 Range 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 May 2012. Results are summarized as follows:

- Lateral groundwater flow was generally to the northwest. The linear groundwater flow velocity was about 38m/year on average.
- Hydrocarbons were detected for one sample at MW-04 but not in the duplicate sample. The detection of toluene and xylenes at one sample from MW-04 is considered unreliable.
- 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 (WorleyParsons 2010). At MW-04, MW-06, MW-08 and MW-10 chloride concentration has decreased.
- Iron, manganese, total dissolved solids, and sodium appear to be naturally elevated within the Study Area. Statistically increasing iron was noted at MW-02 and MW-06, however the concentration remains well within naturally occurring ranges (Stein 1976).
- The cause of the elevated sulphate at MW-07 is unknown. Elevated 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.
- The elevated, but below reference guideline, chloride concentration observed at MW-04 is likely showing bedrock groundwater quality conditions.

Groundwater data to date has shown that indicator parameter concentrations are generally within natural ranges for groundwater within Sturgeon and Strathcona County. Statistically significant decreasing trends were observed for chloride at MW-06 and MW-08, and increasing trends for dissolved iron at MW-02 and MW-09. The previous historical high concentrations of DOC at MW-02, MW-08, and MW-12 were not confirmed as the 2012 values returned to near historical averages.

Recommendations are as follows:

- Annual groundwater monitoring should be completed in 2013. The analytical schedule should be the same as presented in Table B.

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.: 307075-01129

Monitoring Station	Status	Ground Elevation (masl)	Datum Elevation (Top of PVC) (masl)	Stickup (PVC) (m)	Total Depth of Piezometer (mbgs)	Depth Interval of Sand (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	Comments
MW-01		617.52	618.04	0.52	19.80	N/A	14.30 - 19.80	07-Mar-2005	15.55	15.03	602.49		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			
MW-02		630.71	631.31	0.60	33.80	N/A	26.20 - 33.80	07-Mar-2005	27.14	26.54	604.17		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			
MW-03		623.79	624.43	0.64	29.60	N/A	23.50 - 29.60	08-Mar-2005	22.50	21.86	601.93		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			
MW-04		620.25	620.79	0.54	26.20	N/A	19.50 - 26.20	08-Mar-2005	18.59	18.05	602.20		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			

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

PROJECT NO.: 307075-01129

Monitoring Station	Status	Ground Elevation (masl)	Datum Elevation (Top of PVC) (masl)	Stickup (PVC) (m)	Total Depth of Piezometer (mbgs)	Depth Interval of Sand (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	Comments
								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			
MW-05		624.28	624.89	0.61	31.40	N/A	23.20 - 31.40	08-Mar-2005	25.32	24.71	599.57		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			
MW-06		629.61	630.28	0.67	39.00	N/A	32.90 - 39.00	08-Mar-2005	32.17	31.50	598.11		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			
MW-07		630.41	631.01	0.60	43.90	N/A	36.30 - 43.90	09-Mar-2005	33.98	33.38	597.03		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			
MW-08		625.87	626.44	0.57	33.50	N/A	28.70 - 33.50	09-Mar-2005	27.74	27.17	598.70		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			

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Table 1

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

PROJECT NO.: 307075-01129

Monitoring Station	Status	Ground Elevation (masl)	Datum Elevation (Top of PVC) (masl)	Stickup (PVC) (m)	Total Depth of Piezometer (mbgs)	Depth Interval of Sand (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	Comments
MW-09		624.06	624.73	0.67	36.60	N/A	30.50 - 36.60	16-Jun-2006	27.58	27.01	598.86		Gravel, Sand and Gravel	
								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-Mar-2005	28.41	27.74	596.32			
								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			
MW-10		624.06	624.67	0.61	41.80	N/A	31.40 - 41.80	09-Mar-2005	26.89	26.28	597.78		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			
MW-11		624.49	625.16	0.67	44.20	N/A	35.10 - 44.20	10-Mar-2005	30.60	29.93	594.56		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			
MW-12		625.46	626.07	0.61	38.10	N/A	33.50 - 38.10	10-Mar-2005	32.95	32.34	593.12		Sand, Sand and Gravel	

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Table 1

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

PROJECT NO.: 307075-01129

Monitoring Station	Status	Ground Elevation (masl)	Datum Elevation (Top of PVC) (masl)	Stickup (PVC) (m)	Total Depth of Piezometer (mbgs)	Depth Interval of Sand (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	Comments
MW-13		625.65	626.28	0.63	40.50	N/A	36.00 - 40.50	04-May-2005	32.90	32.29	593.17		Gravel	
								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-Mar-2005	32.60	31.97	593.68			
								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			

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.***
7. ***Product corrected to a specific density of 0.8 unless otherwise specified***

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Table 2

Water Quality Analytical Results: Field-Measured Parameters

PROJECT NO.: 307075-01129

Monitoring Station	Date (d-m-y)	Field-Measured Parameters: Temperature (deg c)	Electrical Conductivity (µS/cm)	pH (ph units)	Comments
Canadian Drinking Water AO Guidelines 2010[1]		**15**	**---**	**(6.5 - 8.5)**	**---**
MW-01	05-May-2010	5.6	749	6.95	
	25-May-2011	7.6741	741	7.11	
	29-May-2012	7.6	749	6.88	Slightly yellow/very turbid
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	Clear
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	Clear
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	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	V.silty grey
MW-06	06-May-2010	5.7	1773	7.21	
	07-Jun-2011	11.1	1762	7.215	
	29-May-2012	7.6	1699	7.29	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	Clear
MW-08	05-May-2010	5.4	1359	7.09	
	07-Jun-2011	9	1378	7.408	Slight silt
	30-May-2012	7.3	1363	7.31	Yellow/brown v.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	Clear
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	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	Clear
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	Clear
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	Clear

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 detection limit exceeds applicable guideline value.
5. Highlighting indicates result at guideline value.
4. Superscript [1] denotes values exceeding
(Health Canada, December 2010. 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)

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Table 3

Water Quality Analytical Results: Indicator Parameters

PROJECT NO.: 307075-01129

		General				Indicators						Cations, Anions & Ion Balance									Organics	Nitrogen Parameters				Phenol
Monitoring Station	Date (d-m-y)	Electrical Conductivity (µS/cm)	pH (ph units)	Total Hardness as $CaCO_3$ (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Chloride (mg/L)	Sulphate (mg/L)	Iron (mg/L)	Manganese (mg/L)	Total Dissolved Solids - Calculated (MG/L)	Total Dissolved Solids (MG/L)	Calcium (MG/L)	Magnesium (MG/L)	Potassium (MG/L)	Sodium (MG/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Ion Balance (%)	DOC (mg/L)	Nitrite as N (mg/L)	Nitrate as N (mg/L)	Nitrate plus nitrite as N (mg/L)	Ammonia as N (Unionized) (mg/L)	Phenols (MG/L)
Canadian Drinking Water AO Guidelines 2010[1]		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2010[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	100	3	< 0.05	< 0.1	< 0.1	0.39	< 0.001
	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	97.6	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	103	3	< 0.05	< 0.1	< 0.1	0.274	< 0.001
	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	98.6	3	< 0.05	< 0.1	< 0.1	0.185	< 0.001
	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	0.87	2	< 0.06	< 0.2	< 0.2	0.26	0.002
	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	93	2.3	< 0.003	0.003	0.003	0.22	0.003
	05-May-2010	762	8.06	363	371	3.46	62	2.02 [1]	0.73 [1]	---	456	98.6	28.4	---	38.1	453	< 5.0	< 5.0	0.15	102	3	< 0.050	< 0.050	< 0.071	0.221	< 0.0010
	25-May-2011	768	8.04	332	366	3.02	57.1	1.53 [1]	0.675 [1]	432	432	91.1	25.4	2.68	33.3	446	< 5.0	< 5.0	0.109	94.9	3.4	< 0.050	< 0.050	< 0.071	0.271	< 0.0010
	29-May-2012	769	8.00	330	369	3.13	56.2	1.57 [1]	0.694 [1]	---	435	93	23.7	2.7	35	450	< 5.0	< 5.0	0.106	94.7	3.1	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	101	8	< 0.05	0.1	0.1	1.75	< 0.001
	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	98.4	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	102	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	98.7	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	0.84	5	< 0.06	< 0.2	< 0.2	0.1	0.002
	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	89	4.1	< 0.003	0.005	0.005	0.56	0.002
	05-May-2010	1290	7.97	589	489	11.6	268	9.35 [1]	0.505 [1]	---	866 [1]	147	54	---	87.2	597	< 5.0	< 5.0	0.094	100	5.4	< 0.050	< 0.050	< 0.071	0.539	< 0.0010
	25-May-2011	1500	7.9	563	515	22.3	318	9.25 [1]	0.434 [1]	944 [1]	944 [1]	141	51.3	4.25	97.9	628	< 5.0	< 5.0	< 0.050	89.1	11.3	< 0.050	< 0.050	< 0.071	0.728	< 0.0010
	30-May-2012	1350	7.8	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	91	4.9	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	103	5	< 0.05	< 0.1	< 0.1	0.38	< 0.001
	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	98.1	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	102	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	102	3	< 0.05	< 0.1	< 0.1	0.291	< 0.001
	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	0.87	3	< 0.06	< 0.2	< 0.2	0.06	0.002
	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	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	96.4	5.3	< 0.050	< 0.050	< 0.071	0.339	< 0.0010
	02-Jun-2011	1000	7.98	452	355	44.2	120	5.55 [1]	0.277 [1]	588 [1]	588 [1]	115	40.1	3.2	52.7	433	< 5.0	< 5.0	0.105	105	3.3	< 0.050	< 0.050	< 0.071	0.302	< 0.0010
	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	0.08	91.7	3.4	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	98.5	1	< 0.05	0.8	0.8	< 0.05	< 0.001
	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	98.2	5	< 0.05	1.2	1.2	0.013	< 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	99.4	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	99.9	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	0.9	3	< 0.06	0.6	0.6	0.01	0.002
	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	99	2.8	< 0.003	0.4	0.4	< 0.05	< 0.002
	06-May-2010	1220	8.01	561	385	131	92.1	0.078	0.258 [1]	---	724 [1]	152	44	---	63.4	470	< 5.0	< 5.0	0.129	107	3	< 0.050	0.09	0.09	< 0.050	< 0.0010
	07-Jun-2011	1280	7.95	520	395	125	88.9	0.028	0.114 [1]	693 [1]	693 [1]	140	41.3	8.78	50.7	482	< 5.0	< 5.0	0.119	96.3	3	< 0.050	0.264	0.264	< 0.050	< 0.0010
	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	92.8	3.2	< 0.050	< 0.050	< 0.071	---	< 0.0010
(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	107	3.3	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	103	5	< 0.05	< 0.1	< 0.1	0.63	< 0.001
	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	95.4	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	101	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	98.5	4	< 0.05	< 0.1	< 0.1	0.216	0.002
	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	0.88	3	< 0.06	< 0.2	< 0.2	0.05	< 0.001
	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	100	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	103	3.3	< 0.050	< 0.050	< 0.071	0.234	< 0.0010
	25-May-2011	990	8.05	397	355	30.9	141	3.82 [1]	0.657 [1]	572 [1]	572 [1]	105	32.7	7.29	41.7	433	< 5.0	< 5.0	0.075	91.1	4.4	< 0.050	< 0.050	< 0.071	0.261	< 0.0010
	29-May-2012	1000	7.93	409	362	33.7	138	3.83 [1]	0.707 [1]	---	583 [1]	112	31.3	8	42.6	442	< 5.0	< 5.0	0.061	92.3	6.9	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	105	5	< 0.05	< 0.1	< 0.1	1.46	< 0.001
	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	101	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	104	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	99.4	7	< 0.05	< 0.1	< 0.1	1.92	< 0.001
	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	0.85	6	< 0.06	< 0.2	< 0.2	1.9	0.002
	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	110	5.1	< 0.003	0.004	0.004	1.7	0.003
	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	98.8	6.7	< 0.050	< 0.050	< 0.071	1.88	< 0.0010
	07-Jun-2011	1760	7.96	658	494	3.45	501 [1]	5.55 [1]	1.64 [1]	1150 [1]	1150 [1]	164	60.4	5.02	123	603	< 5.0	< 5.0	0.129	91.3	8	< 0.050	< 0.050	< 0.071	1.57	< 0.0010
	29-May-2012	1730	7.81	650	493	2.95	494	6.02 [1]	1.7 [1]	---	1160 [1]	167	56.5	5.8	139	602	< 5.0	< 5.0	0.128	94.7	6.8	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	102	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	102	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	105	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	103	6	< 0.05	< 0.1	< 0.1	2.03	< 0.001
	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	0.84	6	< 0.06	< 0.2	< 0.2	0.26	0.002
	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	110	6.6	< 0.003	0.004	0.004	2.5	0.003
	05-May-2010	2600	7.9	1040	538	13.2	1040 [1]	12.5 [1]	1.9 [1]	---	2010 [1]	262	93.5	---	274 [1]	657	< 5.0	< 5.0	0.135	100	5.8	< 0.050	< 0.050	< 0.071	2.33	< 0.0010

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Table 3

Water Quality Analytical Results: Indicator Parameters

PROJECT NO.: 307075-01129

		General				Indicators						Cations, Anions & Ion Balance									Organics	Nitrogen Parameters				Phenol
Monitoring Station	**Date (d-m-y)**	**Electrical Conductivity (µS/cm)**	**pH (ph units)**	**Total Hardness as $CaCO_3$ (mg/L)**	**Total Alkalinity as $CaCO_3$ (mg/L)**	**Chloride (mg/L)**	**Sulphate (mg/L)**	**Iron (mg/L)**	**Manganese (mg/L)**	**Total Dissolved Solids - Calculated (MG/L)**	**Total Dissolved Solids (MG/L)**	**Calcium (MG/L)**	**Magnesium (MG/L)**	**Potassium (MG/L)**	**Sodium (MG/L)**	**Bicarbonate (mg/L)**	**Carbonate (mg/L)**	**Hydroxide (mg/L)**	**Fluoride (mg/L)**	**Ion Balance (%)**	**DOC (mg/L)**	**Nitrite as N (mg/L)**	**Nitrate as N (mg/L)**	**Nitrate plus nitrite as N (mg/L)**	**Ammonia as N (Unionized) (mg/L)**	**Phenols (MG/L)**
Canadian Drinking Water AO Guidelines 2010[1]		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2010[2]		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	---	---	1	10	10	---	---
	08-Jun-2011	1900	7.69	728	440	8.07	622 [1]	8.26 [1]	1.21 [1]	1330 [1]	1330 [1]	178	68.8	4.38	189	537	< 5.0	< 5.0	0.116	104	11.5	< 0.050	< 0.050	< 0.071	1.83	0.002
	28-Jul-2011	2670	7.98	1000	540	11.8	1020 [1]	11.7 [1]	1.84 [1]	1950 [1]	1950 [1]	256	87.9	5.55	245 [1]	659	< 5.0	< 5.0	0.128	95.2	6.3	< 0.050	< 0.050	< 0.071	2.39	< 0.0010
	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	96.9	6	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	98.8	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	95.9	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	104	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	100	7	< 0.05	< 0.1	< 0.1	1.61	< 0.001
	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	0.84	5	< 0.06	< 0.2	< 0.2	0.25	0.001
	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	100	5.3	< 0.003	0.007	0.007	1.7	0.002
	05-May-2010	1360	8.04	542	458	1.43	333	7.22 [1]	0.47 [1]	---	927 [1]	146	43.2	---	122	558	< 5.0	< 5.0	0.13	101	5.3	< 0.050	< 0.050	< 0.071	1.74	< 0.0010
	07-Jun-2011	1400	7.95	497	463	0.97	320	5.41 [1]	0.411 [1]	876 [1]	876 [1]	136	38.3	5.12	98	565	< 5.0	< 5.0	0.082	89.8	10.3	< 0.050	< 0.050	< 0.071	1.71	0.0016
	30-May-2012	1360	7.93	481	459	0.86	308	6.69 [1]	0.409 [1]	---	867 [1]	135	35	5.69	107	560	< 5.0	< 5.0	0.084	92.3	5.7	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	93.2	5	< 0.05	0.1	0.1	1.81	< 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	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	99.9	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	97.9	7	< 0.05	< 0.1	< 0.1	1.8	< 0.001
	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	0.86	9	< 0.06	< 0.2	< 0.2	0.23	0.002
	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	100	5.5	< 0.003	0.005	0.005	1.9	0.003
	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	98.4	5.6	< 0.050	< 0.050	< 0.071	2.02	< 0.0010
	02-Jun-2011	1580	8.17	322	530	5.84	325	1.46 [1]	0.754 [1]	978 [1]	978 [1]	87.4	25.2	4.09	212 [1]	646	< 5.0	< 5.0	< 0.050	90	8	< 0.050	< 0.050	< 0.071	2.05	< 0.0010
	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	94.1	6	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	99.7	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	93.8	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	103	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	97.2	5	< 0.05	< 0.1	< 0.1	1.65	< 0.001
	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	0.84	5	< 0.06	< 0.2	< 0.2	1.8	0.002
	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	110	4.7	< 0.003	0.005	0.005	1.8	0.002
	05-May-2010	1270	8.07	508	519	0.73	227	6.8 [1]	0.735 [1]	---	847 [1]	139	39.1	---	124	633	< 5.0	< 5.0	0.169	104	5.1	< 0.050	< 0.050	< 0.071	1.71	< 0.0010
	02-Jun-2011	1260	8.04	407	497	1.19	206	3.89 [1]	0.566 [1]	759 [1]	759 [1]	113	30.2	5.58	105	607	< 5.0	< 5.0	< 0.050	89.9	6.7	< 0.050	< 0.050	< 0.071	1.6	0.0018
	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	93.5	5.9	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	104	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	93.4	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	101	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	98.6	8	< 0.05	< 0.1	< 0.1	1.43	< 0.001
	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	0.87	6	< 0.06	< 0.2	< 0.2	0.2	0.002
	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	110	5.5	< 0.003	0.003	0.003	1.5	0.004
	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	99.1	6	< 0.050	< 0.050	< 0.071	1.48	< 0.0010
	02-Jun-2011	1320	8	561	536	9.69	203	6.99 [1]	0.687 [1]	830 [1]	830 [1]	148	46.4	5.36	96	653	< 5.0	< 5.0	< 0.050	102	6.8	< 0.050	< 0.050	< 0.071	1.55	< 0.0010
	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	91.8	6.6	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	102	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	92.7	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	100	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	97.4	7	< 0.05	< 0.1	< 0.1	1.16	< 0.001
	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	0.84	7	< 0.06	< 0.2	< 0.2	0.29	0.002
	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	110	6.4	< 0.003	0.005	0.005	1.3	0.003
	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	100	10.5	< 0.050	< 0.050	< 0.071	1.32	< 0.0010
	02-Jun-2011	1050	8.14	372	543	6.4	44.6	3.34 [1]	0.45 [1]	606 [1]	606 [1]	98.1	30.9	4.86	95.4	662	< 5.0	< 5.0	0.071	97.9	13.5	< 0.050	0.054	< 0.071	1.31	< 0.0010
	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	91.5	6.6	< 0.050	< 0.050	< 0.071	---	< 0.0010
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	100	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	92.2	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	99.4	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	96.3	5	< 0.05	< 0.1	< 0.1	1.22	0.001
	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	0.87	5	< 0.06	< 0.2	< 0.2	0.23	< 0.001
	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	100	4.5	< 0.003	0.005	0.005	1.3	0.003
	06-May-2010	776	8.22	192	435	2.15	9.54	1.45 [1]	0.249 [1]	---	453	50	16.4	---	110	530	< 5.0	< 5.0	0.16	97.5	4.1	< 0.050	< 0.050	< 0.071	1.3	< 0.0010
	02-Jun-2011	796	8.24	183	434	1.92	9.12	1.25 [1]	0.231 [1]	442	442	48.1	15.3	3.74	103	530	< 5.0	< 5.0	0.162	92.1	5.2	< 0.050	< 0.050	< 0.071	1.36	< 0.0010
	30-May-2012	786	8.18	179	433	1.81	9.24	1.33 [1]	0.238 [1]	---	438	48	14.4	4	101	529	< 5.0	< 5.0	0.119	90.5	4.6	< 0.050	< 0.050	< 0.071	---	< 0.0010

NOTES: *1. --- in guideline row(s) denotes no criteria for that parameter.*
2. --- in detail data row(s) denotes parameter not analyzed.
3. Highlighting indicates parameters above applied guideline/criteria.
4. Highlighting indicates detection limit exceeds applicable guideline value.

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Table 3

Water Quality Analytical Results: Indicator Parameters

PROJECT NO.: 307075-01129		General				Indicators						Cations, Anions & Ion Balance									Organics	Nitrogen Parameters				Phenol
Monitoring Station	Date (d-m-y)	Electrical Conductivity (µS/cm)	pH (ph units)	Total Hardness as $CaCO_3$ (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Chloride (mg/L)	Sulphate (mg/L)	Iron (mg/L)	Manganese (mg/L)	Total Dissolved Solids - Calculated (MG/L)	Total Dissolved Solids (MG/L)	Calcium (MG/L)	Magnesium (MG/L)	Potassium (MG/L)	Sodium (MG/L)	Bicarbonate (mg/L)	Carbonate (mg/L)	Hydroxide (mg/L)	Fluoride (mg/L)	Ion Balance (%)	DOC (mg/L)	Nitrite as N (mg/L)	Nitrate as N (mg/L)	Nitrate plus nitrite as N (mg/L)	Ammonia as N (Unionized) (mg/L)	Phenols (MG/L)
Canadian Drinking Water AO Guidelines 2010[1]		---	(6.5 - 8.5)	---	---	250	500	0.3	0.05	500	500	---	---	---	200	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water MAC Guidelines 2010[2]		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	---	---	1	10	10	---	---

5. Superscript [1] denotes values exceeding
(Health Canada, December 2010. 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, December 2010. 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)

Nitrate as N:
The CDWQ guideline for NO_3 (45 mg/L) was converted to NO_3 as N (10 mg/L)

Nitrate plus nitrite as N:
The CDWQ guideline for NO_2+NO_3 (45 mg/L) was converted to NO_2+NO_3 as N (10 mg/L)

Nitrite as N:
The CDWQ guideline for NO_2 (3.2 mg/L) was converted to NO_2 as N (1 mg/L)

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Table 4

Water Quality Analytical Results: Petroleum Hydrocarbon Parameters

PROJECT NO.: 307075-01129

		BTEX						SELECT HYDROCARBONS		
Monitoring Station	**Date (d-m-y)**	**Benzene (mg/L)**	**Toluene (mg/L)**	**Ethylbenzene (mg/L)**	**m&p-Xylene (mg/L)**	**o-Xylene (mg/L)**	**Xylenes-Total (mg/L)**	**PHC F1 (C6-C10) (mg/L)**	**PHC F1 (C6-C10) - BTEX (mg/L)**	**PHC F2 (C10-C16) (mg/L)**
Canadian Drinking Water AO Guidelines 2010[1]		---	0.024	0.0024	---	---	0.3	---	---	---
Canadian Drinking Water MAC Guidelines 2010[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
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
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
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
	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
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
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
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
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

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Table 4

Water Quality Analytical Results: Petroleum Hydrocarbon Parameters

PROJECT NO.: 307075-01129

		BTEX						SELECT HYDROCARBONS		
Monitoring Station	Date (d-m-y)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	m&p-Xylene (mg/L)	o-Xylene (mg/L)	Xylenes-Total (mg/L)	PHC F1 (C6-C10) (mg/L)	PHC F1 (C6-C10) - BTEX (mg/L)	PHC F2 (C10-C16) (mg/L)
Canadian Drinking Water AO Guidelines 2010[1]		---	0.024	0.0024	---	---	0.3	---	---	---
Canadian Drinking Water MAC Guidelines 2010[2]		0.005	---	---	---	---	---	---	---	---
	30-May-2012	< 0.00050	< 0.00075	< 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
	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
	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
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
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
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
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
QA/QC										
FIELD BLANK	30-May-2012	< 0.00050	< 0.00075	< 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 detection limit exceeds applicable guideline value.
5. Superscript [1] denotes values exceeding
(Health Canada, December 2010. 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, December 2010. 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

Water Quality Analytical Results: Metal Parameters

PROJECT NO.: 307075-01129

DISSOLVED METALS AND TRACE ELEMENTS

Monitoring Station	Date (d-m-y)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
Canadian Drinking Water AO Guidelines 2010[1]		**0.1**	---	---	---	---	---	---	---	---	---	**1**	---	---	---	---	---	---	---	---	---	---	---	---	**5**
Canadian Drinking Water MAC Guidelines 2010[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	0.0004	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0002	< 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	< 0.0002	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	< 0.00010	< 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	< 0.00010	< 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	0.12	< 0.00050	---	< 0.050	< 0.00010	< 0.0050	0.00068	< 0.0010	< 0.00010	< 0.000020	0.000423	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00194	< 0.00010	0.0034
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	0.0004	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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	0.0003	< 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	< 0.0002	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	< 0.00010	< 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	0.042	< 0.00050	---	0.135	< 0.00010	< 0.0050	0.001	< 0.0010	< 0.00010	< 0.000020	0.0004	< 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	< 0.00010	< 0.000020	0.000615	0.0027	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00123	< 0.00010	0.0031
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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	0.0005	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	0.0002	< 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	< 0.0002	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	0.038	< 0.00050	---	0.116	< 0.00010	< 0.0050	0.00076	< 0.0010	< 0.00010	< 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	< 0.00010	< 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	0.035	< 0.00050	---	0.088	< 0.00010	< 0.0050	0.00062	< 0.0010	< 0.00010	< 0.000020	0.000535	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00051	< 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	0.0002	< 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	< 0.0001	0.0002	0.003	0.014	0.0009	< 0.0002	0.616	< 0.0001	< 0.0002	0.0004	0.0025	< 0.0001	0.029
	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	< 0.0001	< 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	< 0.0001	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	0.0002	< 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	< 0.0002	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	< 0.00010	< 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	---	0.09	< 0.00010	< 0.0050	0.00015	< 0.0010	< 0.00010	< 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	< 0.00010	< 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	< 0.00010	< 0.000020	0.000326	0.0022	< 0.00040	< 0.00010	---	< 0.000050	---	0.00041	0.00404	< 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	0.0002	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	0.0002	< 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	< 0.0002	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	0.0017	0.0478	< 0.00050	---	0.064	< 0.00010	< 0.0050	0.00082	< 0.0010	< 0.00010	< 0.00010	0.00063	0.0039	0.00086	< 0.00010	---	< 0.000050	---	0.00088	0.0007	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	< 0.00010	< 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	< 0.00010	< 0.000020	0.000321	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00063	< 0.00010	< 0.0030
MW-06	08-Mar-2005	< 0.01	0.0009	0.0042	0.071	< 0.0005	< 0.00005	0.148	< 0.0001	0.0035	0.0012	0.0011	0.0004	< 0.0001	0.0014	< 0.0001	0.0005	< 0.0002	1.2	< 0.0005	< 0.0002	0.0008	0.0023	0.0002	0.004
	17-Nov-2005	0.01	0.0005	0.0038	0.0557	< 0.0005	0.00006	0.16	< 0.0001	< 0.0004	0.0012	0.0012	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	0.0002	< 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	< 0.0002	< 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	---	0.15	< 0.00010	< 0.0050	0.00052	0.0012	< 0.00010	< 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	0.0057	0.0309	< 0.00050	---	0.138	< 0.00010	< 0.0050	0.00036	< 0.0010	< 0.00010	< 0.000020	0.0008	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	0.00063	0.0018	0.00016	< 0.0020
	29-May-2012	0.0104	< 0.00040	0.00525	0.0265	< 0.00050	---	0.122	< 0.00010	< 0.0050	0.0003	< 0.0010	< 0.00010	< 0.000020	0.000878	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00173	< 0.00010	0.0036
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	0.0004	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	0.0003	< 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	< 0.0002	< 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	0.049	< 0.00050	---	0.279	< 0.00010	< 0.0050	0.00128	0.0014	< 0.00010	< 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	0.0057	0.0954	< 0.00050	---	0.215	< 0.00010	< 0.0050	0.00116	< 0.0010	< 0.00010	< 0.000020	0.00151	0.0021	< 0.00040	< 0.00010	---	0.000071	---	0.0003	0.00138	< 0.00010	0.005
	28-Jul-2011	< 0.0050	< 0.00040	0.00333	0.0483	---	---	0.262	< 0.00010	< 0.0050	---	< 0.0010	< 0.00010	< 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	---	0.24	< 0.00010	< 0.0050	0.00104	< 0.0010	< 0.00010	< 0.000020	0.000974	0.0026	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00143	< 0.00010	< 0.0030
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	0.0004	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	0.0002	< 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	< 0.0002	< 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	< 0.00010	< 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	---	0.18	< 0.00010	< 0.0050	0.00036	< 0.0010	< 0.00010	< 0.000020	0.00154	0.0025	0.00159	< 0.00010	---	< 0.000050	---	0.00144	0.0008	0.00018	0.0116
	30-May-2012	0.0104	< 0.00040	0.006	0.0499	< 0.00050	---	0.154	< 0.00010	< 0.0050	0.00018	< 0.0010	< 0.00010	< 0.000020	0.00137	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00069	< 0.00010	0.0042
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	0.0001	< 0.0001	0.0019	0.0002	< 0.0004	< 0.0002	0.843	< 0.0005	< 0.0002	0.0058	0.0019	0.0005	0.003
	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	< 0.0001	< 0.0001	0.0038	0.0087	0.0005	< 0.0002	0.869	< 0.0001	< 0.0002	0.0038	0.0015	0.0002	< 0.002

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Table 5

Water Quality Analytical Results: Metal Parameters

PROJECT NO.: 307075-01129

DISSOLVED METALS AND TRACE ELEMENTS

Monitoring Station	Date (d-m-y)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Strontium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
Canadian Drinking Water AO Guidelines 2010[1]		**0.1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**5**
Canadian Drinking Water MAC Guidelines 2010[2]		**---**	**0.006**	**0.01**	**1**	**---**	**---**	**5**	**0.005**	**0.05**	**---**	**---**	**0.01**	**0.001**	**---**	**---**	**0.01**	**---**	**---**	**---**	**---**	**---**	**0.02**	**---**	**---**
	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	< 0.0001	< 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	< 0.0001	< 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	< 0.0002	< 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	< 0.0002	< 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	0.025	< 0.00050	---	0.267	< 0.00010	< 0.0050	0.00085	< 0.0010	< 0.00010	< 0.00010	0.00158	0.0027	< 0.00040	< 0.00010	---	< 0.000050	---	0.00078	0.00121	< 0.00010	< 0.0020
	02-Jun-2011	< 0.0050	< 0.00040	0.0028	0.0294	< 0.00050	---	0.255	< 0.00010	< 0.0050	0.00128	< 0.0010	< 0.00010	< 0.000020	0.00156	< 0.0020	< 0.00040	0.00013	---	< 0.000050	---	< 0.00030	0.00132	0.00012	0.002
	29-May-2012	0.0112	< 0.00040	0.00234	0.0209	< 0.00050	---	0.226	< 0.00010	< 0.0050	0.0008	< 0.0010	< 0.00010	< 0.000020	0.00143	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00121	< 0.00010	0.003
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	0.0004	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0002	< 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	< 0.0002	< 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	0.029	< 0.00050	---	0.177	< 0.00010	< 0.0050	0.00044	0.0015	< 0.00010	< 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	---	0.17	< 0.00010	< 0.0050	0.00031	< 0.0010	< 0.00010	< 0.000020	0.00481	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00133	0.00021	0.003
	30-May-2012	0.0139	< 0.00040	0.0042	0.0273	< 0.00050	---	0.15	< 0.00010	< 0.0050	0.00032	< 0.0010	< 0.00010	< 0.000020	0.000884	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00113	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0002	< 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	< 0.0002	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	< 0.00010	< 0.00010	0.00072	0.0027	< 0.00040	< 0.00010	---	< 0.000050	---	0.00102	0.001	< 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	< 0.00010	< 0.000020	0.00061	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00109	0.0001	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	< 0.00010	< 0.000020	0.000669	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.001	< 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	0.0004	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0001	< 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	< 0.0002	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	< 0.0002	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	< 0.00010	< 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	0.13	< 0.00050	---	0.244	< 0.00010	< 0.0050	0.00043	< 0.0010	< 0.00010	< 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	< 0.00010	< 0.000020	0.00121	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00085	< 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	0.0002	< 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	0.0002	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	< 0.0001	< 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	< 0.0001	< 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	< 0.0002	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	< 0.0002	< 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	< 0.00010	< 0.00010	0.00219	0.0021	< 0.00040	< 0.00010	---	< 0.000050	---	0.0007	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	< 0.00010	< 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	0.0014	0.354	< 0.00050	---	0.197	< 0.00010	< 0.0050	0.00065	< 0.0010	< 0.00010	< 0.000020	0.0018	< 0.0020	< 0.00040	< 0.00010	---	< 0.000050	---	< 0.00030	0.00063	< 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 detection limit exceeds applicable guideline value.*
5. *Superscript [1] denotes values exceeding*
   (Health Canada, December 2010. 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)
   Aluminum:
   This is an operational guideline, designed to apply only to drinking water treatment plants using aluminum-based coagulates.
   The operational guideline value of 0.1 mg/L applies to conventional treatment plants,
   and 0.2 mg/L applies to other types of treatment systems.
6. *Superscript [2] denotes values exceeding*
   (Health Canada, December 2010. 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)

Figures

330000 335000 340000 345000 350000 355000 360000 365000 370000 375000 380000 385000

5975000 5970000 5965000 5960000 5955000 5950000 5945000

BON ACCORD

GIBBONS

STURGEON COUNTY

BRUDERHEIM

LAMONT COUNTY

LAMONT

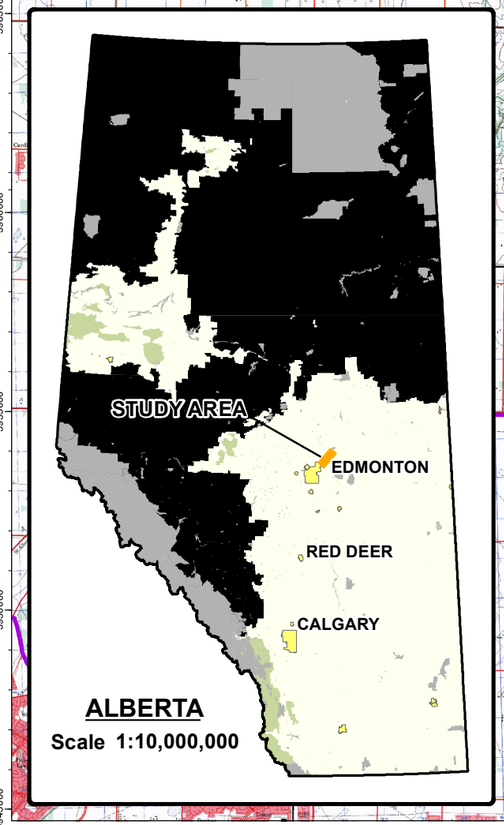
STRATHCONA COUNTY

FORT SASKATCHEWAN

EDMONTON

I. D. NO. 13 (ELK ISLAND)

NATIONAL PARK



ALBERTA
Scale 1:10,000,000

Study Area
County Boundaries

N

0 4 8 km

1:150,000
UTM Zone 12 NAD 83

Contour Interval = 10 m or 25 feet
Elevation in feet or metres above mean sea level
MAP SOURCE: NTS Basemap (1:50,000) 83H11, 83H12, 83H13, 83H14, 83H15

Infrastructure & Environment

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2012 BEVERLY CHANNEL GROUNDWATER QUALITY MONITORING

SITE LOCATION MAP

WorleyParsons
resources & energy

12-JUL-12 date	P.K. edited by	C.H. drawn by	- app by	PROJECT NUMBER: 307075 - 01129	FIGURE: 1

FILE: Q:\GBS\NCIA\307075_01129\MXD\s307075_01129-WR-FIG-1_site_location.mxd Issued By: Edmonton GIS

345000 350000 355000 360000 365000 370000 375000

5980000 5975000 5970000 5965000 5960000 5955000 5950000 5945000 5940000

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

Monitoring Well
Beverly Channel
Study Area

Image Source: www.geogratis.gc.ca, Dec. 2003

N

0 1 2 3 4 5

Kilometers

1:125,000

NAD 83 UTM Zone 12

Infrastructure & Environment

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2011 BEVERLY CHANNEL GROUNDWATER QUALITY MONITORING

MONITORING WELL LOCATIONS

WorleyParsons
resources & energy

12-JUL-12 date	P.K. edited by	C.H. drawn by	. . app by	PROJECT NUMBER: 307075 - 01129	FIGURE: 2

FILE: Q:\GBS\NCIA\307075_01129\MXDs\307075_01129-WR-FIG-2_monitoring_wells.mxd Issued By: Edmonton GIS

345000 350000 355000 360000 365000 370000 375000

5980000 5975000 5970000 5965000 5960000 5955000 5950000 5945000 5940000

MW-13 (593.72)
MW-12 (593.18)
594
MW-11 (594.81)
595
596
MW-10 (597.87)
MW-09 (596.36)
MW-08 (598.75)
MW-07 (596.89)
MW-06 (598.2)
MW-05 (599.18)
MW-03 (601.86)
602
MW-04 (602.0099)
MW-01 (602.89)
604
MW-02 (604.15)

Monitoring Well
Groundwater Flow Contours (masl)
Beverly Channel
Study Area
Hydro_Region_AB
Flow Direction

Image Source: www.geogratis.gc.ca, Dec. 2003

N

0 1 2 3 4 5

Kilometers

1:125,000
NAD 83 UTM Zone 12

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2012 BEVERLY CHANNEL GROUNDWATER QUALITY MONITORING

GROUNDWATER SURFACE ELEVATIONS, MAY 2012

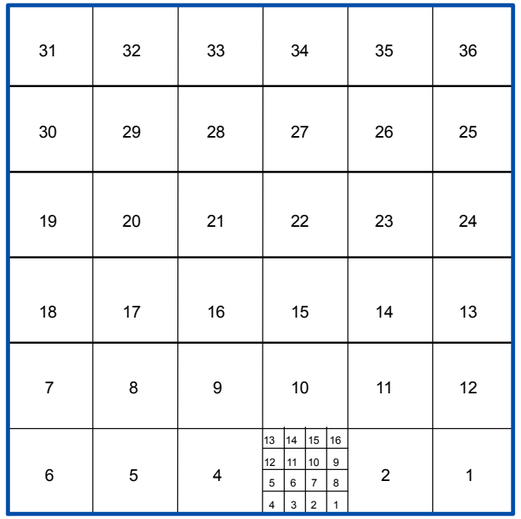
WorleyParsons
resources & energy

12-JUL-12 date	P.K. edited by	C.H. drawn by	. . app by	PROJECT NUMBER: 307075 - 01129	FIGURE: 3

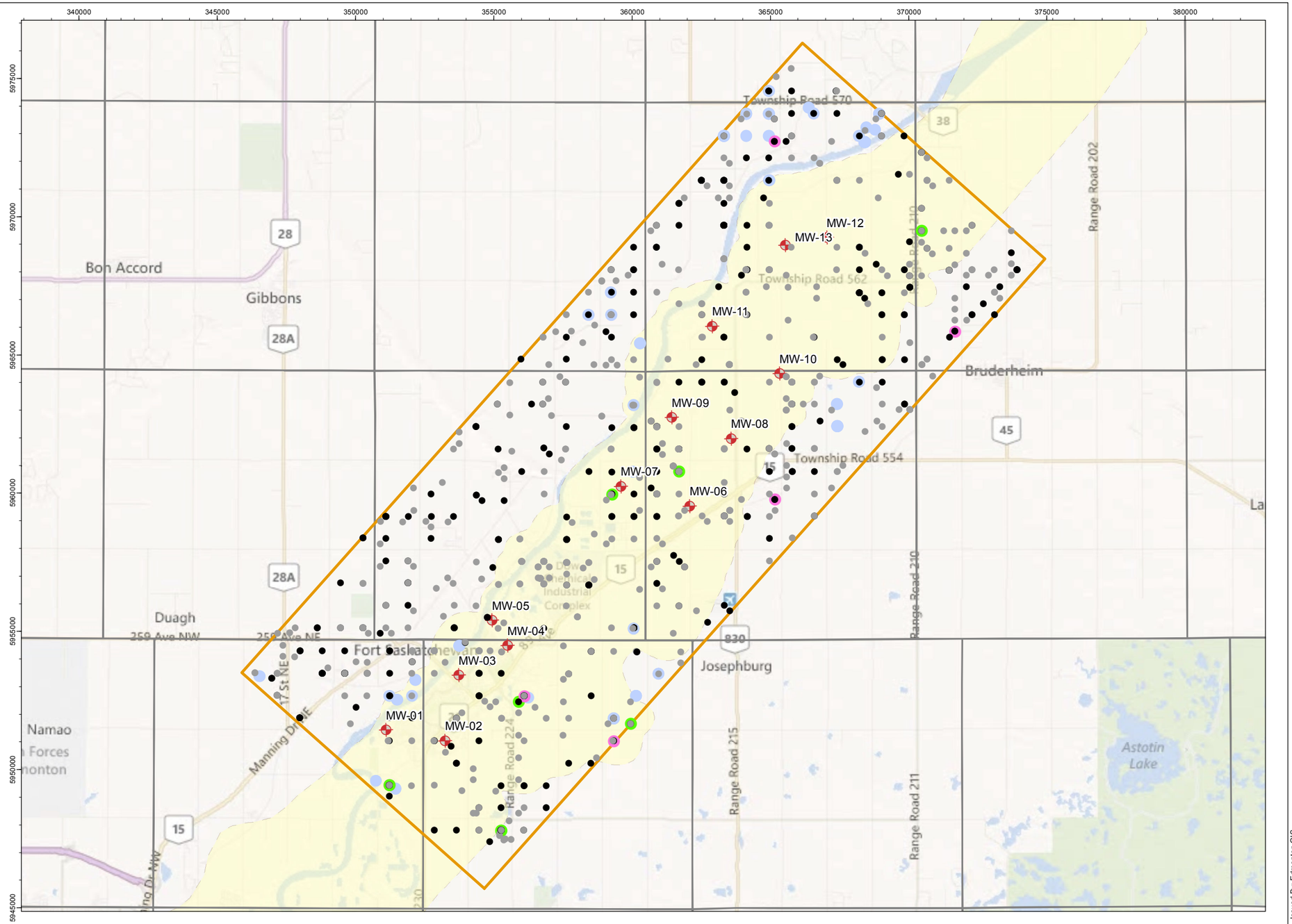
FILE: Q:\GBS\NC\A\307075_01129\MXDs\307075_01129-WR-FIG-3_gw_flow_contours.mxd Issued By: Edmonton GIS

Appendices

Appendix 1 Water Well Records



Section and LSD Boundary Key



Water Well Records - lith

- Chemistry Exists - Bedrock
- Chemistry Exists - Beverly
- Chemistry Exists
- No Chemistry
- New Wells/Licences 2012

NCIA Monitoring Wells

- Monitoring Well

- Study Area
- Beverly Channel

Note: Well record locations are approximate and should not be used for scaling or real world positioning.

Data Source: Alberta Environment Water Well Database, June 2012
Base Map: Bing Maps

N

0 2.5 5 10

Kilometres

1:150,000

Infrastructure & Environment

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2012 BEVERLY CHANNEL GROUNDWATER QUALITY MONITORING

WATER WELL RECORDS WITHIN THE STUDY AREA

WorleyParsons resources & energy

07-JUL-12 date	P.K. edited by	C.H. drawn by	app by	PROJECT NUMBER: 307075 - 01129	FIGURE: A1-1

FILE: Q:\E0010102\ArcGIS\MXDs\WW_Search.mxd Issued By: Edmonton GIS

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 WELL	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

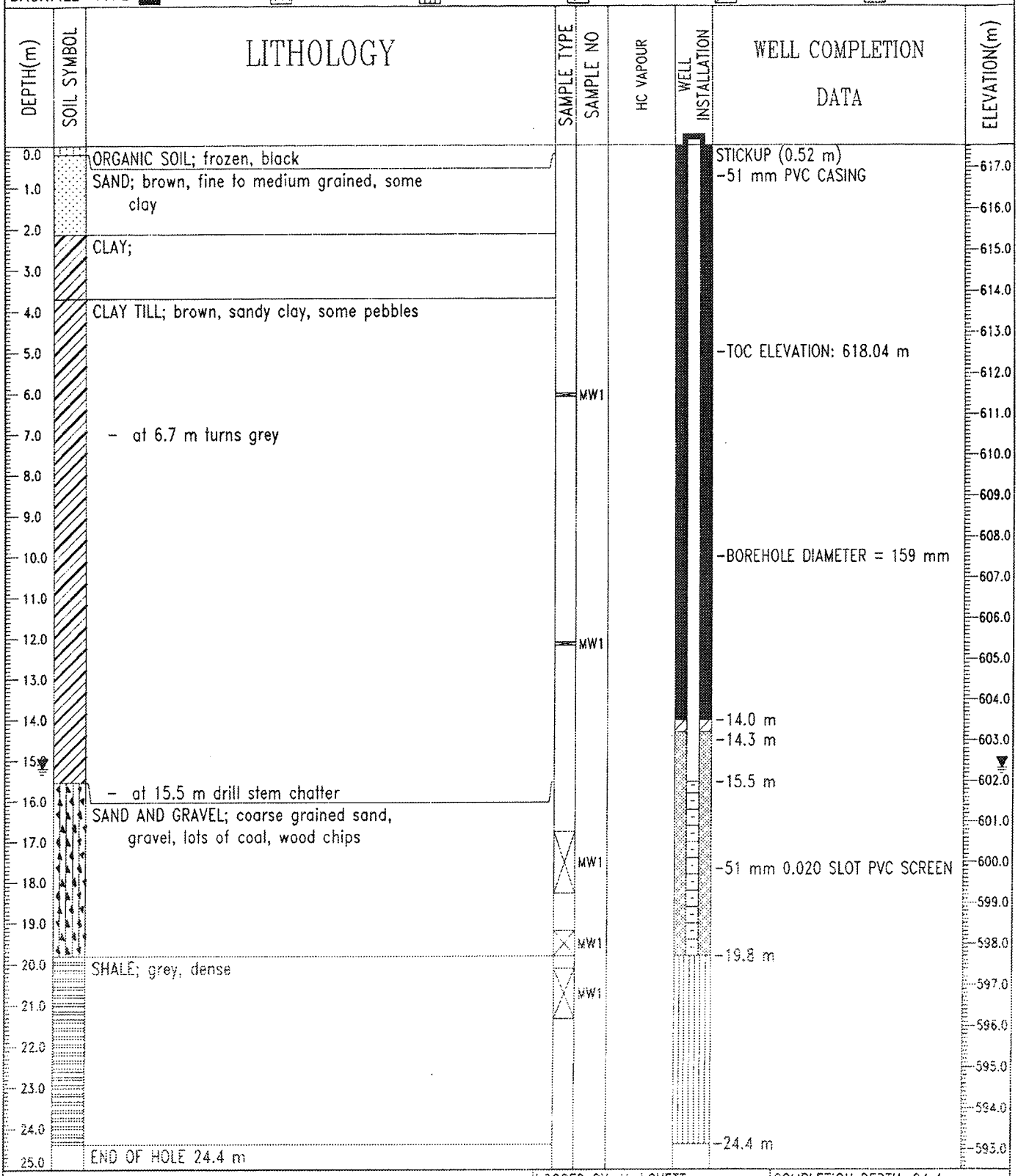
* Data Source: Alberta Environment and Water, Alberta Water Well Information Database. Retrieved April 3, 2012, via Alberta Environment and Water FTP site.
* Date of Search: April 11, 2012

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

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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

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0								605.0
26.0							-25.9 m	
27.0		SAND AND GRAVEL; coarse grained sand and gravel, coal chips, wood					-26.2 m	604.0
28.0								603.0
29.0		- at 29.0 m lots of chatter on drill stem						602.0
30.0				MW2			-51 mm 0.020 SLOT PVC SCREEN	601.0
31.0								600.0
32.0								599.0
33.0								598.0
34.0		SHALE; grey, dense					-33.8 m	597.0
35.0								596.0
36.0				MW2				595.0
37.0								594.0
38.0		END OF HOLE 38.1 m					-38.1 m	593.0
39.0								592.0
40.0								591.0
41.0								590.0
42.0								589.0
43.0								588.0
44.0								587.0
45.0								586.0
46.0								585.0
47.0								584.0
48.0								583.0
49.0								582.0
50.0								581.0

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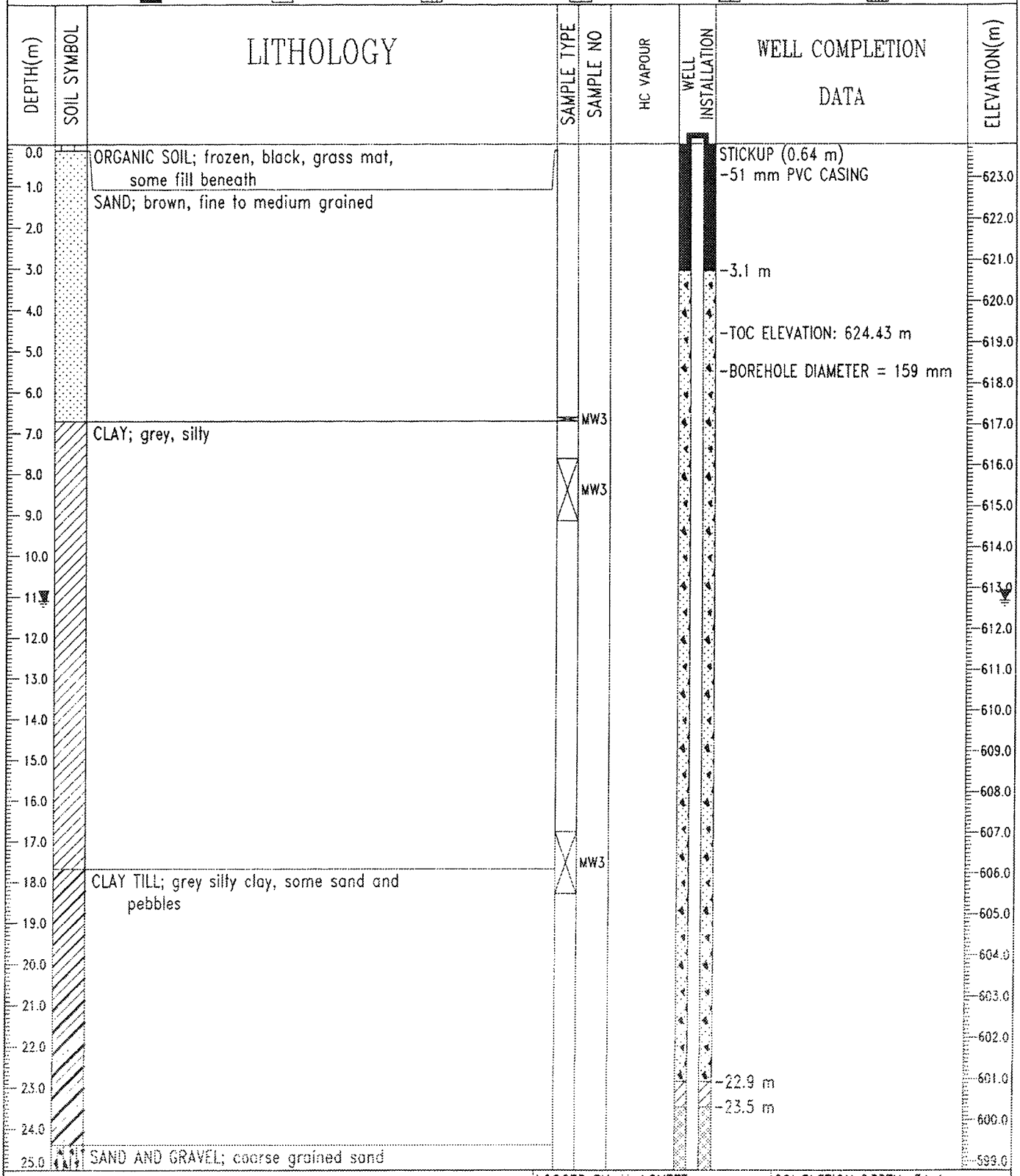
LOGGED BY: H. LOVETT	COMPLETION DEPTH: 38.1 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/24/05
Fig. No: 17094	Page 2 of 2

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					-25.0 m	598.0
26.0			MW3				
27.0			MW3			-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

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Edmonton, Alberta

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

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						596.0
25.0					-155 mm 0.020 SLOT PVC SCREEN	

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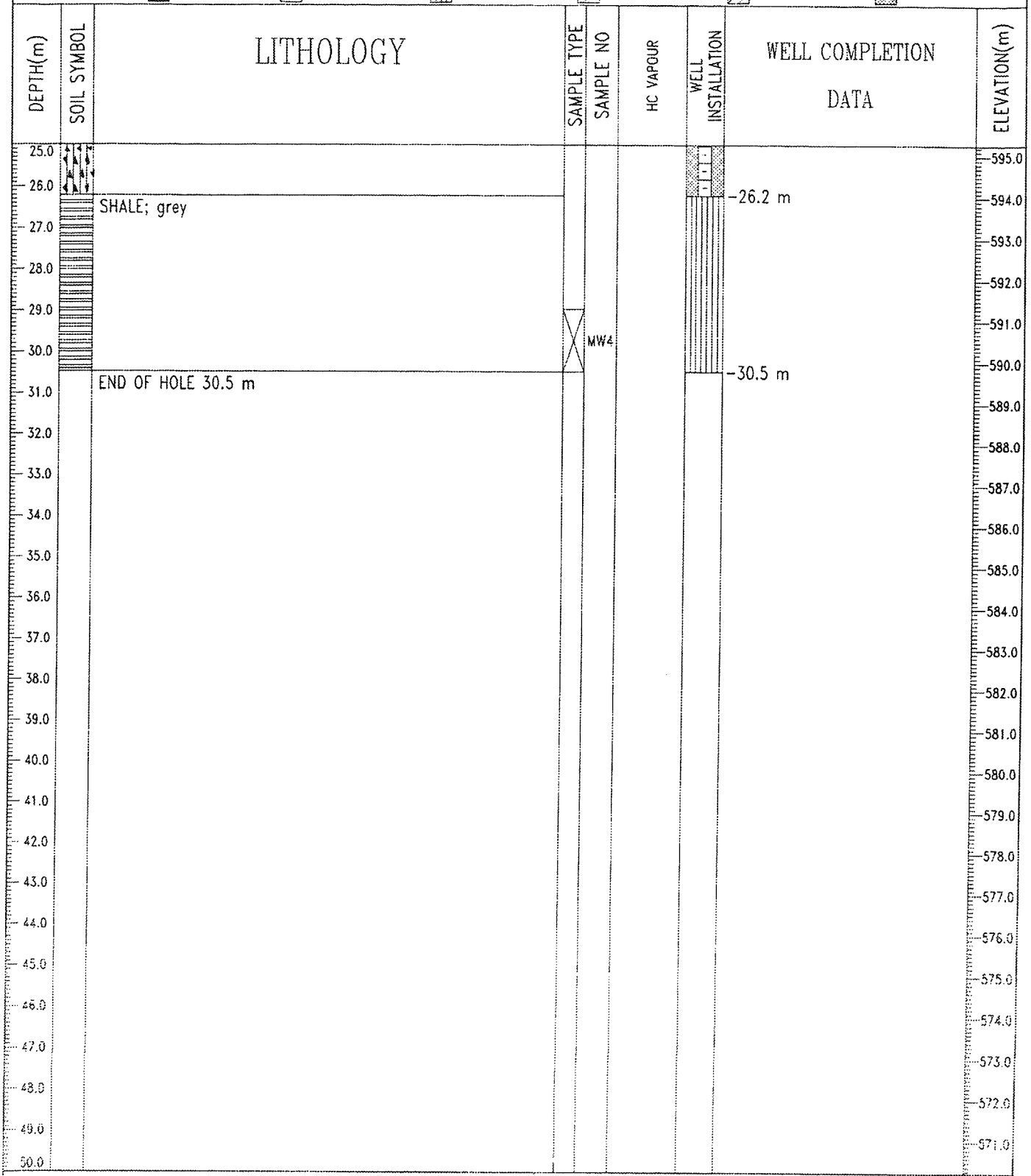
LOGGED BY: H. LOVETT	COMPLETION DEPTH: 30.5 m
REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/25/05
Fig. No: 17094	Page 1 of 2

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)	SOIL SYMBOL	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								600.0
25.0				MW5				

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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 01:29PM (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)	LITHOLOGY	SAMPLE NO	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	
6.0								625.0
7.0				MW6				624.0
8.0		CLAY TILL; grey, silty, clay, some rocks and pebbles						623.0
9.0								622.0
10.0								621.0
11.0								620.0
12.0								619.0
13.0								618.0
14.0		- at 13.7 m becomes more sandy, firm						617.0
15.0								616.0
16.0								615.0
17.0								614.0
18.0								613.0
19.0								612.0
20.0								611.0
21.0								610.0
22.0								609.0
23.0		SAND; grey, black speckled, medium grained, some silt		MW6				608.0
24.0		CLAY; grey, sandy, silty						607.0
25.0		SAND;						606.0
								605.0

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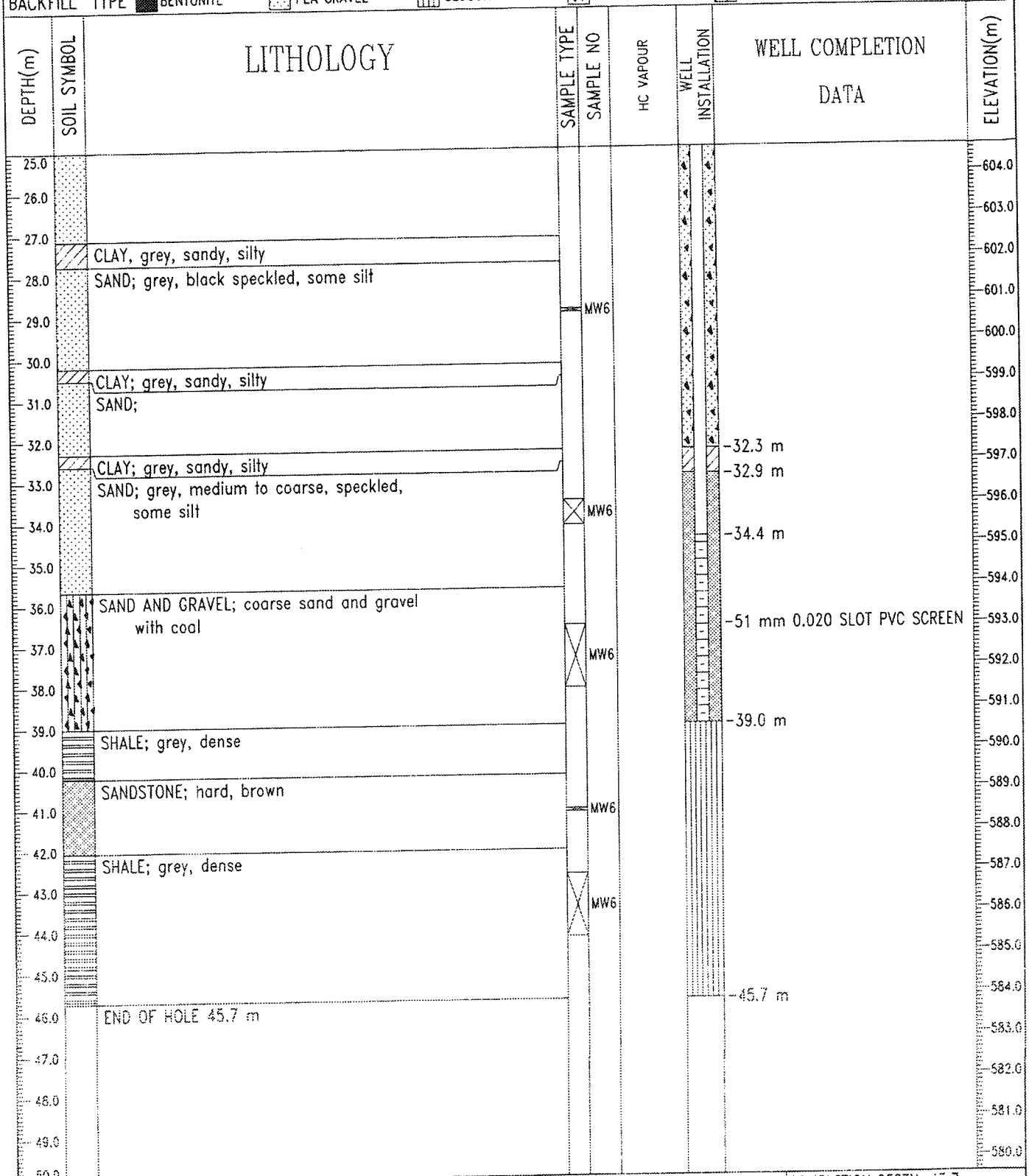
LOGGED BY: H. LOVETT | COMPLETION DEPTH: 45.7 m
REVIEWED BY: D. YOSHISAKA | COMPLETE: 01/31/05
Fig. No: 17094 |

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



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

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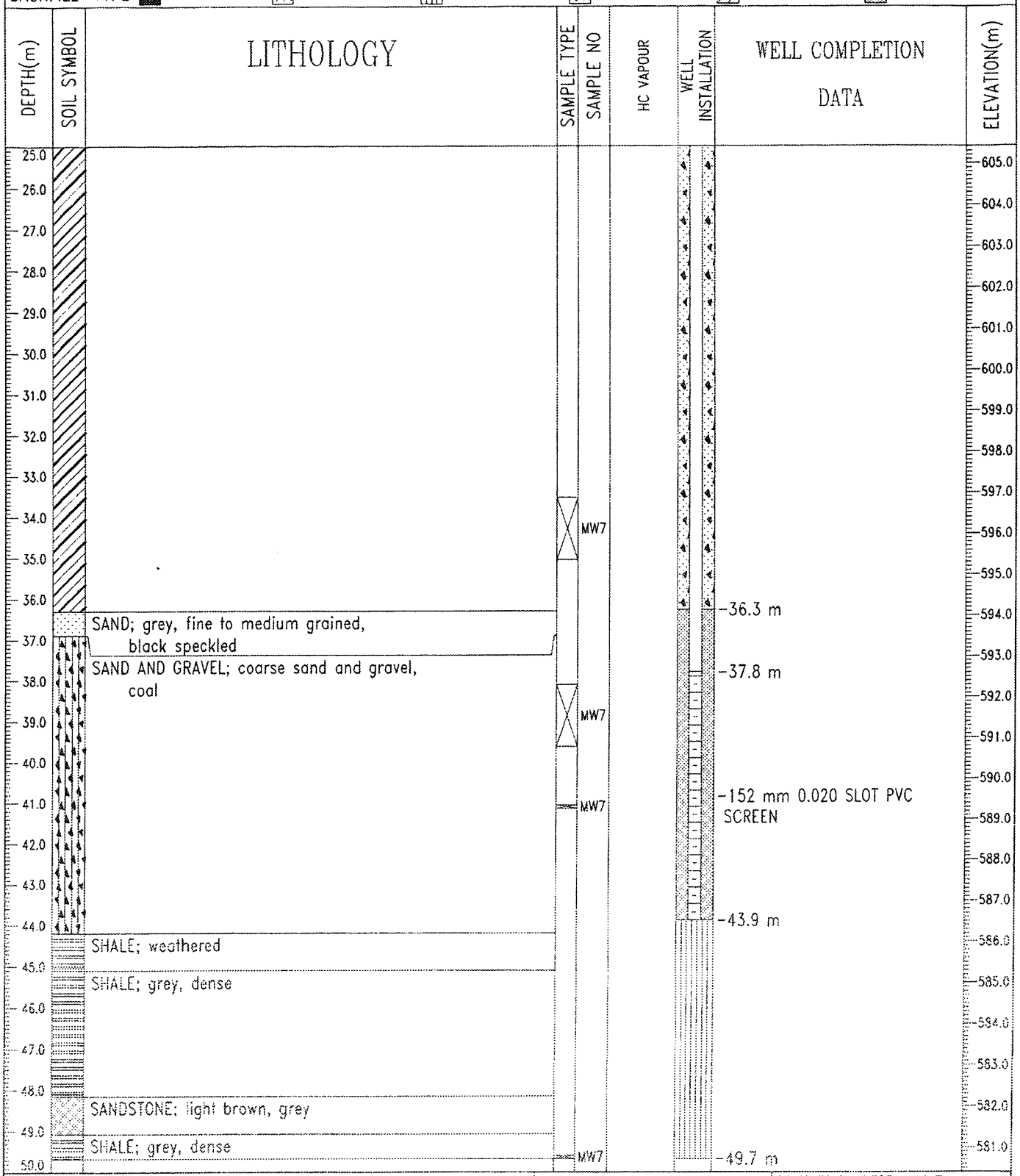
LOGGED BY: H. LOVETT | COMPLETION DEPTH: 49.7 m
REVIEWED BY: D. YOSHISAKA | COMPLETE: 02/14/05
Fig. No: 17094 |

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

DEPTH(m)	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0	TOPSOIL; black, roots, grasses					STICKUP (0.57 m)	625.0
1.0	SAND; brown/black grains, fine to medium grained					-51 mm PVC CASING	
2.0	CLAY; brown/grey, silty						624.0
3.0							623.0
4.0						-3.1 m -TOC ELEVATION: 626.44 m -BOREHOLE DIAMETER = 159 mm	622.0
5.0	SAND; silty, brown, very fine grained						621.0
6.0							620.0
7.0							619.0
8.0							618.0
9.0							617.0
10.0	CLAY; blue/grey, silty						616.0
11.0							615.0
12.0							614.0
13.0							613.0
14.0	CLAY TILL; blue clay, sandy						612.0
15.0							611.0
16.0							610.0
17.0							609.0
18.0							608.0
19.0	SAND; coarse grained, grey/brown						607.0
20.0	CLAY TILL; blue clay, small gravel, sandy						606.0
21.0							605.0
22.0			MW8				604.0
23.0							603.0
24.0	SHALE; rafted						602.0
25.0							601.0

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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 (PELTON-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

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0								600.0
26.0		SAND; fine to medium grained, grey, black specks						599.0
27.0								598.0
28.0				MW8			-28.0 m	597.0
29.0							-28.7 m	596.0
30.0				MW8			-30.5 m	595.0
31.0		GRAVEL; brown/black, small gravel, coal chunks					-51 mm 0.020 SLOT PVC SCREEN	594.0
32.0								593.0
33.0				MW8			-33.5 m	592.0
34.0		SHALE; grey, dense						591.0
35.0								590.0
36.0				MW8				589.0
37.0								588.0
38.0		END OF HOLE 37.8 m					-37.8 m	587.0
39.0								586.0
40.0								585.0
41.0								584.0
42.0								583.0
43.0								582.0
44.0								581.0
45.0								580.0
46.0								579.0
47.0								578.0
48.0								577.0
49.0								576.0
50.0								

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

05/11/24 02:29PM (PELTON-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

DEPTH(m)	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0							599.0
26.0	SAND; grey, medium grained, some clay, black coal speckles						598.0
27.0							597.0
28.0							596.0
29.0	CLAY; grey, sandy						595.0
30.0	GRAVEL; gravel with coarse sand and gravel					-29.9 m -30.5 m	594.0
31.0			MW9				593.0
32.0	SAND AND GRAVEL; coarse sand and coal with gravel					-32.0 m	592.0
33.0						-51 mm 0.020 SLOT PVC SCREEN	591.0
34.0	GRAVEL; gravel with coarse sand and coal						590.0
35.0							589.0
36.0			MW9			-36.6 m	588.0
37.0							587.0
38.0							586.0
39.0	SHALE; grey, dense						585.0
40.0			MW9				584.0
41.0							583.0
42.0							582.0
43.0						-43.6 m	581.0
44.0	END OF HOLE 43.6 m						580.0
45.0							579.0
46.0							578.0
47.0							577.0
48.0							576.0
49.0							575.0
50.0							

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 (PEL GN-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)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0								599.0
25.0		SAND; cemented, grey, black speckled						598.0
27.0								597.0
28.0				MW10				596.0
29.0								595.0
30.0							-30.2 m	594.0
31.0							-31.4 m	593.0
32.0								592.0
33.0								591.0
34.0		SAND AND GRAVEL; coarse grained sand and gravel, coal		MW10			-SHALE BASKET	590.0
35.0								589.0
36.0							-35.7 m	588.0
37.0				MW10			-152 mm 0.020 SLOT PVC SCREEN	587.0
38.0								586.0
39.0		GRAVEL; mostly gravel, lots of drill stem chatter, some sand						585.0
40.0								584.0
41.0								583.0
42.0		SHALE; grey, dense					-41.8 m	582.0
43.0				MW10				581.0
44.0								580.0
45.0		END OF HOLE 44.8 m					-44.8 m	579.0
46.0								578.0
47.0								577.0
48.0								576.0
49.0								575.0
50.0								

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)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	SLOTTED PIEZOMETER	WELL COMPLETION DATA	ELEVATION(m)
0.0		TOPSOIL; soft, black, organic silty soil					-STICKUP (0.67 m)	
		SAND; loose, brown, fine to medium grained					-51 mm PVC CASING	624.0
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							-BOREHOLE DIAMETER 160 mm	620.0
5.0		- 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		- at 17.7 m returns to firm, grey clay till						607.0
18.0								606.0
19.0		- at 18.9 m small band of coarse grained sand then returns to grey						605.0
20.0								

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 1 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)
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								

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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 |

08/08/29 11:10AM (PETTOH-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

DEPTH(m)	SOIL SYMBOL	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

DEPTH(m)	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0							600.0
26.0–27.5		GRAB	MW12				
28.0	SAND; grey, medium grained, black speckled	GRAB	MW12				597.0
32.9						-32.9 m	
33.5						-33.5 m	
36.7	SAND AND GRAVEL; coarse sand and gravel, coal					-51 mm 0.020 SLOT PVC SCREEN	
38.1						-38.1 m	
38.5	SHALE; grey, dense	GRAB	MW12				
40.5	- brown, soft shale						
41.7	- grey, dense	GRAB	MW12				
42.7	END OF HOLE 42.7 m					-42.7 m	
50.0							576.0

Depth scale: 25.0 – 50.0 m; Elevation scale: 600.0 – 576.0 m

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 07:50PM (PETCOR-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

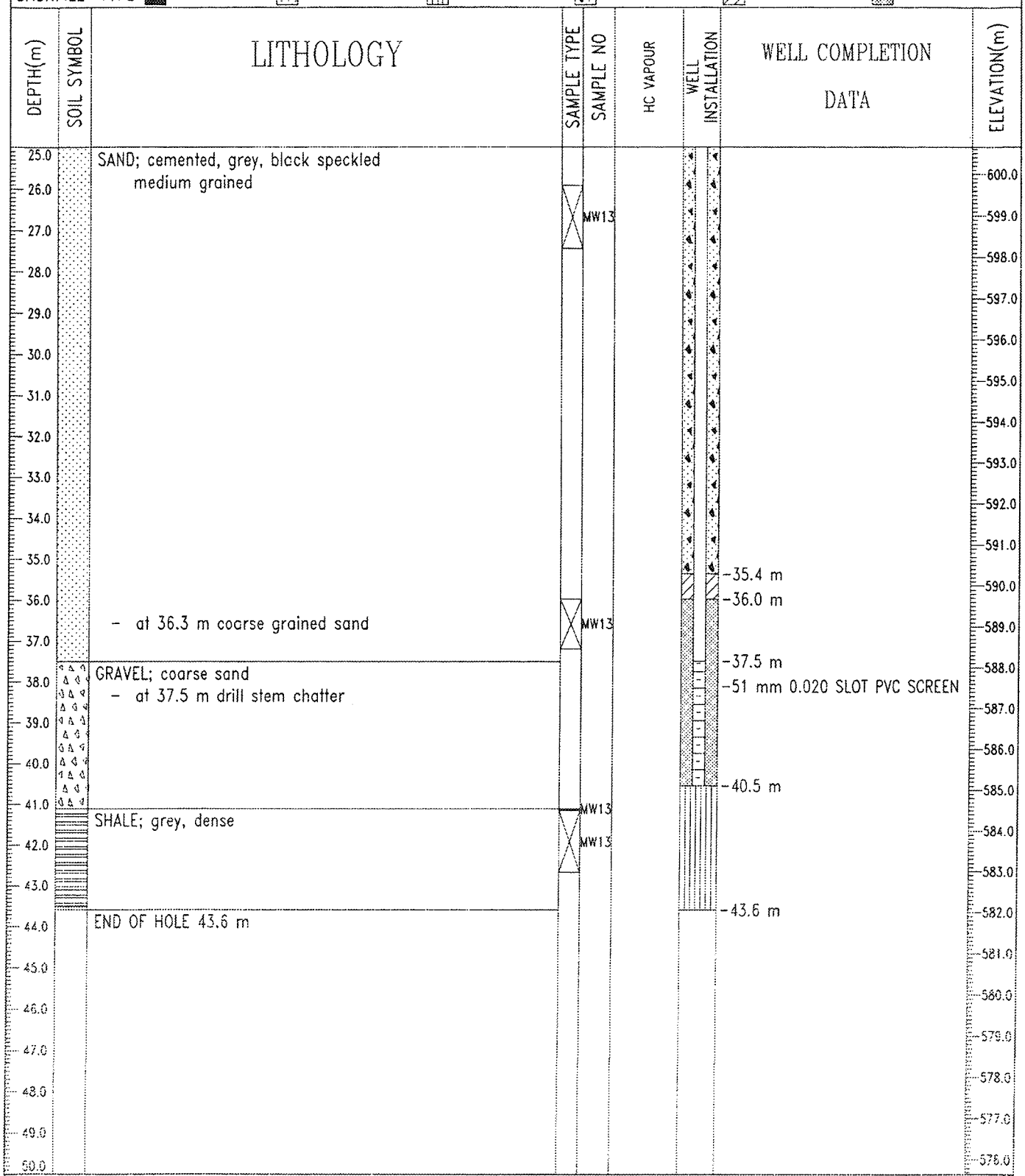
LOGGED BY: H. LOVETT | COMPLETION DEPTH: 43.6 m
REVIEWED BY: D. YOSHISAKA | COMPLETE: 01/02/05
Fig. No: 17094 | Page 1 of 2

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

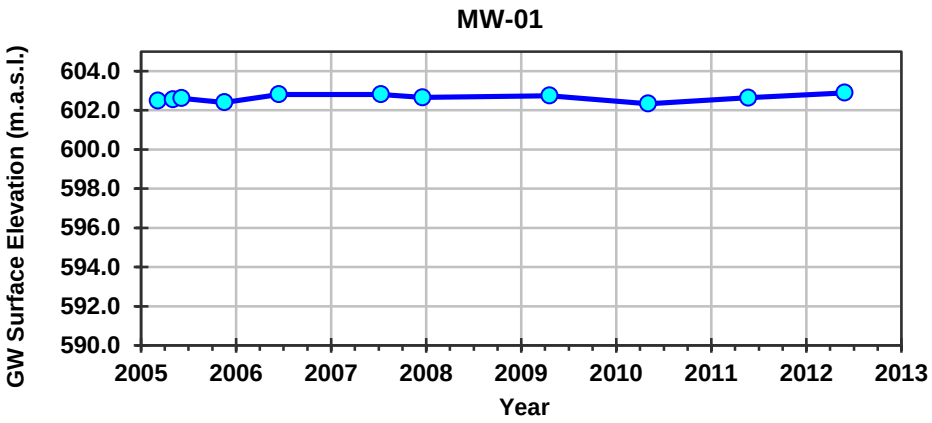
BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | PELTONITE | SAND

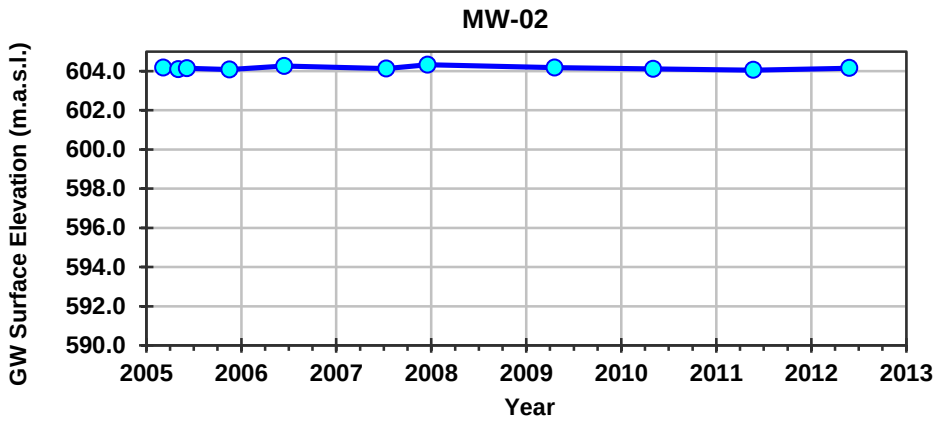


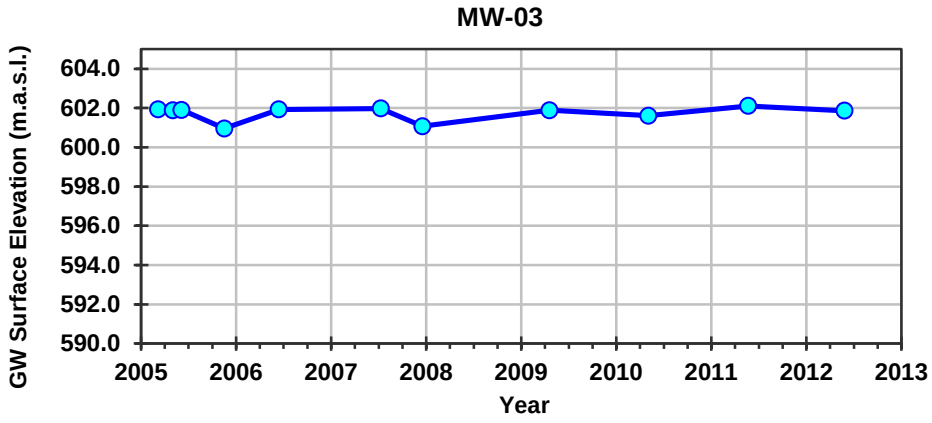
Stantec Consulting Ltd.	LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
Edmonton, Alberta	REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
	Fig. No: 17094	Page 2 of 2

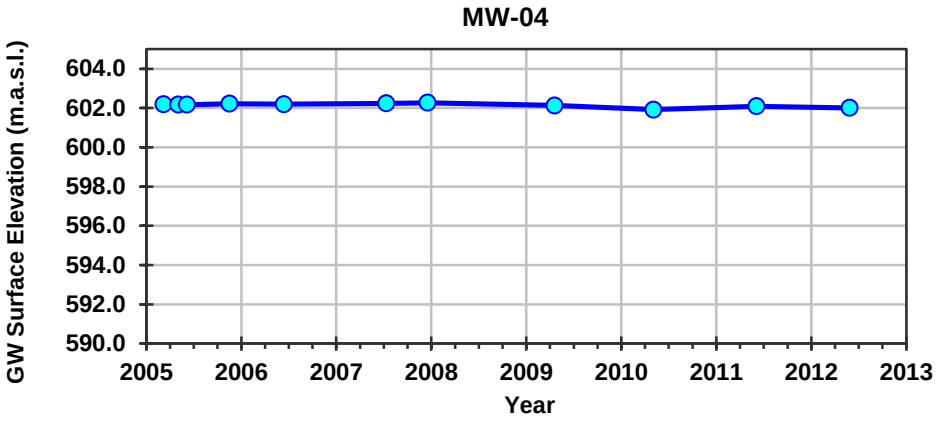
05/11/04 02:48PM (PELTON-1)

Appendix 3 Groundwater Hydrographs









NOTE: - ***Filled symbols denote Sample Values***

Infrastructure & Environment

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2012 Groundwater Quality Monitoring

Monitoring Well Hydrographs
MW-01, MW-02, MW-03 & MW-04

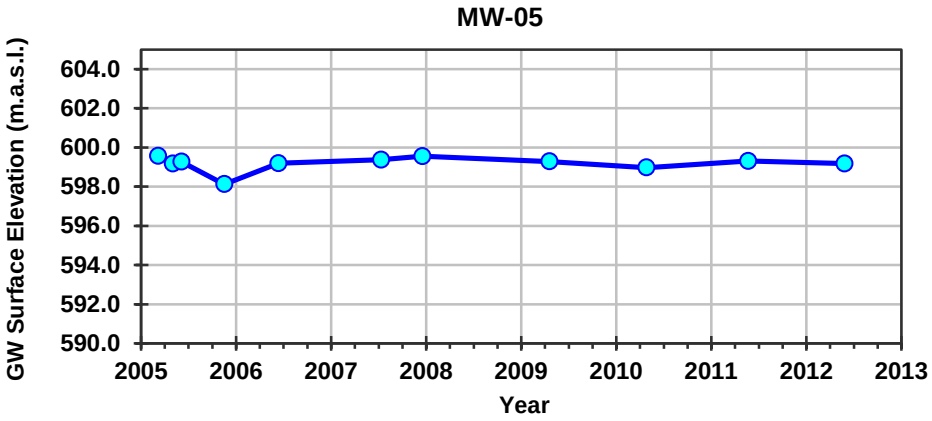
WorleyParsons
resources & energy

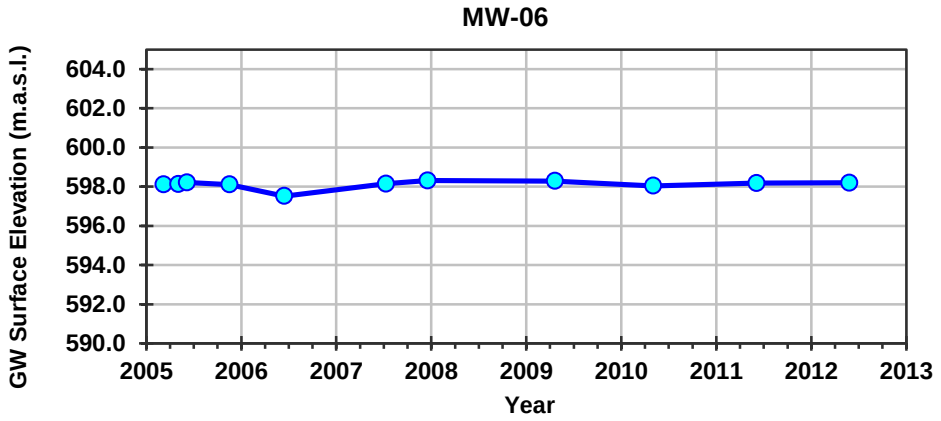
13-Jul-12 date	KK edited by	AH drawn by	app by

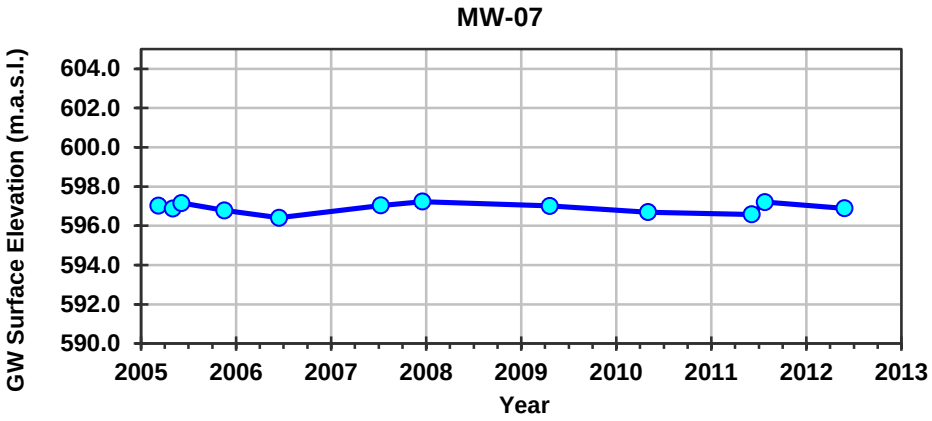
PROJECT NUMBER: 307075-01129

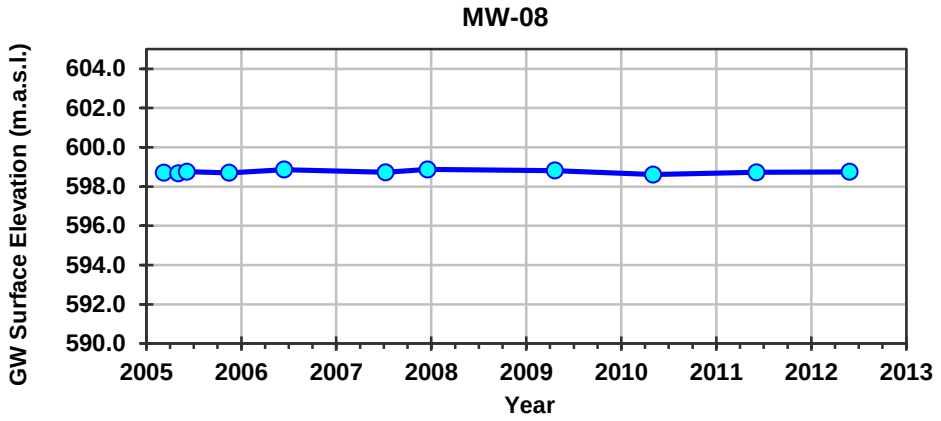
FIGURE: A3-1

File: U:\EDM\GBS\307075-01129\100-2012_GW_Mon\12.0_Reports\12.3_Backend\Appendix 3\307075-01129-CA-FIG-HYD-01.xls; Issued by: Edmonton - Database









NOTE: - ***Filled symbols denote Sample Values***

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MW-05, MW-06, MW-07 & MW-08

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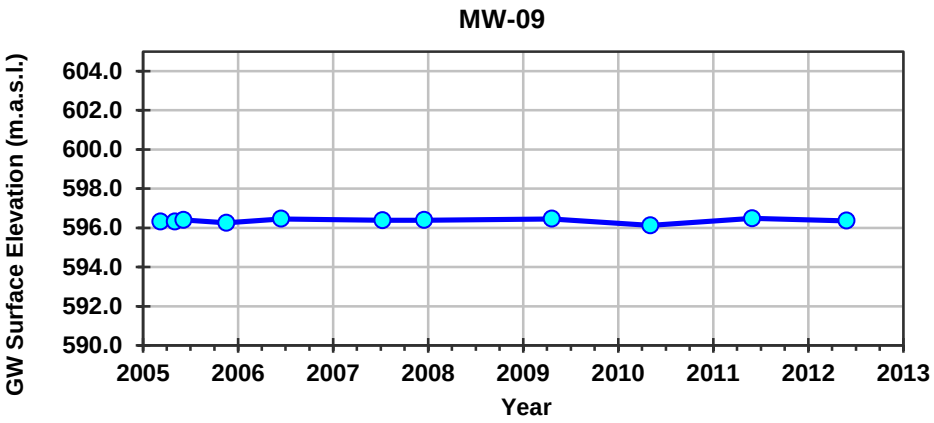
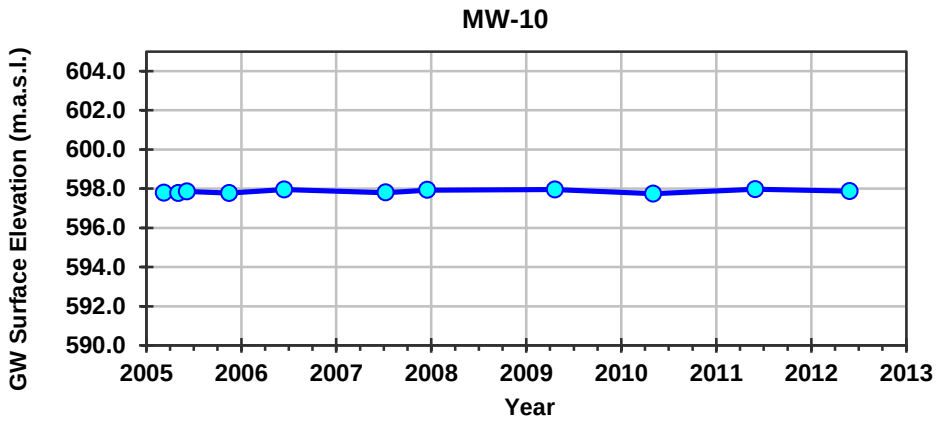
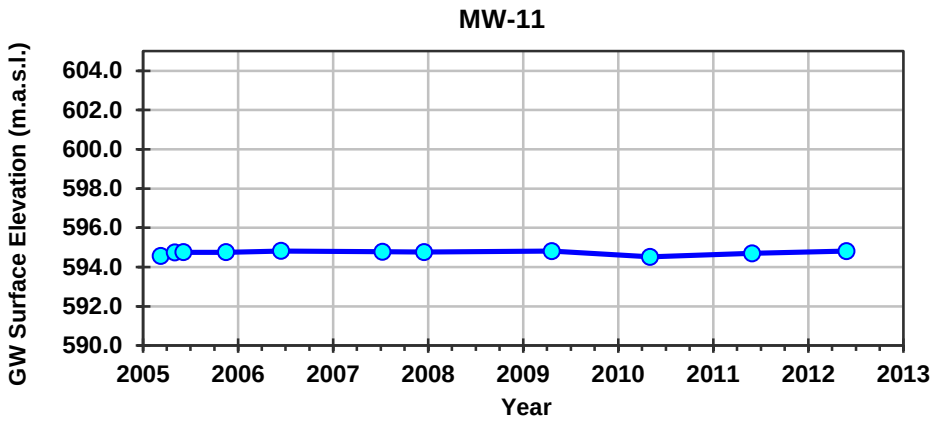
PROJECT NUMBER: 307075-01129

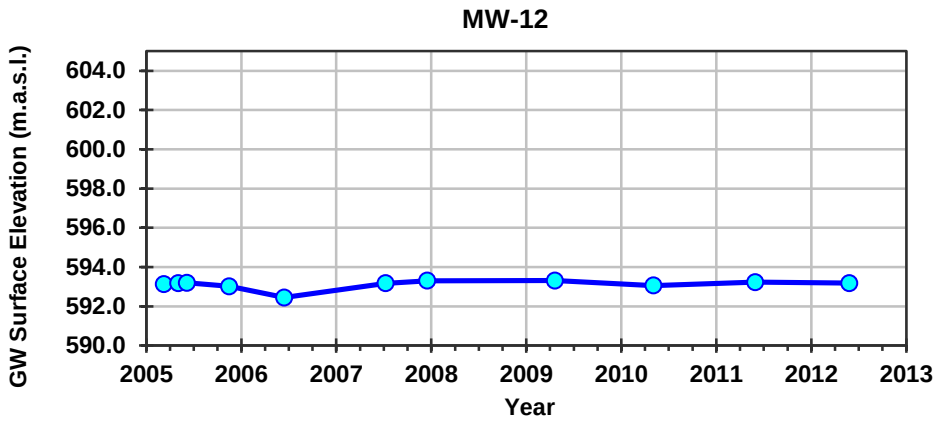
FIGURE: A3-2

File: U:\EDM\GBS\307075-01129\100-2012_GW_Mon\12.0_Reports\12.3_Backend\Appendix 3\307075-01129-CA-FIG-HYD-01.xls; Issued by: Edmonton - Database









NOTE: - ***Filled symbols denote Sample Values***

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MW-09, MW-10, MW-11 & MW-12

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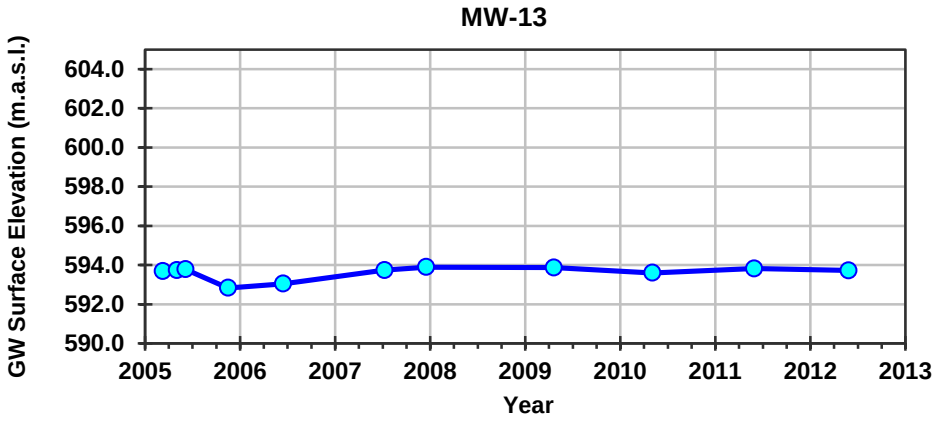
PROJECT NUMBER: **307075-01129**

FIGURE: **A3-3**

File: U:\EDM\GBS\307075-01129\100-2012_GW_Mon\12.0_Reports\12.3_Backend\Appendix 3\307075-01129-CA-FIG-HYD-01.xls; Issued by: Edmonton - Database



NOTE: - ***Filled symbols denote Sample Values***

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Monitoring Well Hydrographs
MW-13

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13-Jul-12 date	KK edited by	AH drawn by	app by

PROJECT NUMBER: **307075-01129**

FIGURE: **A3-4**

File: U:\EDM\GBS\307075-01129\100-2012_GW_Mon\12.0_Reports\12.3_Backend\Appendix 3\307075-01129-CA-FIG-HYD-01.xls; Issued by: Edmonton - Database

Appendix 4 Laboratory Analytical Data

WORLEYPARSONS CANADA
ATTN: TREVOR BUTTERFIELD
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6

Date Received: 31-MAY-12
Report Date: 16-JUL-12 14:06 (MT)
Version: FINAL REV. 2

Client Phone: 780-496-9055

Certificate of Analysis

Lab Work Order #: L1155027

Project P.O. #: 307075-01129
Job Reference: 307075-01129
C of C Numbers: 10-200725, 10-200726
Legal Site Desc:

Comments:

16-JUL-12: RC27174 Confirmed Dissolved Aluminum results for -2, -3, -6, -7, -8, -9, -10, -12, -13, -14

Maureen Olinek
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1155027-1 MW01							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 13:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	91.1		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.228		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	3.1		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.106		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	3.13		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	93.0		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	1.57		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	23.7		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.694		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	2.70		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	35.0		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00088		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.120		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	<0.050		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00068		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000423		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00194		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	0.0034		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							

* 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
L1155027-1 MW01							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 13:30							
Matrix: WATER							
Ion Balance Calculation							
Ion Balance	94.7			%		06-JUN-12	
TDS (Calculated)	435			mg/L		06-JUN-12	
Hardness (as CaCO3)	330			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	56.2		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	8.00		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	769		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	450		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	369		5.0	mg/L		02-JUN-12	R2375028
L1155027-2 MW09							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 15:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	100.4		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	2.02		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	6.0		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.184		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	4.82		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	88.3		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	1.89		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	23.7		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.784		0.0050	mg/L		05-JUN-12	R2376224

* 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
L1155027-2 MW09							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 15:00							
Matrix: WATER							
Diss. Metals in Water by ICPOES (Low)							
Potassium (K)-Dissolved	4.22		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	226		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0112		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00234		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0209		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.226		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00080		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.00143		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00121		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	94.1			%		06-JUN-12	
TDS (Calculated)	982			mg/L		06-JUN-12	
Hardness (as CaCO3)	318			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	319		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	8.04		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1550		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	643		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	527		5.0	mg/L		02-JUN-12	R2375028
L1155027-3 MW06							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 16:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062

* 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
L1155027-3 MW06							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 16:00							
Matrix: WATER							
BTEX, Styrene and F1 (C6-C10)							
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	94.6		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.55		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	6.8		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.128		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	2.95		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	167		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	6.02		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	56.5		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	1.70		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	5.80		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	139		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0104		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00525		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0265		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.122		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00030		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000878		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00173		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	0.0036		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	94.7			%		06-JUN-12	
TDS (Calculated)	1160			mg/L		06-JUN-12	
Hardness (as CaCO3)	650			mg/L		06-JUN-12	

* 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
L1155027-3 MW06							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 16:00							
Matrix: WATER							
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	494		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.81		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1730		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	602		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	493		5.0	mg/L		02-JUN-12	R2375028
L1155027-4 MW05							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 17:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	97.2		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.233		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	6.9		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.061		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	33.7		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	112		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	3.83		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	31.3		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.707		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	8.00		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	42.6		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214

* 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
L1155027-4 MW05							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 17:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00107		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0455		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	<0.050		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00067		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000321		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00063		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	92.3			%		06-JUN-12	
TDS (Calculated)	583			mg/L		06-JUN-12	
Hardness (as CaCO3)	409			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	138		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.93		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1000		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	442		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	362		5.0	mg/L		02-JUN-12	R2375028
L1155027-5 MW03							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 19:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062

* 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
L1155027-5 MW03							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 19:00							
Matrix: WATER							
BTEX, Styrene and F1 (C6-C10)							
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	96.3		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.327		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	3.4		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.080		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	45.9		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	102		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	4.83		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	31.8		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.246		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	3.05		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	48.8		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00132		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0350		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.088		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00062		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000535		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00051		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	91.7			%		06-JUN-12	
TDS (Calculated)	560			mg/L		06-JUN-12	
Hardness (as CaCO3)	386			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698

* 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
L1155027-5 MW03							
Sampled By: JEFF NYCHKA on 29-MAY-12 @ 19:00							
Matrix: WATER							
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	115		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.83		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	988		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	434		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	355		5.0	mg/L		02-JUN-12	R2375028
L1155027-6 MW04							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 09:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	0.00117		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	0.00092		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	0.00193		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	0.00286		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	95.9		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	<0.050		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	3.2		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.089		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	126		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	141		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	1.47		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	38.1		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.722		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	8.93		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	50.9		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0135		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00054		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0954		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214

* 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
L1155027-6 MW04							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 09:00							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Boron (B)-Dissolved	0.086		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00088		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000398		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	0.0024		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00396		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	92.8			%		06-JUN-12	
TDS (Calculated)	699			mg/L		06-JUN-12	
Hardness (as CaCO3)	509			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	88.2		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.88		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1280		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	500		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	409		5.0	mg/L		02-JUN-12	R2375028
L1155027-7 MW08							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 12:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							

* 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
L1155027-7 MW08							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 12:30							
Matrix: WATER							
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	85.9		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.76		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	5.7		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.084		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	0.86		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	135		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	6.69		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	35.0		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.409		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	5.69		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	107		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0104		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00600		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0499		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.154		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00018		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.00137		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00069		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	0.0042		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	92.3			%		06-JUN-12	
TDS (Calculated)	867			mg/L		06-JUN-12	
Hardness (as CaCO3)	481			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698

* 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
L1155027-7 MW08							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 12:30							
Matrix: WATER							
Sulfate by IC							
Sulfate (SO4)	308		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.93		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1360		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	560		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	459		5.0	mg/L		02-JUN-12	R2375028
L1155027-8 MW10							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 13:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	78.5		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.79		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	5.9		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.113		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	0.53		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	127		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	5.98		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	31.6		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.655		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	5.79		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	111		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0139		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00420		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0273		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.150		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00032		0.00010	mg/L		04-JUN-12	R2376214

* 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
L1155027-8 MW10							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 13:30							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000884		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00113		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	93.5			%		06-JUN-12	
TDS (Calculated)	801			mg/L		06-JUN-12	
Hardness (as CaCO3)	447			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	211		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.89		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1290		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	639		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	524		5.0	mg/L		02-JUN-12	R2375028
L1155027-9 MW11							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 14:15							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	98.2		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.51		0.050	mg/L		05-JUN-12	R2376697

* 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
L1155027-9 MW11							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 14:15							
Matrix: WATER							
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	6.6		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.067		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	8.71		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	134		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	6.82		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	38.7		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.605		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	5.34		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	87.9		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0106		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00232		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0386		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.161		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00038		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000669		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00100		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	91.8			%		06-JUN-12	
TDS (Calculated)	795			mg/L		06-JUN-12	
Hardness (as CaCO3)	494			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	202		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.90		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1300		0.20	uS/cm		02-JUN-12	R2375028

* 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
L1155027-9 MW11							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 14:15							
Matrix: WATER							
pH, Conductivity and Total Alkalinity							
Bicarbonate (HCO3)	648		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	531		5.0	mg/L		02-JUN-12	R2375028
L1155027-10 MW07							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 16:10							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	94.3		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	2.22		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	6.0		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.093		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	12.6		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	247		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	11.3		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	80.4		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	1.79		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	6.96		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	245		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0116		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00376		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0544		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.240		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00104		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000974		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	0.0026		0.0020	mg/L		04-JUN-12	R2376214

* 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
L1155027-10 MW07							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 16:10							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00143		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	96.9			%		06-JUN-12	
TDS (Calculated)	1860			mg/L		06-JUN-12	
Hardness (as CaCO3)	948			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	949		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.71		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	2570		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	648		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	531		5.0	mg/L		02-JUN-12	R2375028
L1155027-11 MW13							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 17:15							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	01-JUN-12	R2375571
Surrogate: 2-Bromobenzotrifluoride	96.4		65-135	%	01-JUN-12	01-JUN-12	R2375571
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.31		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	4.6		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.119		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559

* 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
L1155027-11 MW13							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 17:15							
Matrix: WATER							
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	1.81		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	48.0		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	1.33		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	14.4		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.238		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	4.00		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	101		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00140		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.354		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.197		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00065		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.00180		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00063		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	90.5			%		06-JUN-12	
TDS (Calculated)	438			mg/L		06-JUN-12	
Hardness (as CaCO3)	179			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	9.24		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	8.18		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	786		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	529		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	433		5.0	mg/L		02-JUN-12	R2375028

* 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
L1155027-12 MW12							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 18:15							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	02-JUN-12	R2376158
Surrogate: 2-Bromobenzotrifluoride	101.7		65-135	%	01-JUN-12	02-JUN-12	R2376158
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	1.32		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	6.6		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.076		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	6.25		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	89.8		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	4.14		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	25.6		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.435		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	5.23		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	95.7		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0146		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00267		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.112		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.219		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00046		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.00121		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00085		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							

* 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
L1155027-12 MW12							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 18:15							
Matrix: WATER							
Ion Balance Calculation							
Ion Balance	91.5			%		06-JUN-12	
TDS (Calculated)	591			mg/L		06-JUN-12	
Hardness (as CaCO3)	330			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	43.3		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	8.03		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1030		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	660		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	541		5.0	mg/L		02-JUN-12	R2375028
L1155027-13 MW02							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 19:30							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	02-JUN-12	R2376158
Surrogate: 2-Bromobenzotrifluoride	99.7		65-135	%	01-JUN-12	02-JUN-12	R2376158
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	0.538		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	4.9		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.061		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	29.6		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	135		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	8.07		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	44.8		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.431		0.0050	mg/L		05-JUN-12	R2376224

* 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
L1155027-13 MW02							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 19:30							
Matrix: WATER							
Diss. Metals in Water by ICPOES (Low)							
Potassium (K)-Dissolved	5.18		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	82.9		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0106		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00312		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0586		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.133		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00103		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000615		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	0.0027		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00123		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	0.0031		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	91.0			%		06-JUN-12	
TDS (Calculated)	826			mg/L		06-JUN-12	
Hardness (as CaCO3)	522			mg/L		06-JUN-12	
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	231		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.80		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1350		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	605		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	496		5.0	mg/L		02-JUN-12	R2375028
L1155027-14 DP12-01							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 12:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062

* 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
L1155027-14 DP12-01							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 12:00							
Matrix: WATER							
BTEX, Styrene and F1 (C6-C10)							
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	02-JUN-12	R2376158
Surrogate: 2-Bromobenzotrifluoride	92.5		65-135	%	01-JUN-12	02-JUN-12	R2376158
Miscellaneous Parameters							
Ammonia, Total Dissolved (as N)	<0.050		0.050	mg/L		05-JUN-12	R2376697
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		01-JUN-12	R2375190
Dissolved Organic Carbon	3.3		1.0	mg/L		06-JUN-12	R2377283
Fluoride (F)	0.094		0.050	mg/L		01-JUN-12	R2376698
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-JUN-12	R2377559
Major Ions & Trace Dissolved Metals							
Chloride by IC							
Chloride (Cl)	126		0.50	mg/L		01-JUN-12	R2376698
Diss. Metals in Water by ICPOES (Low)							
Calcium (Ca)-Dissolved	161		0.50	mg/L		05-JUN-12	R2376224
Iron (Fe)-Dissolved	1.73		0.020	mg/L		05-JUN-12	R2376224
Magnesium (Mg)-Dissolved	44.8		0.10	mg/L		05-JUN-12	R2376224
Manganese (Mn)-Dissolved	0.861		0.0050	mg/L		05-JUN-12	R2376224
Potassium (K)-Dissolved	11.4		0.10	mg/L		05-JUN-12	R2376224
Sodium (Na)-Dissolved	58.9		0.50	mg/L		05-JUN-12	R2376224
Dissolved Metals in Water by CRC ICPMS							
Aluminum (Al)-Dissolved	0.0112		0.0050	mg/L		04-JUN-12	R2376214
Antimony (Sb)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Arsenic (As)-Dissolved	0.00059		0.00040	mg/L		04-JUN-12	R2376214
Barium (Ba)-Dissolved	0.0967		0.0050	mg/L		04-JUN-12	R2376214
Beryllium (Be)-Dissolved	<0.00050		0.00050	mg/L		04-JUN-12	R2376214
Boron (B)-Dissolved	0.087		0.050	mg/L		04-JUN-12	R2376214
Cadmium (Cd)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Chromium (Cr)-Dissolved	<0.0050		0.0050	mg/L		04-JUN-12	R2376214
Cobalt (Co)-Dissolved	0.00088		0.00010	mg/L		04-JUN-12	R2376214
Copper (Cu)-Dissolved	<0.0010		0.0010	mg/L		04-JUN-12	R2376214
Lead (Pb)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Molybdenum (Mo)-Dissolved	0.000326		0.000050	mg/L		04-JUN-12	R2376214
Nickel (Ni)-Dissolved	0.0022		0.0020	mg/L		04-JUN-12	R2376214
Selenium (Se)-Dissolved	<0.00040		0.00040	mg/L		04-JUN-12	R2376214
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Thallium (Tl)-Dissolved	<0.000050		0.000050	mg/L		04-JUN-12	R2376214
Titanium (Ti)-Dissolved	0.00041		0.00030	mg/L		04-JUN-12	R2376214
Uranium (U)-Dissolved	0.00404		0.00010	mg/L		04-JUN-12	R2376214
Vanadium (V)-Dissolved	<0.00010		0.00010	mg/L		04-JUN-12	R2376214
Zinc (Zn)-Dissolved	<0.0030		0.0030	mg/L		04-JUN-12	R2376214
Ion Balance Calculation							
Ion Balance	107			%		06-JUN-12	
TDS (Calculated)	736			mg/L		06-JUN-12	
Hardness (as CaCO3)	587			mg/L		06-JUN-12	

* 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
L1155027-14 DP12-01							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 12:00							
Matrix: WATER							
Mercury (Hg) - Dissolved							
Mercury (Hg)-Dissolved	<0.000020		0.000020	mg/L		02-JUN-12	R2375572
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		06-JUN-12	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		01-JUN-12	R2376698
Sulfate by IC							
Sulfate (SO4)	88.6		0.50	mg/L		01-JUN-12	R2376698
pH, Conductivity and Total Alkalinity							
pH	7.94		0.10	pH		02-JUN-12	R2375028
Conductivity (EC)	1280		0.20	uS/cm		02-JUN-12	R2375028
Bicarbonate (HCO3)	499		5.0	mg/L		02-JUN-12	R2375028
Carbonate (CO3)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Hydroxide (OH)	<5.0		5.0	mg/L		02-JUN-12	R2375028
Alkalinity, Total (as CaCO3)	409		5.0	mg/L		02-JUN-12	R2375028
L1155027-15 FB12-01							
Sampled By: JEFF NYCHKA on 30-MAY-12 @ 12:00							
Matrix: WATER							
BTEX, Styrene & F1-F2							
BTEX, Styrene and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Toluene	<0.00075		0.00075	mg/L	01-JUN-12	03-JUN-12	R2375062
EthylBenzene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
o-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
m+p-Xylene	<0.00050		0.00050	mg/L	01-JUN-12	03-JUN-12	R2375062
Styrene	<0.0010		0.0010	mg/L	01-JUN-12	03-JUN-12	R2375062
F1(C6-C10)	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
F1-BTEX	<0.10		0.10	mg/L	01-JUN-12	03-JUN-12	R2375062
Xylenes	<0.00071		0.00071	mg/L	01-JUN-12	03-JUN-12	R2375062
F2 (>C10-C16)							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-JUN-12	02-JUN-12	R2376158
Surrogate: 2-Bromobenzotrifluoride	90.0		65-135	%	01-JUN-12	02-JUN-12	R2376158

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTXS,F1-ED	Water	BTEX, Styrene and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
C-DIS-ORG-ED	Water	Dissolved Organic Carbon	APHA 5310 B-Instrumental
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F-IC-ED	Water	Fluoride by IC	APHA 4110 B-ION CHROMATOGRAPHY
F2-ED	Water	F2 (>C10-C16)	EPA 3510/CCME PHC CWS-GC-FID
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
IONBALANCE-ED	Water	Ion Balance Calculation	APHA 1030E
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
MET-D-L-ICP-ED	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
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
PO4-DO-COL-ED	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SO4-IC-ED	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY

** 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:

10-200725 10-200726

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: L1155027 Report Date: 16-JUL-12

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTXS,F1-ED	**Water**							
Batch R2375062								
WG1482055-7 DUP		**L1155027-15**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	03-JUN-12
Toluene		<0.00075	<0.00075	RPD-NA	mg/L	N/A	30	03-JUN-12
EthylBenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	03-JUN-12
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	03-JUN-12
m+p-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	03-JUN-12
Styrene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	50	03-JUN-12
F1(C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	03-JUN-12
WG1482055-2 LCS								
Benzene			92.6		%		70-130	02-JUN-12
Toluene			84.6		%		70-130	02-JUN-12
EthylBenzene			71.2		%		70-130	02-JUN-12
o-Xylene			77.9		%		70-130	02-JUN-12
m+p-Xylene			71.4		%		70-130	02-JUN-12
Styrene			87.2		%		70-130	02-JUN-12
WG1482055-3 LCS								
F1(C6-C10)			92.4		%		70-130	02-JUN-12
WG1482055-1 MB								
Benzene			<0.00050		mg/L		0.0005	02-JUN-12
Toluene			<0.00075		mg/L		0.00075	02-JUN-12
EthylBenzene			<0.00050		mg/L		0.0005	02-JUN-12
o-Xylene			<0.00050		mg/L		0.0005	02-JUN-12
m+p-Xylene			0.00059	A	mg/L		0.0005	02-JUN-12
Styrene			<0.0010		mg/L		0.001	02-JUN-12
F1(C6-C10)			<0.10		mg/L		0.1	02-JUN-12
COMMENTS: Blank hits are less than 5 times the detection limit and do not negatively impact data quality.								
WG1482055-5 MS		**L1155027-5**						
Benzene			95.6		%		50-150	03-JUN-12
Toluene			88.7		%		50-150	03-JUN-12
EthylBenzene			76.1		%		50-150	03-JUN-12
o-Xylene			82.0		%		50-150	03-JUN-12
m+p-Xylene			76.5		%		50-150	03-JUN-12
Styrene			90.3		%		50-150	03-JUN-12
WG1482055-6 MS		**L1155027-5**						
F1(C6-C10)			99.5		%		50-150	03-JUN-12
C-DIS-ORG-ED	**Water**							

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-DIS-ORG-ED	**Water**							
Batch R2377283								
WG1484744-3 CVS								
Dissolved Organic Carbon			105.3		%		80-160	06-JUN-12
WG1484744-8 DUP		**L1155027-5**						
Dissolved Organic Carbon		3.4	3.3		mg/L	2.4	20	06-JUN-12
WG1484744-2 LCS								
Dissolved Organic Carbon			98.8		%		80-120	06-JUN-12
WG1484744-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	06-JUN-12
WG1484744-9 MS		**L1155027-5**						
Dissolved Organic Carbon			98.7		%		70-130	06-JUN-12
CL-IC-ED	**Water**							
Batch R2376698								
WG1482504-3 DUP		**L1155387-2**						
Chloride (Cl)		9.33	9.29		mg/L	0.4	20	01-JUN-12
WG1482504-5 DUP		**L1155264-15**						
Chloride (Cl)		<0.50	<0.50	RPD-NA	mg/L	N/A	20	01-JUN-12
WG1482504-7 DUP		**L1154683-4**						
Chloride (Cl)		48.2	48.3		mg/L	0.1	20	01-JUN-12
WG1482504-2 LCS								
Chloride (Cl)			100.5		%		85-115	01-JUN-12
WG1482504-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	01-JUN-12
WG1482504-4 MS		**L1155387-2**						
Chloride (Cl)			108.1		%		75-125	01-JUN-12
WG1482504-6 MS		**L1155264-15**						
Chloride (Cl)			110.1		%		75-125	01-JUN-12
WG1482504-8 MS		**L1154683-4**						
Chloride (Cl)			105.0		%		75-125	01-JUN-12
F-IC-ED	**Water**							
Batch R2376698								
WG1482504-3 DUP		**L1155387-2**						
Fluoride (F)		0.209	0.220		mg/L	5.0	20	01-JUN-12
WG1482504-7 DUP		**L1154683-4**						
Fluoride (F)		1.59	1.55		mg/L	2.2	20	01-JUN-12
WG1482504-2 LCS								
Fluoride (F)			97.6		%		85-115	01-JUN-12
WG1482504-1 MB								
Fluoride (F)			<0.050		mg/L		0.05	01-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-ED	**Water**							
Batch R2376698								
WG1482504-4 MS		**L1155387-2**						
Fluoride (F)			106.5		%		75-125	01-JUN-12
WG1482504-8 MS		**L1154683-4**						
Fluoride (F)			N/A	MS-B	%		-	01-JUN-12
F2-ED	**Water**							
Batch R2375571								
WG1482731-2 LCS								
F2 (>C10-C16)			95.3		%		65-135	01-JUN-12
WG1482731-1 MB								
F2 (>C10-C16)			<0.25		mg/L		0.25	01-JUN-12
Surrogate: 2-Bromobenzotrifluoride			92.6		%		65-135	01-JUN-12
WG1482731-3 MS		**L1153808-11**						
F2 (>C10-C16)			91.8		%		50-150	01-JUN-12
WG1482731-4 MS		**L1154152-1**						
F2 (>C10-C16)			91.8		%		50-150	01-JUN-12
Batch R2376158								
WG1483125-2 LCS								
F2 (>C10-C16)			91.5		%		65-135	02-JUN-12
WG1483125-1 MB								
F2 (>C10-C16)			<0.25		mg/L		0.25	02-JUN-12
Surrogate: 2-Bromobenzotrifluoride			91.8		%		65-135	02-JUN-12
WG1483125-3 MS		**L1154998-2**						
F2 (>C10-C16)			97.1		%		50-150	02-JUN-12
WG1483125-4 MS		**L1154999-3**						
F2 (>C10-C16)			99.5		%		50-150	02-JUN-12
HG-D-L-CVAA-ED	**Water**							
Batch R2375572								
WG1482712-4 DUP		**L1155027-5**						
Mercury (Hg)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	02-JUN-12
WG1482712-6 DUP		**L1155027-14**						
Mercury (Hg)-Dissolved		<0.000020	<0.000020	RPD-NA	mg/L	N/A	20	02-JUN-12
WG1482712-2 LCS								
Mercury (Hg)-Dissolved			97.4		%		80-120	02-JUN-12
WG1482712-3 LCSD		**WG1482712-2**						
Mercury (Hg)-Dissolved		97.4	96.7		%	0.7	20	02-JUN-12
WG1482712-1 MB								
Mercury (Hg)-Dissolved			<0.000020		mg/L		0.00002	02-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-L-CVAA-ED	**Water**							
Batch R2375572								
WG1482712-5 MS		**L1155027-5**						
Mercury (Hg)-Dissolved			98.1		%		70-130	02-JUN-12
WG1482712-7 MS		**L1155027-14**						
Mercury (Hg)-Dissolved			101.8		%		70-130	02-JUN-12
MET-D-CCMS-ED	**Water**							
Batch R2376214								
WG1483223-2 CRM		**ED-HIGH-WATRM**						
Aluminum (Al)-Dissolved			105.3		%		80-120	04-JUN-12
Antimony (Sb)-Dissolved			100.8		%		80-120	04-JUN-12
Arsenic (As)-Dissolved			98.4		%		80-120	04-JUN-12
Barium (Ba)-Dissolved			96.0		%		80-120	04-JUN-12
Beryllium (Be)-Dissolved			98.2		%		80-120	04-JUN-12
Boron (B)-Dissolved			93.8		%		80-120	04-JUN-12
Cadmium (Cd)-Dissolved			100.9		%		80-120	04-JUN-12
Chromium (Cr)-Dissolved			98.5		%		80-120	04-JUN-12
Cobalt (Co)-Dissolved			100.3		%		80-120	04-JUN-12
Copper (Cu)-Dissolved			95.8		%		80-120	04-JUN-12
Lead (Pb)-Dissolved			102.0		%		80-120	04-JUN-12
Molybdenum (Mo)-Dissolved			104.6		%		80-120	04-JUN-12
Nickel (Ni)-Dissolved			107.1		%		80-120	04-JUN-12
Selenium (Se)-Dissolved			103.3		%		80-120	04-JUN-12
Silver (Ag)-Dissolved			92.6		%		80-120	04-JUN-12
Thallium (Tl)-Dissolved			101.4		%		80-120	04-JUN-12
Titanium (Ti)-Dissolved			99.1		%		80-120	04-JUN-12
Uranium (U)-Dissolved			103.6		%		80-120	04-JUN-12
Vanadium (V)-Dissolved			100.7		%		80-120	04-JUN-12
Zinc (Zn)-Dissolved			95.2		%		80-120	04-JUN-12
WG1483223-3 DUP		**L1148271-1**						
Aluminum (Al)-Dissolved		0.0052	0.0056		mg/L	7.2	20	04-JUN-12
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Arsenic (As)-Dissolved		0.00029	0.00031		mg/L	4.6	20	04-JUN-12
Barium (Ba)-Dissolved		0.00793	0.00808		mg/L	1.9	20	04-JUN-12
Beryllium (Be)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	04-JUN-12
Boron (B)-Dissolved		0.017	0.017		mg/L	0.3	20	04-JUN-12
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-ED	**Water**							
Batch R2376214								
WG1483223-3 DUP		**L1148271-1**						
Chromium (Cr)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Cobalt (Co)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Copper (Cu)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-JUN-12
Molybdenum (Mo)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-JUN-12
Nickel (Ni)-Dissolved		0.00024	0.00022		mg/L	10	20	04-JUN-12
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-JUN-12
Thallium (Tl)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	04-JUN-12
Titanium (Ti)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	04-JUN-12
Uranium (U)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-JUN-12
Vanadium (V)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Zinc (Zn)-Dissolved		0.0013	0.0012		mg/L	14	20	04-JUN-12
WG1483223-5 DUP		**L1154139-1**						
Aluminum (Al)-Dissolved		0.0329	0.0317		mg/L	3.5	20	04-JUN-12
Antimony (Sb)-Dissolved		<0.00040	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Arsenic (As)-Dissolved		0.00048	0.00045		mg/L	5.2	20	04-JUN-12
Barium (Ba)-Dissolved		0.0277	0.0275		mg/L	0.8	20	04-JUN-12
Beryllium (Be)-Dissolved		<0.0010	<0.00050	RPD-NA	mg/L	N/A	20	04-JUN-12
Boron (B)-Dissolved		<0.050	<0.010	RPD-NA	mg/L	N/A	20	04-JUN-12
Cadmium (Cd)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	04-JUN-12
Chromium (Cr)-Dissolved		<0.0010	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Cobalt (Co)-Dissolved		<0.0020	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Copper (Cu)-Dissolved		0.0012	0.00125		mg/L	0.8	20	04-JUN-12
Lead (Pb)-Dissolved		<0.00010	<0.000050	RPD-NA	mg/L	N/A	20	04-JUN-12
Molybdenum (Mo)-Dissolved		<0.0050	0.000365		mg/L	0.6	20	04-JUN-12
Nickel (Ni)-Dissolved		<0.0020	0.00105		mg/L	5.8	20	04-JUN-12
Selenium (Se)-Dissolved		<0.00040	<0.00010	RPD-NA	mg/L	N/A	20	04-JUN-12
Silver (Ag)-Dissolved		<0.000020	<0.000010	RPD-NA	mg/L	N/A	20	04-JUN-12
Thallium (Tl)-Dissolved		<0.00010	<0.000050	RPD-NA	mg/L	N/A	20	04-JUN-12
Titanium (Ti)-Dissolved		<0.0010	0.00039		mg/L	3.7	20	04-JUN-12
Uranium (U)-Dissolved		0.00012	0.000119		mg/L	1.8	20	04-JUN-12
Vanadium (V)-Dissolved		<0.0010	0.00020		mg/L	8.0	20	04-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-ED	**Water**							
Batch R2376214								
WG1483223-5 DUP		**L1154139-1**						
Zinc (Zn)-Dissolved		<0.0040	0.0025		mg/L	18	20	04-JUN-12
WG1483223-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	04-JUN-12
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	04-JUN-12
Beryllium (Be)-Dissolved			<0.00050		mg/L		0.0005	04-JUN-12
Boron (B)-Dissolved			<0.010		mg/L		0.01	04-JUN-12
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	04-JUN-12
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Copper (Cu)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	04-JUN-12
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	04-JUN-12
Nickel (Ni)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	04-JUN-12
Thallium (Tl)-Dissolved			<0.000050		mg/L		0.00005	04-JUN-12
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	04-JUN-12
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	04-JUN-12
Vanadium (V)-Dissolved			<0.00010		mg/L		0.0001	04-JUN-12
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	04-JUN-12
MET-D-L-ICP-ED	**Water**							
Batch R2376224								
WG1483099-2 CRM		**EU-H-3_OPTWATER**						
Calcium (Ca)-Dissolved			94.1		%		80-120	04-JUN-12
Iron (Fe)-Dissolved			93.2		%		80-120	04-JUN-12
Magnesium (Mg)-Dissolved			88.2		%		80-120	04-JUN-12
Manganese (Mn)-Dissolved			93.3		%		80-120	04-JUN-12
Potassium (K)-Dissolved			90.6		%		80-120	04-JUN-12
Sodium (Na)-Dissolved			92.5		%		80-120	04-JUN-12
WG1483099-4 DUP		**L1151507-1**						
Calcium (Ca)-Dissolved		1.12	1.08		mg/L	3.5	20	05-JUN-12
Iron (Fe)-Dissolved		0.185	0.184		mg/L	0.6	20	05-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-ICP-ED	**Water**							
Batch R2376224								
WG1483099-4 DUP		**L1151507-1**						
Magnesium (Mg)-Dissolved		0.54	0.52		mg/L	3.1	20	05-JUN-12
Manganese (Mn)-Dissolved		0.0098	0.0096		mg/L	1.4	20	05-JUN-12
Potassium (K)-Dissolved		0.66	0.81	J	mg/L	0.15	0.2	05-JUN-12
Sodium (Na)-Dissolved		<1.0	0.83		mg/L	0.0	20	05-JUN-12
WG1483099-5 DUP		**L1155027-7**						
Calcium (Ca)-Dissolved		135	153		mg/L	12	20	05-JUN-12
Iron (Fe)-Dissolved		6.69	7.80		mg/L	15	20	05-JUN-12
Magnesium (Mg)-Dissolved		35.0	40.8		mg/L	15	20	05-JUN-12
Manganese (Mn)-Dissolved		0.409	0.471		mg/L	14	20	05-JUN-12
Potassium (K)-Dissolved		5.69	6.46		mg/L	13	20	05-JUN-12
Sodium (Na)-Dissolved		107	125		mg/L	15	20	05-JUN-12
WG1483099-1 MB								
Calcium (Ca)-Dissolved			<0.20		mg/L		0.2	04-JUN-12
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	04-JUN-12
Magnesium (Mg)-Dissolved			<0.10		mg/L		0.1	04-JUN-12
Manganese (Mn)-Dissolved			<0.0020		mg/L		0.002	04-JUN-12
Potassium (K)-Dissolved			<0.1		mg/L		0.1	04-JUN-12
Sodium (Na)-Dissolved			<0.50		mg/L		0.5	04-JUN-12
NH3-D-CFA-ED	**Water**							
Batch R2376697								
WG1483636-3 DUP		**L1155027-6**						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	05-JUN-12
WG1483636-4 DUP		**L1155146-3**						
Ammonia, Total Dissolved (as N)		0.083	0.082		mg/L	0.9	20	05-JUN-12
WG1483636-5 DUP		**L1155146-13**						
Ammonia, Total Dissolved (as N)		1.96	1.96		mg/L	0.0	20	05-JUN-12
WG1483636-6 DUP		**L1155402-9**						
Ammonia, Total Dissolved (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	05-JUN-12
NO2-IC-ED	**Water**							
Batch R2376698								
WG1482504-3 DUP		**L1155387-2**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-JUN-12
WG1482504-5 DUP		**L1155264-15**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-JUN-12
WG1482504-7 DUP		**L1154683-4**						

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-ED	**Water**							
Batch R2376698								
WG1482504-7 DUP		**L1154683-4**						
Nitrite (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-JUN-12
WG1482504-2 LCS								
Nitrite (as N)			98.2		%		85-115	01-JUN-12
WG1482504-1 MB								
Nitrite (as N)			<0.050		mg/L		0.05	01-JUN-12
WG1482504-4 MS		**L1155387-2**						
Nitrite (as N)			95.9		%		75-125	01-JUN-12
WG1482504-6 MS		**L1155264-15**						
Nitrite (as N)			94.5		%		75-125	01-JUN-12
WG1482504-8 MS		**L1154683-4**						
Nitrite (as N)			92.4		%		75-125	01-JUN-12
NO3-IC-ED	**Water**							
Batch R2376698								
WG1482504-3 DUP		**L1155387-2**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-JUN-12
WG1482504-5 DUP		**L1155264-15**						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	01-JUN-12
WG1482504-7 DUP		**L1154683-4**						
Nitrate (as N)		0.092	0.096		mg/L	3.7	20	01-JUN-12
WG1482504-2 LCS								
Nitrate (as N)			97.0		%		85-115	01-JUN-12
WG1482504-1 MB								
Nitrate (as N)			<0.050		mg/L		0.05	01-JUN-12
WG1482504-4 MS		**L1155387-2**						
Nitrate (as N)			94.9		%		75-125	01-JUN-12
WG1482504-6 MS		**L1155264-15**						
Nitrate (as N)			93.7		%		75-125	01-JUN-12
WG1482504-8 MS		**L1154683-4**						
Nitrate (as N)			98.5		%		75-125	01-JUN-12
PH/EC/ALK-ED	**Water**							
Batch R2375028								
WG1481818-10 DUP		**L1155264-15**						
pH		8.31	8.33	J	pH	0.02	0.2	02-JUN-12
Conductivity (EC)		813	817		uS/cm	0.5	10	02-JUN-12
Bicarbonate (HCO3)		552	551		mg/L	0.1	25	02-JUN-12
Carbonate (CO3)		5.7	8.6	J	mg/L	3.0	10	02-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH/EC/ALK-ED	**Water**							
Batch R2375028								
WG1481818-10 DUP		**L1155264-15**						
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Alkalinity, Total (as CaCO3)		462	466		mg/L	1.0	6.5	02-JUN-12
WG1481818-11 DUP		**L1155387-2**						
pH		8.20	8.20	J	pH	0.01	0.2	02-JUN-12
Conductivity (EC)		894	895		uS/cm	0.1	10	02-JUN-12
Bicarbonate (HCO3)		127	128		mg/L	1.0	25	02-JUN-12
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Alkalinity, Total (as CaCO3)		104	105		mg/L	1.0	6.5	02-JUN-12
WG1481818-12 DUP		**L1155146-9**						
pH		8.01	8.03	J	pH	0.01	0.2	02-JUN-12
Conductivity (EC)		1160	1160		uS/cm	0.3	10	02-JUN-12
Bicarbonate (HCO3)		432	429		mg/L	0.7	25	02-JUN-12
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Alkalinity, Total (as CaCO3)		354	352		mg/L	0.7	6.5	02-JUN-12
WG1481818-13 DUP		**L1155037-2**						
pH		8.01	8.04	J	pH	0.03	0.2	02-JUN-12
Conductivity (EC)		1500	1500		uS/cm	0.1	10	02-JUN-12
Bicarbonate (HCO3)		715	720		mg/L	0.7	25	02-JUN-12
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Alkalinity, Total (as CaCO3)		586	590		mg/L	0.7	6.5	02-JUN-12
WG1481818-15 DUP		**L1155302-6**						
pH		8.05	8.05	J	pH	0.00	0.2	02-JUN-12
Conductivity (EC)		316	316		uS/cm	0.0	10	02-JUN-12
Bicarbonate (HCO3)		210	209		mg/L	0.4	25	02-JUN-12
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Alkalinity, Total (as CaCO3)		172	171		mg/L	0.4	6.5	02-JUN-12
WG1481818-16 DUP		**L1155179-4**						
pH		7.34	7.36	J	pH	0.02	0.2	02-JUN-12
Conductivity (EC)		719	717		uS/cm	0.3	10	02-JUN-12
Bicarbonate (HCO3)		494	493		mg/L	0.3	25	02-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH/EC/ALK-ED	**Water**							
Batch R2375028								
WG1481818-16 DUP		**L1155179-4**						
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	02-JUN-12
Alkalinity, Total (as CaCO3)		405	404		mg/L	0.3	6.5	02-JUN-12
WG1481818-7 DUP		**L1155546-1**						
pH		8.20	8.18	J	pH	0.02	0.2	01-JUN-12
Conductivity (EC)		822	823		uS/cm	0.1	10	01-JUN-12
Bicarbonate (HCO3)		454	455		mg/L	0.3	25	01-JUN-12
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	01-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	01-JUN-12
Alkalinity, Total (as CaCO3)		372	373		mg/L	0.3	6.5	01-JUN-12
WG1481818-8 DUP		**L1154602-20**						
pH		7.79	7.73	J	pH	0.06	0.2	01-JUN-12
Conductivity (EC)		2320	2310		uS/cm	0.4	10	01-JUN-12
Bicarbonate (HCO3)		256	256		mg/L	0.2	25	01-JUN-12
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	01-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	01-JUN-12
Alkalinity, Total (as CaCO3)		210	210		mg/L	0.2	6.5	01-JUN-12
WG1481818-9 DUP		**L1154992-4**						
pH		6.71	6.68	J	pH	0.04	0.2	01-JUN-12
Conductivity (EC)		13.2	13.0		uS/cm	1.6	10	01-JUN-12
Bicarbonate (HCO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	01-JUN-12
Carbonate (CO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	01-JUN-12
Hydroxide (OH)		<5.0	<5.0	RPD-NA	mg/L	N/A	25	01-JUN-12
Alkalinity, Total (as CaCO3)		<5.0	<5.0	RPD-NA	mg/L	N/A	6.5	01-JUN-12
WG1481818-2 LCS								
Conductivity (EC)			100.3		%		90-110	01-JUN-12
WG1481818-3 LCS								
pH			6.98		pH		6.9-7.1	01-JUN-12
WG1481818-4 LCS								
Alkalinity, Total (as CaCO3)			107.2		%		85-115	01-JUN-12
WG1481818-5 LCS								
Conductivity (EC)			94.7		%		90-110	01-JUN-12
WG1481818-1 MB								
Bicarbonate (HCO3)			<5.0		mg/L		5	01-JUN-12
Carbonate (CO3)			<5.0		mg/L		5	01-JUN-12

Quality Control Report

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH/EC/ALK-ED	**Water**							
Batch R2375028								
WG1481818-1 MB								
Hydroxide (OH)			<5.0		mg/L		5	01-JUN-12
Alkalinity, Total (as CaCO3)			<5.0		mg/L		5	01-JUN-12
PHENOLS-4AAP-ED	**Water**							
Batch R2377559								
WG1484990-3 LCS								
Phenols (4AAP)			90.4		%		85-115	06-JUN-12
WG1484990-2 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	06-JUN-12
PO4-DO-COL-ED	**Water**							
Batch R2375190								
WG1482162-3 DUP		**L1155371-1**						
Orthophosphate-Dissolved (as P)		0.798	0.799		mg/L	0.1	20	01-JUN-12
WG1482162-2 LCS								
Orthophosphate-Dissolved (as P)			100.2		%		80-120	01-JUN-12
WG1482162-1 MB								
Orthophosphate-Dissolved (as P)			<0.010		mg/L		0.01	01-JUN-12
WG1482162-4 MS		**L1155371-1**						
Orthophosphate-Dissolved (as P)			N/A	MS-B	%		-	01-JUN-12
SO4-IC-ED	**Water**							
Batch R2376698								
WG1482504-3 DUP		**L1155387-2**						
Sulfate (SO4)		344	344		mg/L	0.0	20	01-JUN-12
WG1482504-5 DUP		**L1155264-15**						
Sulfate (SO4)		14.1	14.2		mg/L	0.5	20	01-JUN-12
WG1482504-7 DUP		**L1154683-4**						
Sulfate (SO4)		69.8	69.8		mg/L	0.1	20	01-JUN-12
WG1482504-2 LCS								
Sulfate (SO4)			101.5		%		85-115	01-JUN-12
WG1482504-1 MB								
Sulfate (SO4)			<0.50		mg/L		0.5	01-JUN-12
WG1482504-4 MS		**L1155387-2**						
Sulfate (SO4)			N/A	MS-B	%		-	01-JUN-12
WG1482504-6 MS		**L1155264-15**						
Sulfate (SO4)			107.2		%		75-125	01-JUN-12
WG1482504-8 MS		**L1154683-4**						
Sulfate (SO4)			N/A	MS-B	%		-	01-JUN-12

Quality Control Report

Workorder: L1155027 Report Date: 16-JUL-12

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
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
A	Method Blank exceeds ALS DQO. Refer to narrative comments for further information.
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1155027 Report Date: 16-JUL-12

Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Leachable Anions & Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	29-MAY-12 13:30	01-JUN-12 12:44	48	71	hours	EHTL
	2	29-MAY-12 15:00	01-JUN-12 12:44	48	70	hours	EHTL
	3	29-MAY-12 16:00	01-JUN-12 12:44	48	69	hours	EHTL
	4	29-MAY-12 17:30	01-JUN-12 12:44	48	67	hours	EHTL
	5	29-MAY-12 19:00	01-JUN-12 12:46	48	66	hours	EHTL
	6	30-MAY-12 09:00	01-JUN-12 12:46	48	52	hours	EHTL
	14	30-MAY-12 12:00	01-JUN-12 12:50	48	49	hours	EHT
Anions and Nutrients							
Nitrate as N by IC							
	1	29-MAY-12 13:30	01-JUN-12 15:40	48	74	hours	EHTL
	2	29-MAY-12 15:00	01-JUN-12 15:40	48	73	hours	EHTL
	3	29-MAY-12 16:00	01-JUN-12 15:40	48	72	hours	EHTL
	4	29-MAY-12 17:30	01-JUN-12 15:40	48	70	hours	EHTL
	5	29-MAY-12 19:00	01-JUN-12 15:40	48	69	hours	EHTL
	6	30-MAY-12 09:00	01-JUN-12 15:40	48	55	hours	EHTL
	7	30-MAY-12 12:30	01-JUN-12 15:40	48	51	hours	EHT
	8	30-MAY-12 13:30	01-JUN-12 15:40	48	50	hours	EHT
	9	30-MAY-12 14:15	01-JUN-12 15:40	48	49	hours	EHT
	14	30-MAY-12 12:00	01-JUN-12 15:40	48	52	hours	EHT
Nitrite as N by IC							
	1	29-MAY-12 13:30	01-JUN-12 15:40	48	74	hours	EHTL
	2	29-MAY-12 15:00	01-JUN-12 15:40	48	73	hours	EHTL
	3	29-MAY-12 16:00	01-JUN-12 15:40	48	72	hours	EHTL
	4	29-MAY-12 17:30	01-JUN-12 15:40	48	70	hours	EHTL
	5	29-MAY-12 19:00	01-JUN-12 15:40	48	69	hours	EHTL
	6	30-MAY-12 09:00	01-JUN-12 15:40	48	55	hours	EHTL
	7	30-MAY-12 12:30	01-JUN-12 15:40	48	51	hours	EHT
	8	30-MAY-12 13:30	01-JUN-12 15:40	48	50	hours	EHT
	9	30-MAY-12 14:15	01-JUN-12 15:40	48	49	hours	EHT
	14	30-MAY-12 12:00	01-JUN-12 15:40	48	52	hours	EHT

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1155027 were received on 31-MAY-12 11:05.

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.

Quality Control Report

Workorder: L1155027 Report Date: 16-JUL-12

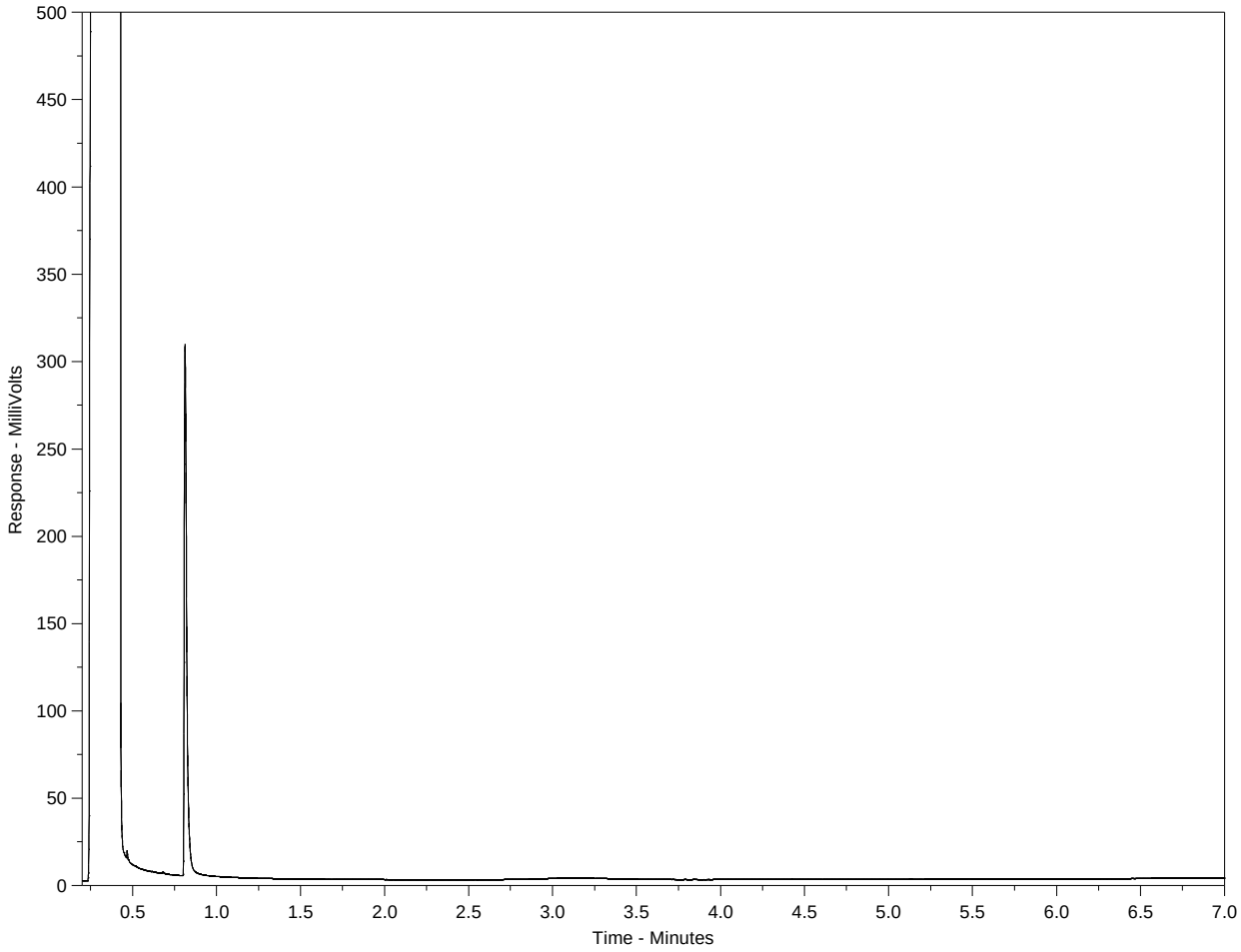
Client: WORLEYPARSONS CANADA
705 - 10240 124 ST NW
EDMONTON AB T5N 3W6
Contact: TREVOR BUTTERFIELD

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: **L1155027-1**
Client ID: **MW01**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

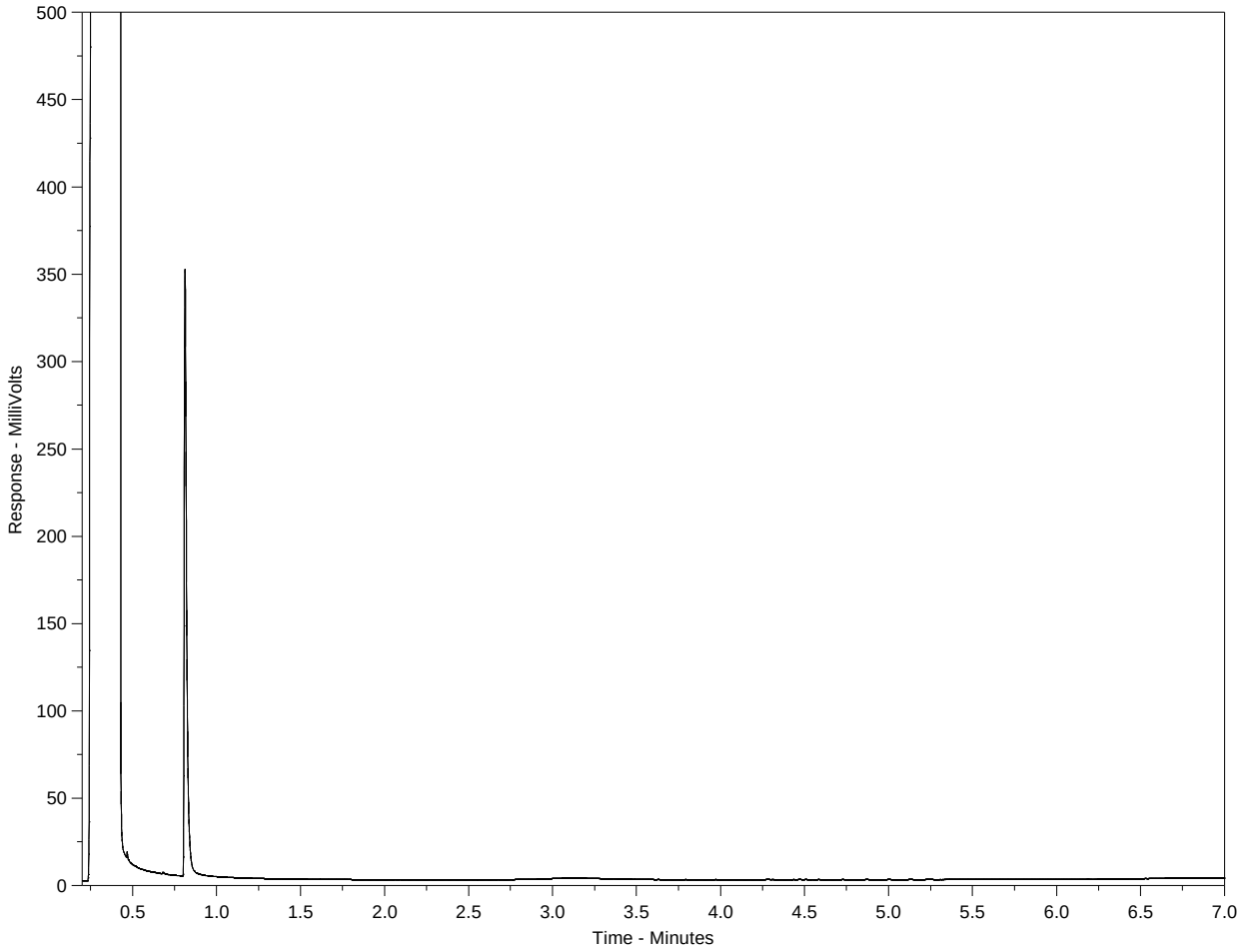
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-2**
Client ID: **MW09**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

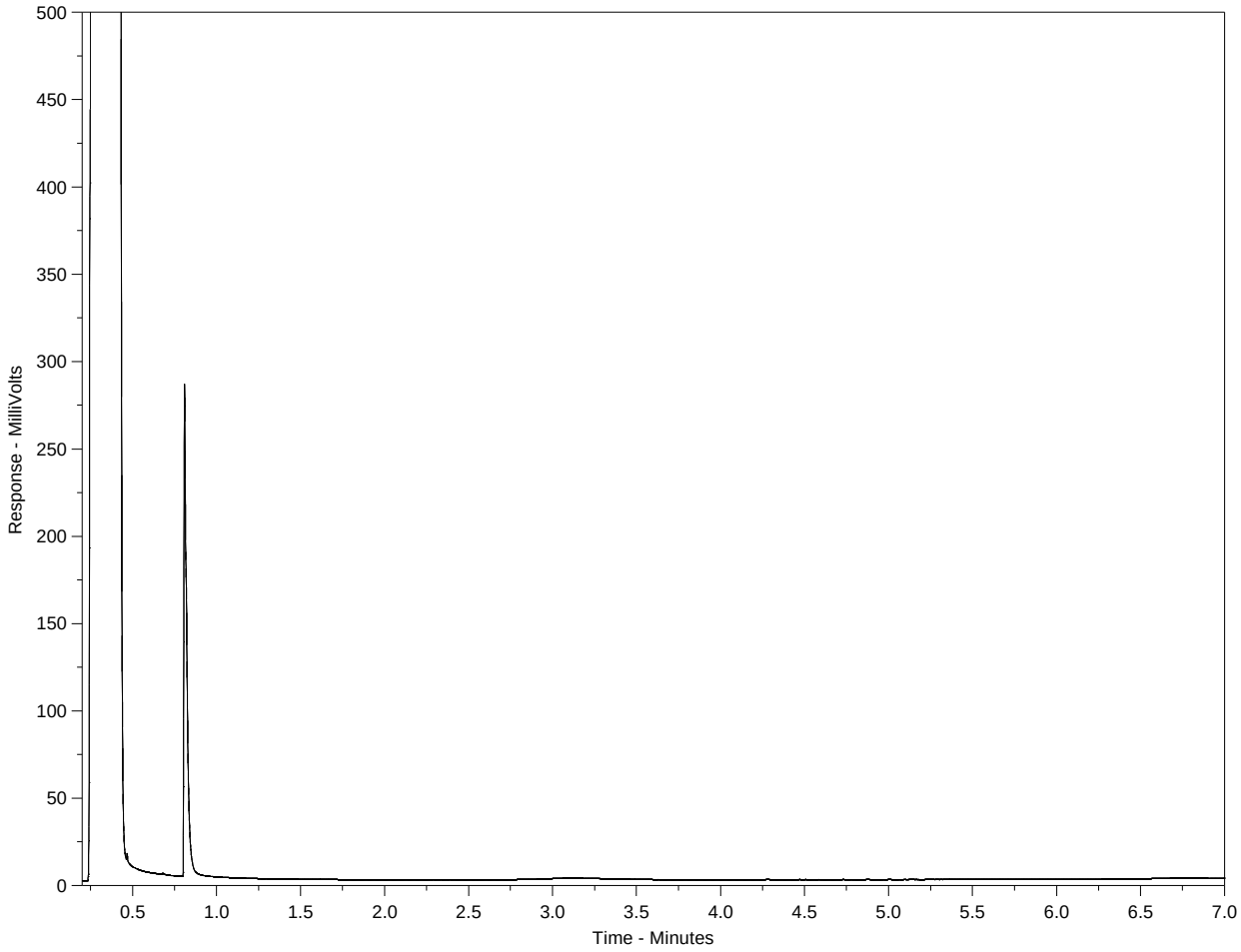
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-3**
Client ID: **MW06**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

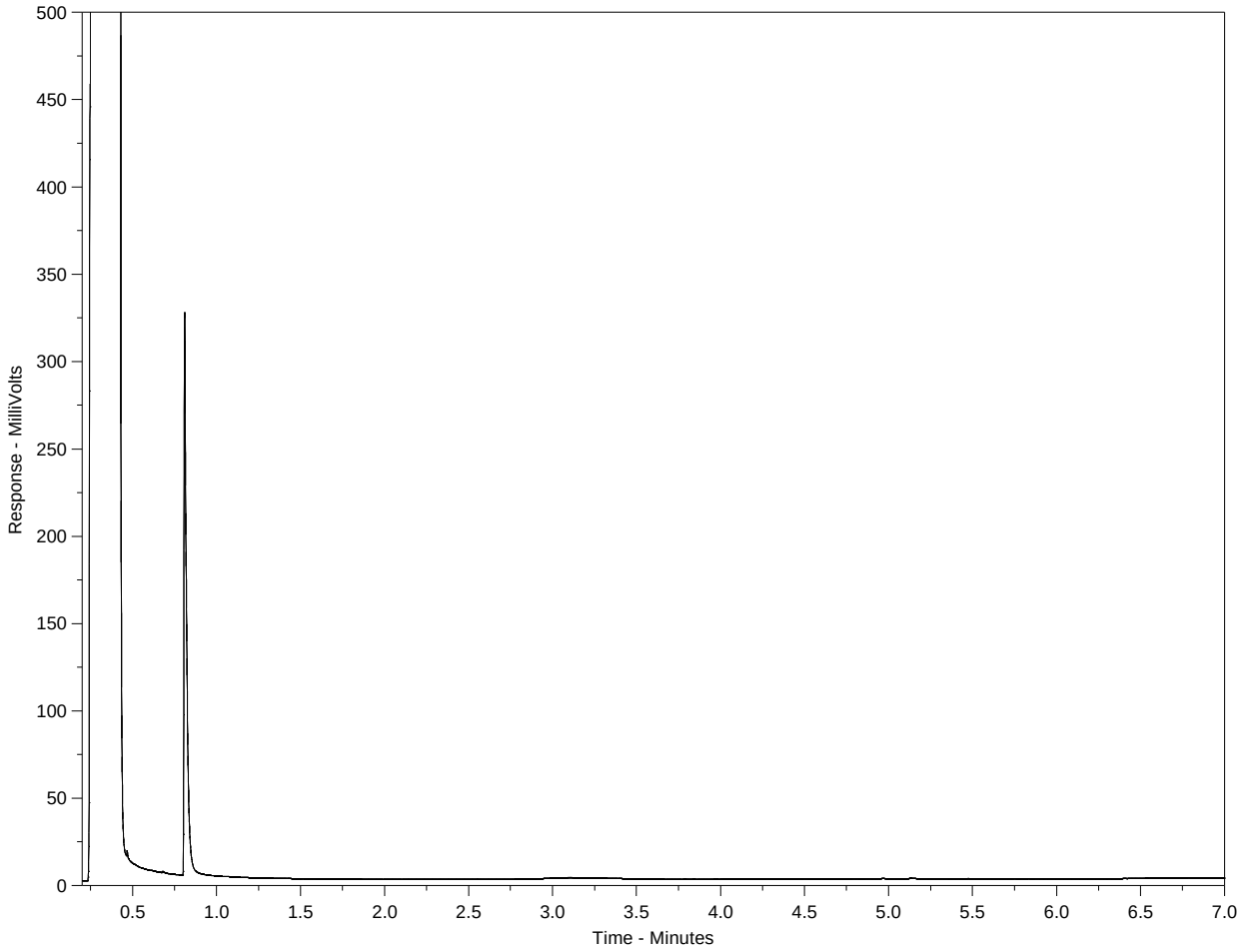
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-4**
Client ID: **MW05**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

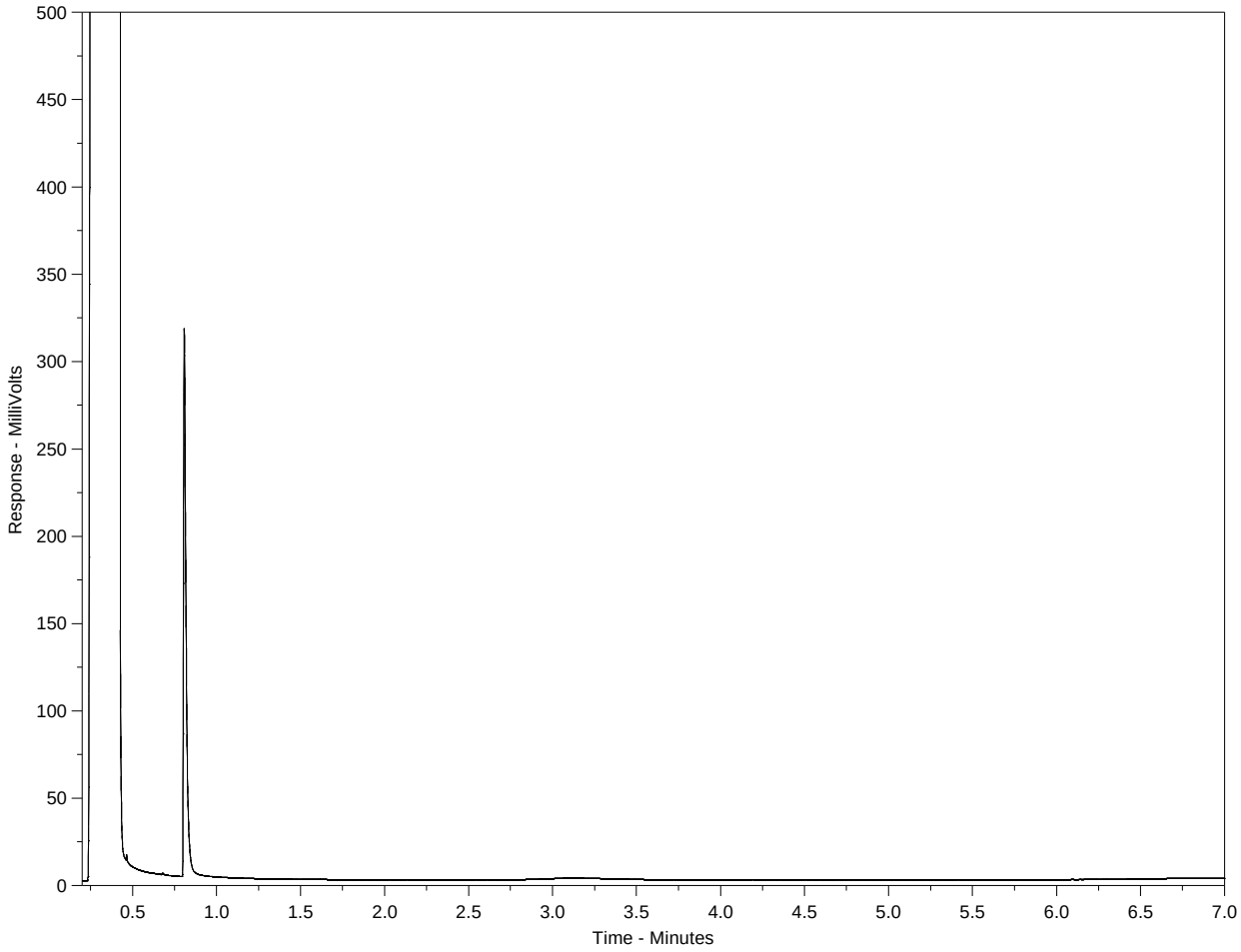
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-5**
Client ID: **MW03**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

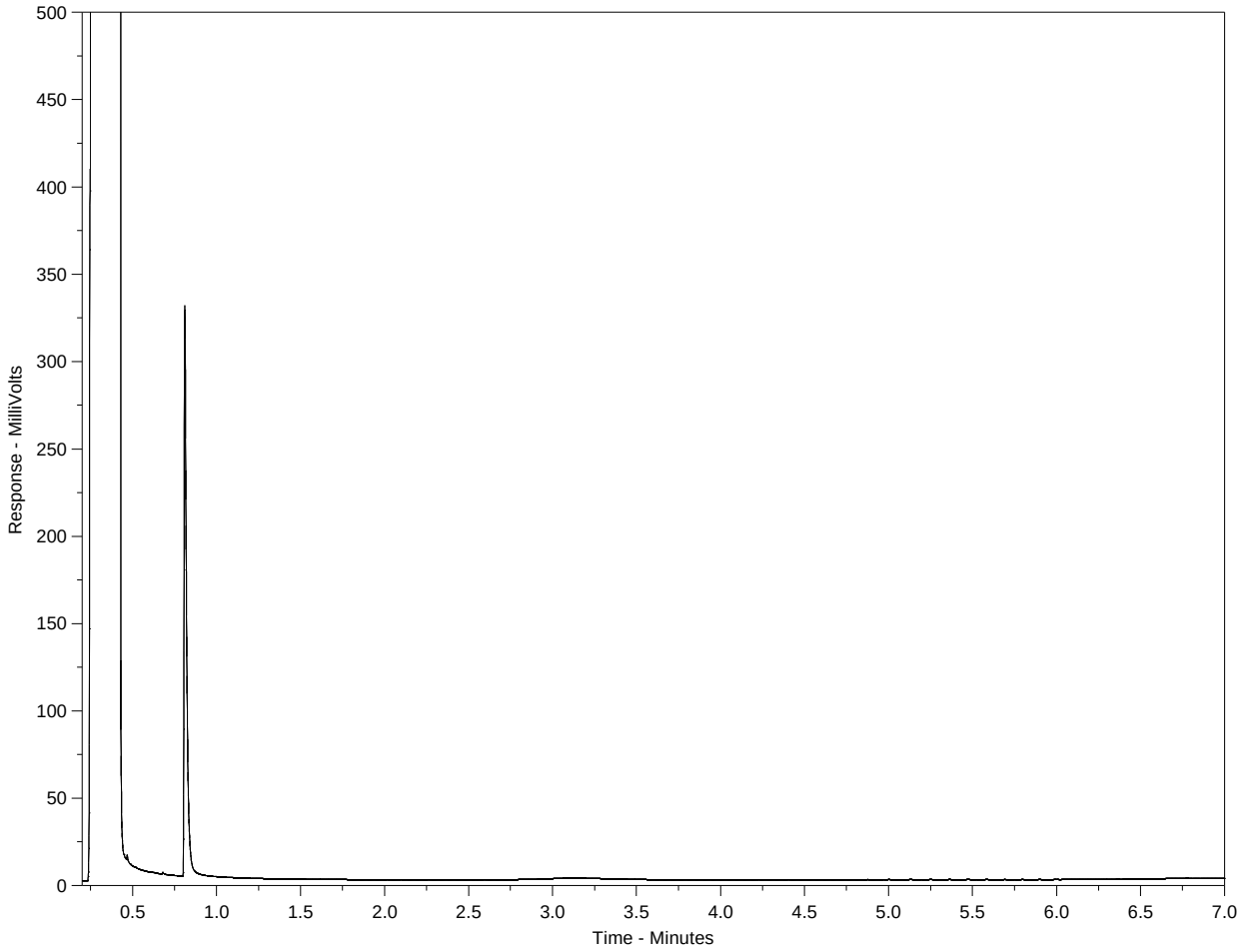
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-6**
Client ID: **MW04**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

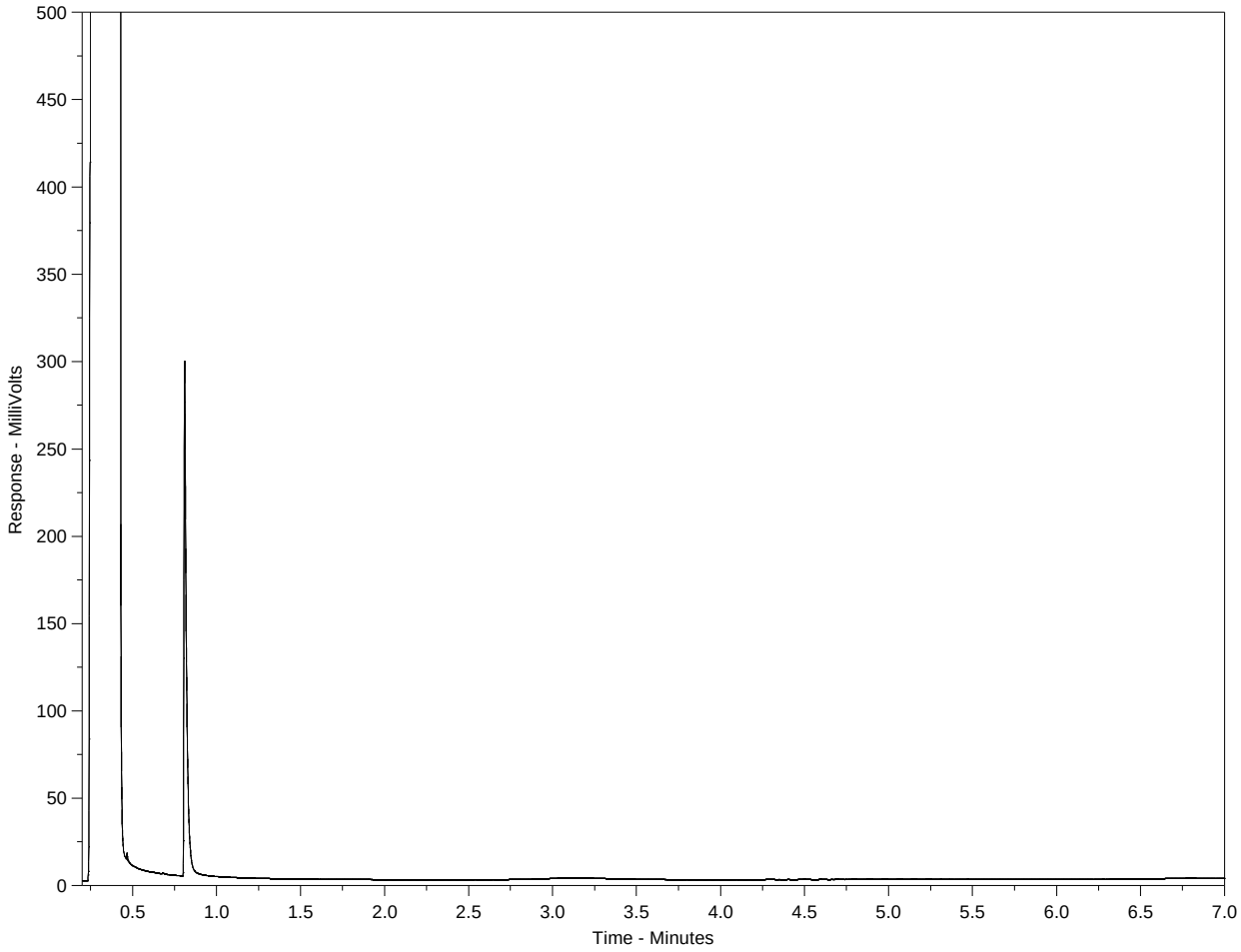
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-7**
Client ID: **MW08**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

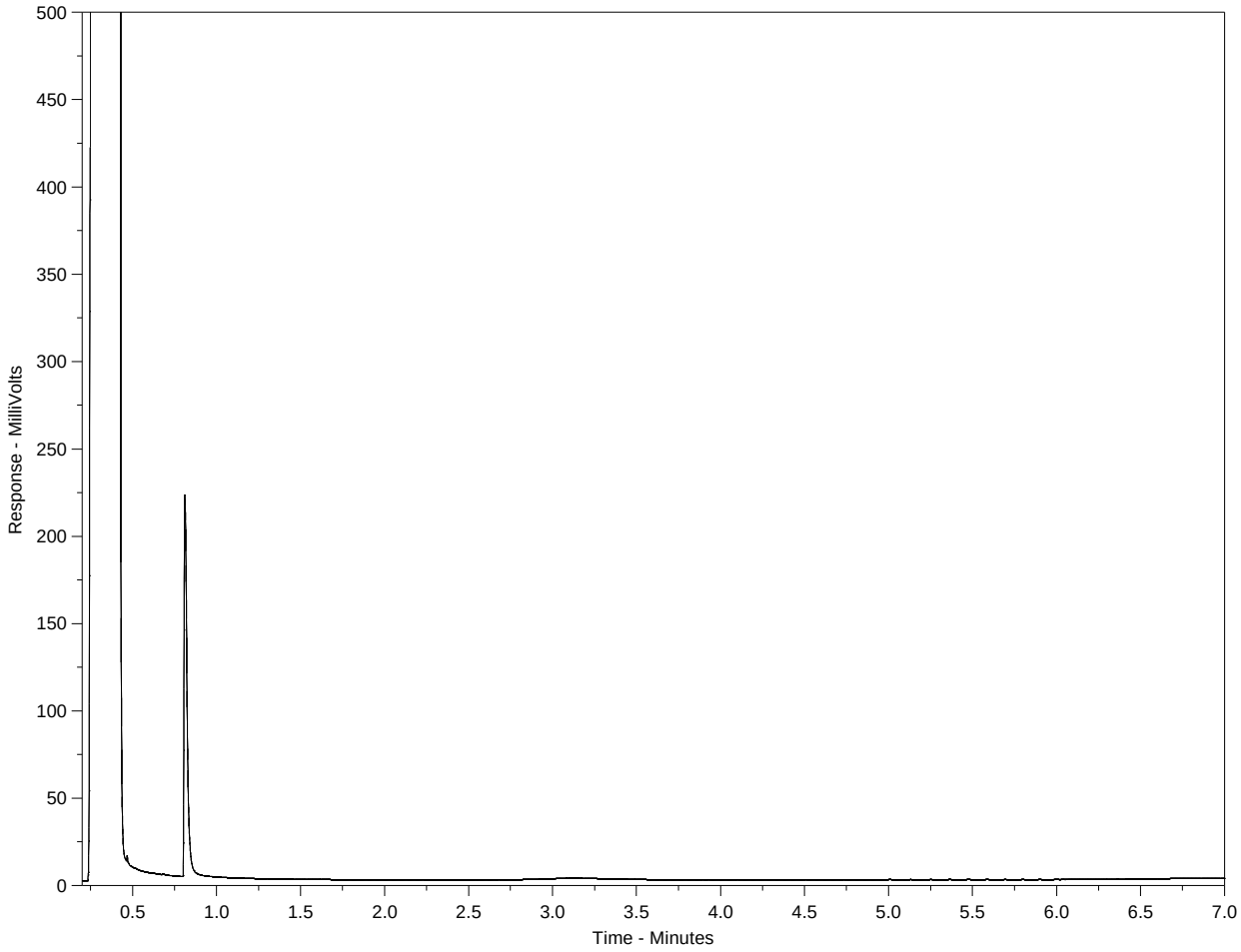
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-8**
Client ID: **MW10**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

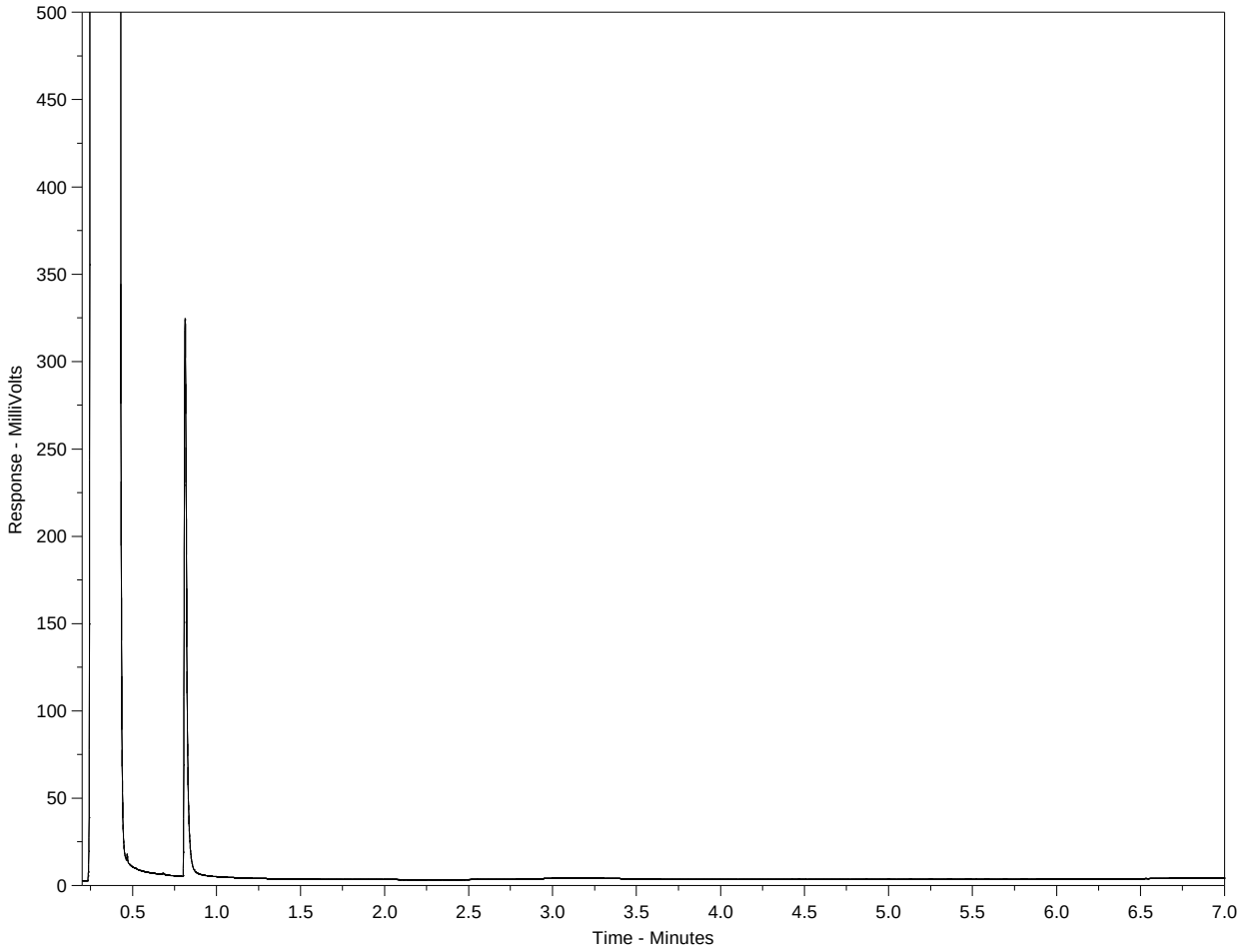
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-9**
Client ID: **MW11**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

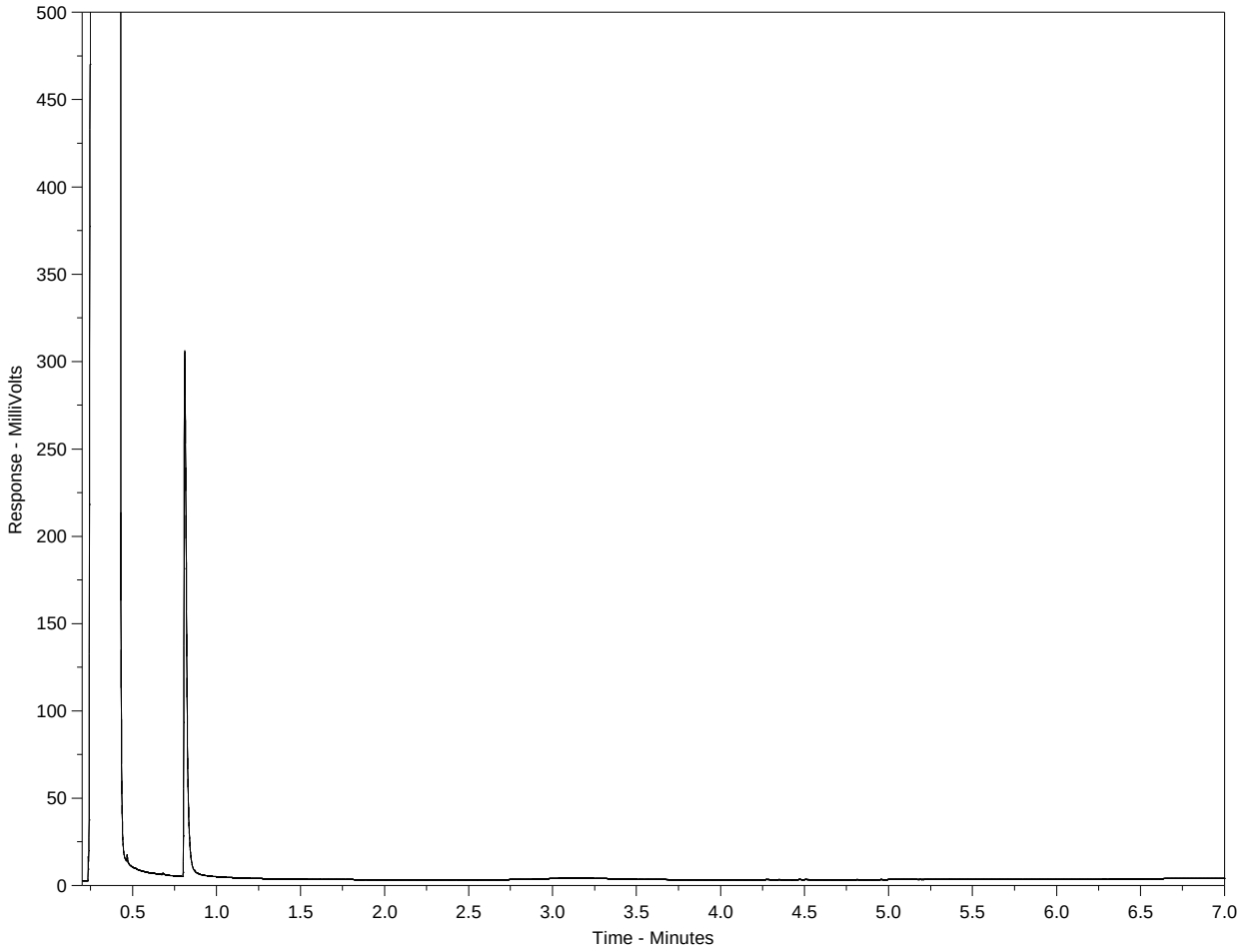
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-10**
Client ID: **MW07**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

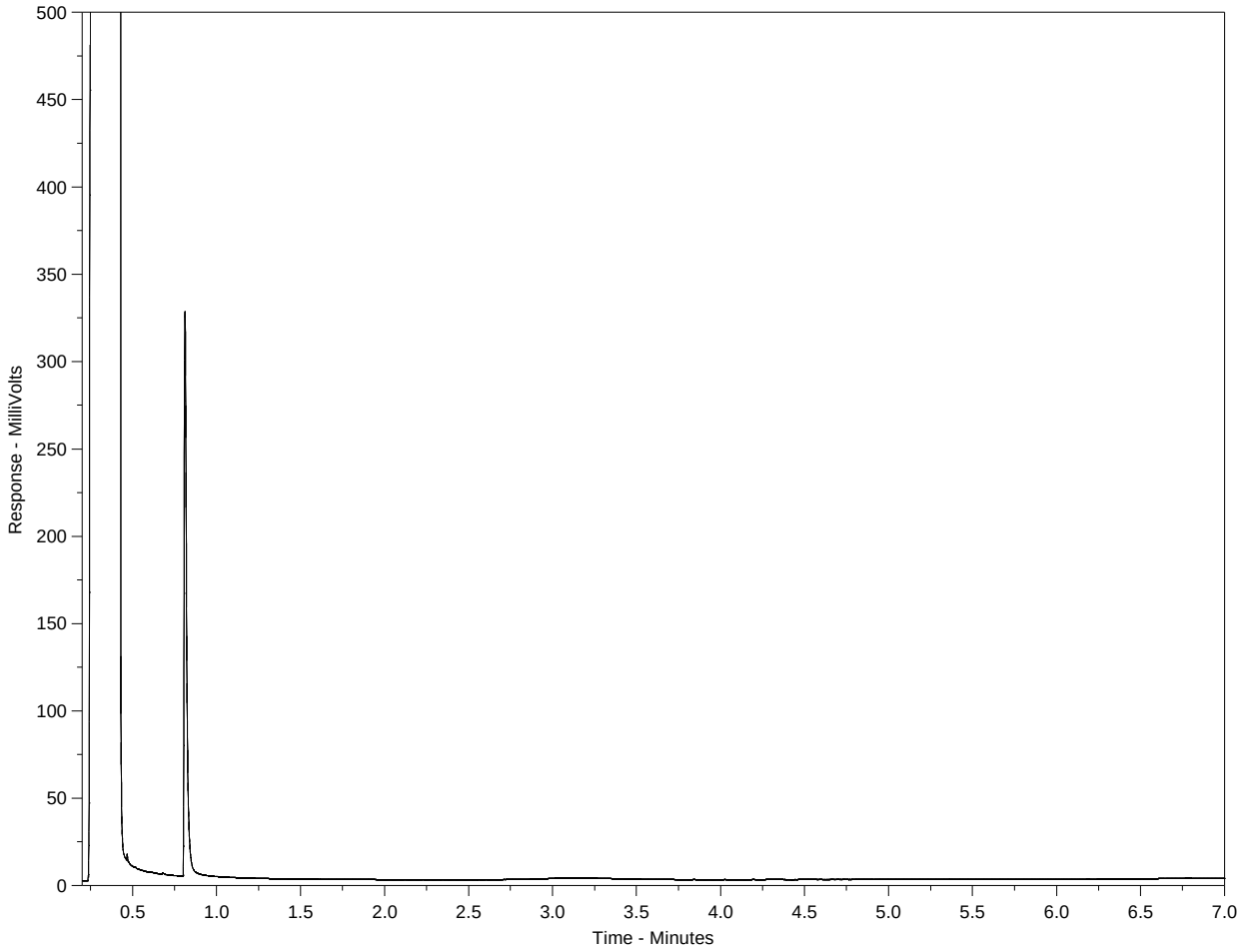
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-11**
Client ID: **MW13**



<-nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

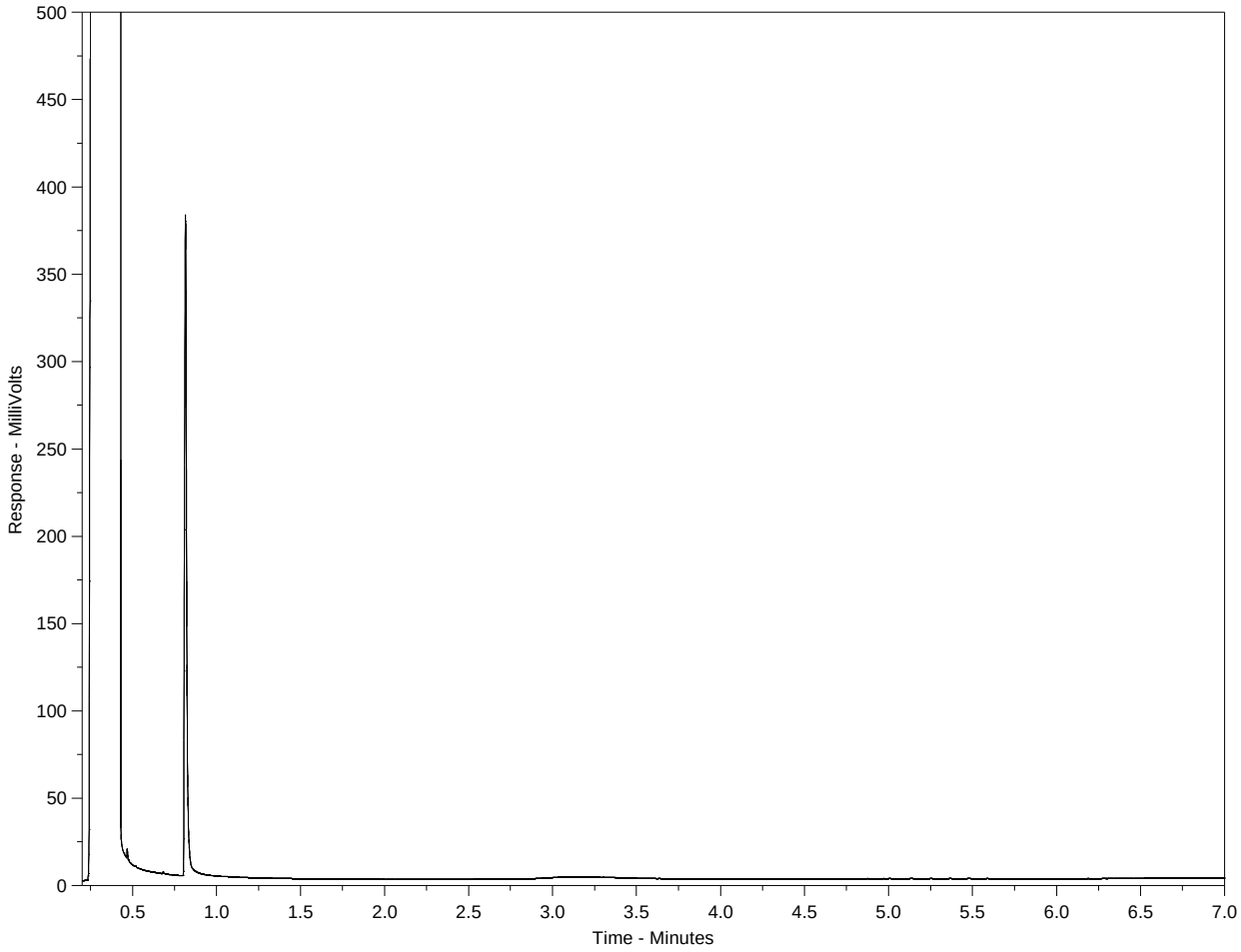
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-12**
Client ID: **MW12**



<----nC10----------nC16----------nC34----------nC50->
<----------Gasoline---------->
<----------Heavy Oils---------->
|----------Diesel----------|

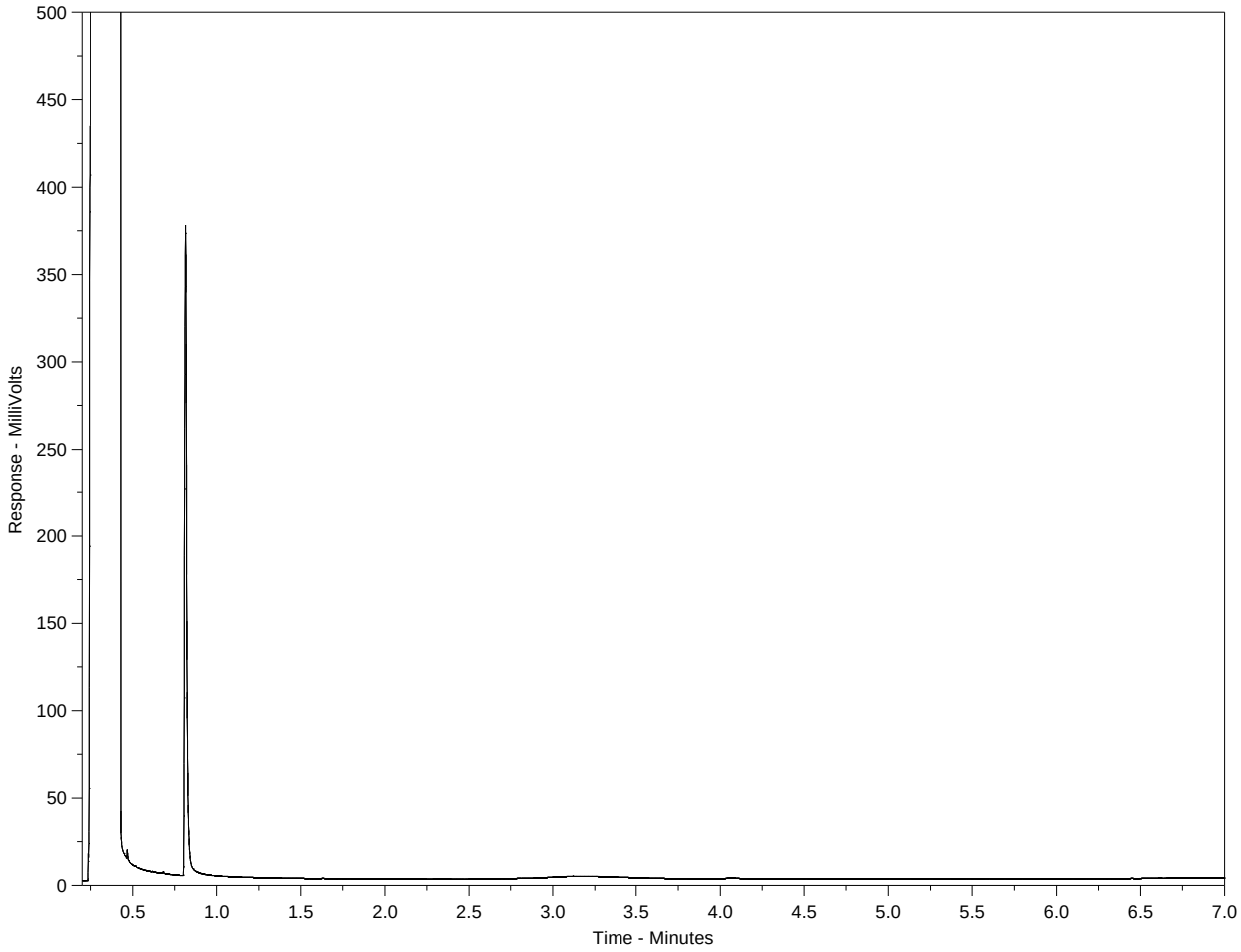
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-13**
Client ID: **MW02**



<----nC10----------nC16----------nC34----------nC50->
<----------Gasoline---------->
<----------Heavy Oils---------->
|----------Diesel----------|

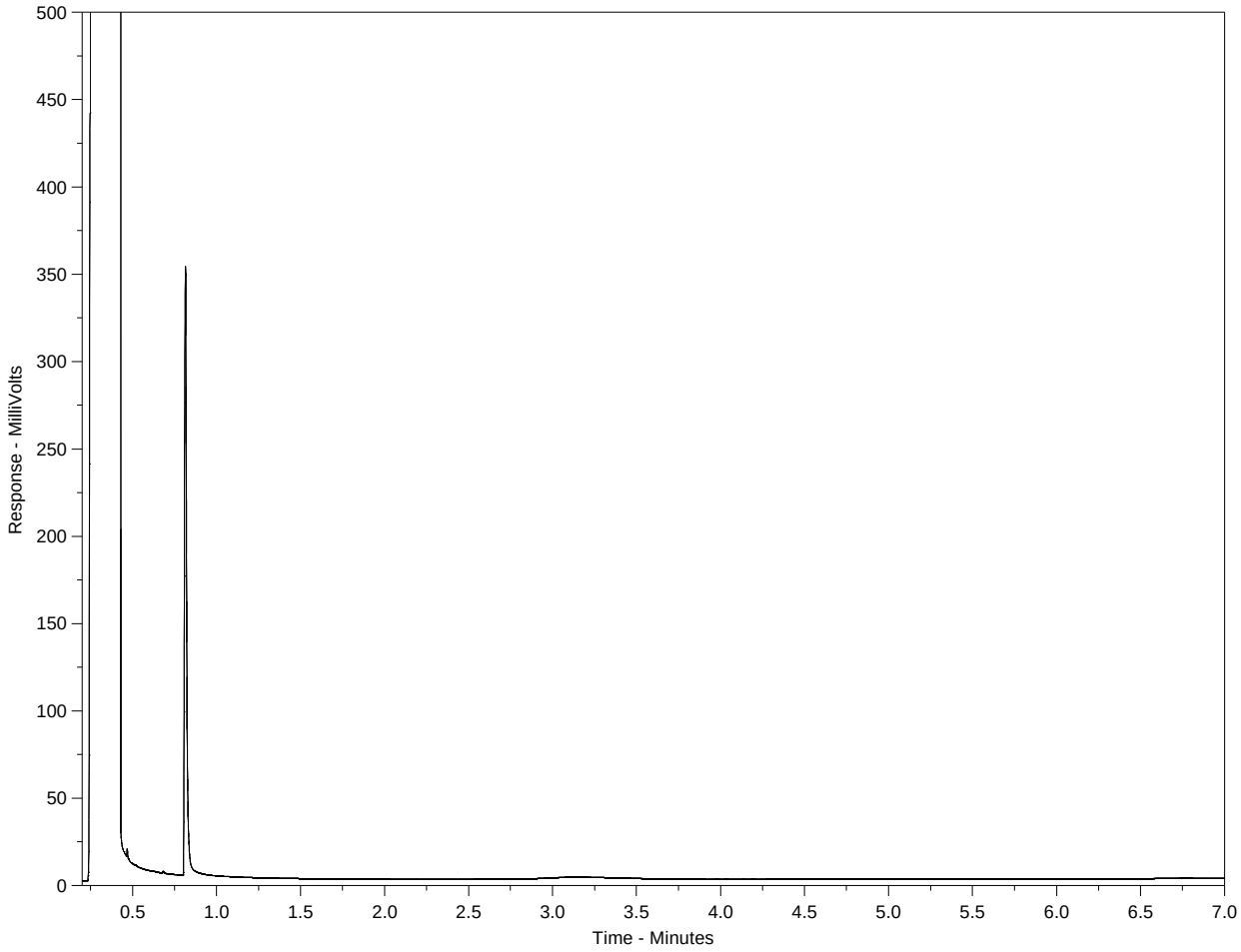
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-14**
Client ID: **DP12-01**



<----nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

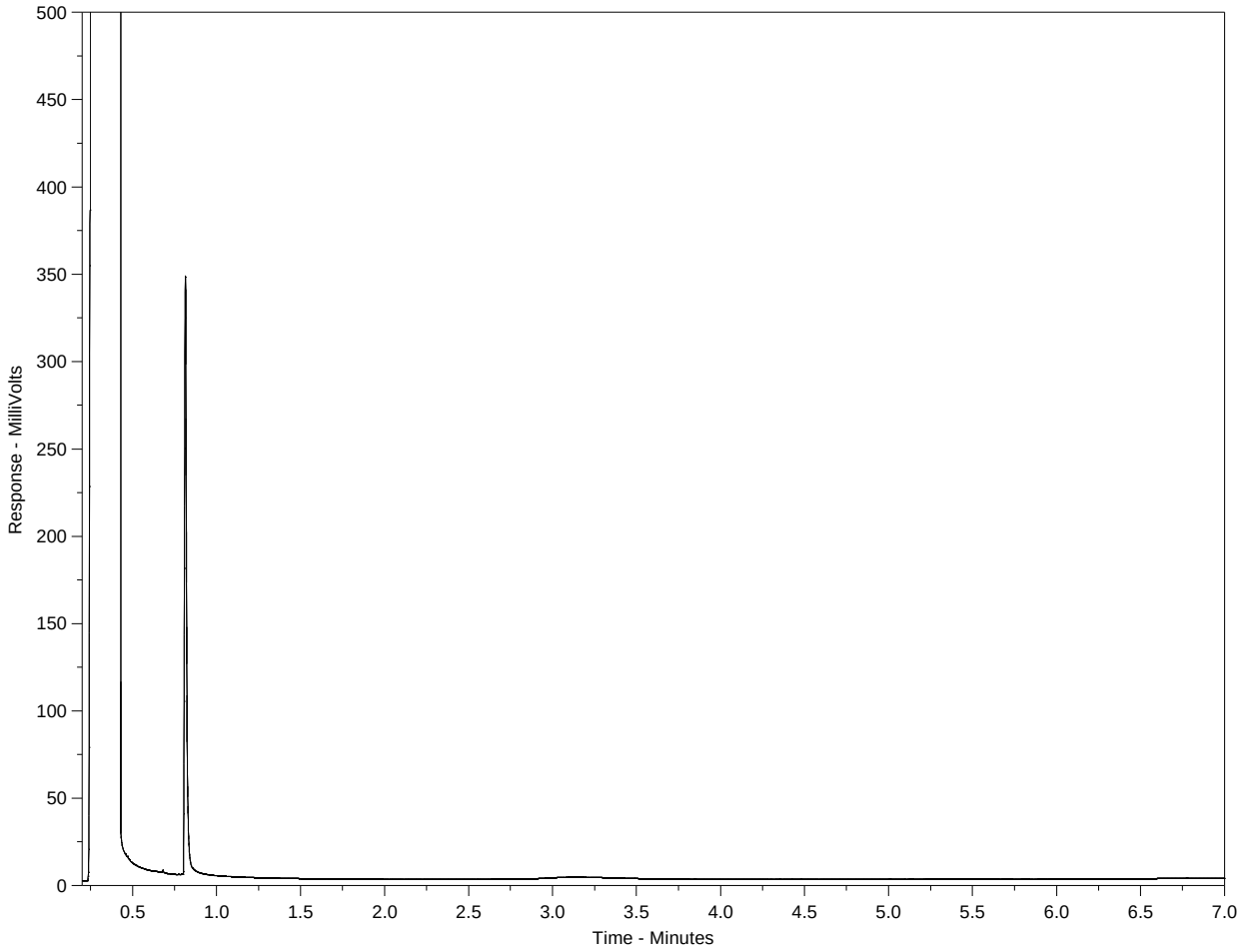
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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 (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1155027-15**
Client ID: **FB12-01**



<----nC10----------nC16----------nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

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

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

10- 200725

ALS Environmental

L1155027-COFC

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 705 10240-124 St Edmonton, AB T5N 3W6	Email 1: trevor.butterfield@worleyparsons.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: 780-496-9055 Fax: 780-496-9575	Email 2: edm.chemistry@worleyparsons.com jeff.nychka@worleyparsons.com	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To	Client / Project Information
Same as Report ? (circle) (Yes) or No (if No, provide details)	Job #: 307075-01129
Copy of Invoice with Report? (circle) (Yes) or No	PO / AFE:
Company:	LSD:
Contact:	
Address:	Quote #: Q23924
Phone: Fax:	ALS Contact: Maureen Olmer Sampler: Jeff Nychka

Lab Work Order # (lab use only) L1155027

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	Routine Potability	Major Ions	F/P Diss Ammonia	F/P BTEX, F1	F/P F2	F/P DOC	F/P Phenols	F/P Diss Metals					Number of Containers
	MW01	29-MAY-12	1330	Water	X	X	X	X	X	X	X	X					10
	MW09		1500		X	X	X	X	X	X	X	X					10
	MW06		1600		X	X	X	X	X	X	X	X					10
	MW05		1730		X	X	X	X	X	X	X	X					10
	MW03		1900		X	X	X	X	X	X	X	X					10
	MW04	30-May-12	0900		X	X	X	X	X	X	X	X					10
	MW08		1230		X	X	X	X	X	X	X	X					10
	MW10		1330		X	X	X	X	X	X	X	X					10
	MW11		1415		X	X	X	X	X	X	X	X					10
	MW07		1610		X	X	X	X	X	X	X	X					10
	MW13		1715		X	X	X	X	X	X	X	X					10
	MW12		1815		X	X	X	X	X	X	X	X					10

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

* SAMPLES IN 3 COOLERS

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: Jeff Nychka	Date: 31-May 2012	Time: 1100	Received by:	Date: 31May12	Time: 11:05	Temperature: 17 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

Report To	
Company:	Worley Parsons
Contact:	Trevor Butterfield
Address:	Suite 705 10240-124 St Edmonton, AB T5N 3W6
Phone:	780-496-9055 Fax: 780-496-9575

Report Format / Distribution	
Standard:	X Other (specify):
Select:	PDF X Excel Digital X Fax
Email 1:	trevor.butterfield@worleyparsons.com
Email 2:	edm.chemistry@worleyparsons.com jeff.nychka@worleyparsons.com

Service Request: (Rush subject to availability - Contact ALS to confirm TAT)	
X	Regular (Standard Turnaround Times - Business Days)
	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To: Same as Report ? (circle) (Yes) or No (if No, provide details)
Copy of Invoice with Report? (circle) Yes or No

Company:
Contact:
Address:
Phone: Fax:

Client / Project Information
Job #: 307075-01129
PO / AFE:
LSD:
Quote #: Q23924

Lab Work Order # (lab use only)

ALS Contact: Maureen Olinek
Sampler: Jeff. Nychka

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	Routine Potability	Major Ions	Diss Ammonia (F P)	BTEX F1 (P)	F2 (P)	DOC (F P)	Phenols (P)	Diss Metals (F P)					Number of Containers
	MW02	30-May-12	1930	water	X	X	X	X	X	X	X	X					10
	DP12-01	↓	1200	↓	X	X	X	X	X	X	X	X					10
	FB12-01	↓	1200	↓				X	X								5

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

* Samples in 3 Coolers

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: Jeff Nychka	Date: 31-May 2012	Time: 1100	Received by:	Date:	Time:	Temperature: °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

QA/QC FOR DUPLICATE SAMPLES
May 2012 Sampling Event

Parameters	Units	Detection Limit	MW-04	(duplicate)	RPD	AD
Date			30-May-12	30-May-12		
TDS-calculated	mg/L	---	699.	736.	---	---
Total Hardness (as $CaCO_3$)	mg/L	---	509.	587.	---	---
Total Alkalinity (as $CaCO_3$)	mg/L	5.	409.	409.	0.0	---
EC	µS/cm	0.2	1280.	1280.	0.0	---
pH	pH Units	0.1	7.88	7.94	0.8	---
Bicarbonate	mg/L	5.	500.	499.	0.2	---
Carbonate	mg/L	5.	<5.	<5.	---	0
Chloride:D	mg/L	5.	126.	126.	0.0	---
Fluoride:D	mg/L	0.05	0.089	0.094	---	0.005
Sulphate:D	mg/L	0.5	88.2	88.6	0.5	---
Nitrate as N	mg/L-N	0.1	<0.1	<0.1	---	0
Nitrite as N	mg/L-N	0.05	<0.05	<0.05	---	0
Calcium:D	mg/L	0.5	141.	161.	13.2	---
Magnesium:D	mg/L	0.1	38.1	44.8	16.2	---
Potassium:D	mg/L	0.1	8.93	11.4	24.3	---
Sodium:D	mg/L	0.5	50.9	58.9	14.6	---
Iron:D	mg/L	0.005	1.47	1.73	16.3	---
Manganese:D	mg/L	0.001	0.722	0.861	17.6	---
Phenols	mg/L	0.001	<0.001	<0.001	---	0
DOC	mg/L	1.	3.2	3.3	---	0.1
Ion Balance	%		92.8	107.	14.2	---
Aluminum:D	mg/L	0.005	0.0135	0.0112	---	0.0023
Antimony:D	mg/L	0.0004	<0.0004	<0.0004	---	0
Arsenic:D	mg/L	0.0004	0.00054	0.00059	---	0.00005
Barium:D	mg/L	0.005	0.0954	0.0967	1.4	---
Beryllium:D	mg/L	0.0005	<0.0005	<0.0005	---	0
Bismuth:D	mg/L	----	---	---	---	---
Boron:D	mg/L	0.05	0.086	0.087	---	0.001
Cadmium:D	mg/L	0.0001	<0.0001	<0.0001	---	0
Chromium:D	mg/L	0.005	<0.005	<0.005	---	0
Cobalt:D	mg/L	0.0001	0.00088	0.00088	0.0	---
Copper:D	mg/L	0.001	<0.001	<0.001	---	0
Lead:D	mg/L	0.0001	<0.0001	<0.0001	---	0
Mercury:D	mg/L	0.00002	<0.00002	<0.00002	---	0
Molybdenum:D	mg/L	0.00005	0.0004	0.00033	19.9	---
Nickel:D	mg/L	0.002	0.0024	0.0022	---	0.0002
Selenium:D	mg/L	0.0004	<0.0004	<0.0004	---	0
Silver:D	mg/L	0.0001	<0.0001	<0.0001	---	0
Strontium:D	mg/L	---	---	---	---	----
Thallium:D	mg/L	0.00005	<0.00005	<0.00005	---	0
Tin:D	mg/L	---	---	---	----	----
Titanium:D	mg/L	0.0003	<0.0003	0.00041	---	0.00011
Uranium:D	mg/L	0.0001	0.00396	0.00404	2.0	---
Vanadium:D	mg/L	0.0001	<0.0001	<0.0001	---	0
Zinc:D	mg/L	0.003	<0.003	<0.003	---	0
Benzene	mg/L	0.0005	<0.0005	<0.0005	---	0
Toluene	mg/L	0.00075	<0.00075	0.00117	---	0.00042
Ethylbenzene	mg/L	0.0005	<0.0005	<0.0005	---	0
Xylenes-total	mg/L	0.00071	<0.00071	0.00286	---	0.00215
F1 (C_6-C_{10})-BTEX	mg/L	0.1	<0.1	<0.1	---	0
F2 (C_{11}-C_{16})	mg/L	0.1	<0.25	<0.25	---	0

RPD: Relative Percent Difference. Zeiner (1994) indicated that RPD <20% is acceptable

AD: Absolute Difference. Zeiner(1994) indicated the AD < MDL is acceptable.

Highlighted values exceed Zeiner(1994) criteria.

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

Table
Mann-Kendall Statistical Analysis (2005-2012) - 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-08	9	15	0.93	0.0448	0.583	7.5	7.7	8.04
MW-10	9	15	0.92	0.0452	0.581	7.5	7.8	8.07
MW-12	9	15	0.92	0.0437	0.553	7.4	7.9	8.14
MW-04	9	13	0.89	0.0397	0.510	7.5	7.8	8.01
MW-11	9	12	0.88	0.0392	0.510	7.4	7.7	8.04
MW-07	10	16	0.91	0.0352	0.461	7.19	7.645	7.98
MW-05	9	7	0.73	0.0328	0.416	7.58	7.9	8.1
MW-01	9	10	0.82	0.0306	0.388	7.67	7.9	8.06
MW-13	9	13	0.89	0.0228	0.282	7.8	8.1	8.24
MW-03	9	7	0.73	0.0199	0.255	7.4	7.83	8.03
MW-06	9	5	0.66	0.0169	0.217	7.47	7.81	8.06
MW-09	9	9	0.80	0.0168	0.209	7.73	8.04	8.17
MW-02	9	0	0.45	0.0000	0.000	7.36	7.9	7.97

Table
Mann-Kendall Statistical Analysis (2005-2012) - 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	9	20	0.97	4.6401	3.437	105	135.0	150
MW-06	9	12	0.87	5.6471	1.172	420	482.0	560
MW-09	9	14	0.91	2.3543	0.731	312	322.0	350
MW-04	9	8	0.76	0.4421	0.513	74	86.2	92.1
MW-02	9	6	0.69	1.2529	0.468	227	268.0	318
MW-11	9	6	0.69	0.8356	0.420	170	199.0	212
MW-03	9	1	0.50	0.1383	0.115	98	120.0	130
MW-01	9	-6	0.69	-0.3186	-0.558	44	57.1	62.0
MW-10	9	-8	0.76	-1.3224	-0.624	190	212.0	230
MW-07	10	-10	0.79	-11.4702	-1.136	622	1010.0	1200
MW-08	9	-7	0.73	-4.8815	-1.525	300	320.0	370
MW-12	9	-8	0.76	-0.9212	-2.084	32	44.2	52.5
MW-13	9	-13	0.89	-0.2015	-2.182	9	9.24	12.5

Table
Mann-Kendall Statistical Analysis (2005-2012) - 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	9	-26	0.99	-0.3147	-16	0.86	2.0	4
MW-06	9	-17	0.95	-1.0010	-17	2.95	6.0	13

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	9	33	0.99	2.3213	9.286	15	25.0	33.7
MW-03	9	24	0.99	1.8419	5.263	31	35.0	45.9
MW-02	9	1	0.50	0.5539	3.077	11.6	18.0	38
MW-11	9	-4	0.62	-0.1182	-1.183	8	10.0	16
MW-12	9	-4	0.62	-0.1234	-1.764	5	7.0	8
MW-04	9	-14	0.91	-4.1203	-2.747	125	150.0	200
MW-07	10	-13	0.85	-0.4271	-3.337	8.07	12.8	18
MW-01	9	-9	0.80	-0.1271	-3.674	2	3.46	5
MW-09	9	-12	0.87	-0.2216	-3.795	4	5.84	7
MW-13	9	-16	0.94	-0.0766	-3.835	1.81	2.0	4
MW-10	9	-8	0.77	-0.1856	-15.602	< 1	1.19	3
MW-08	9	-26	0.99	-0.3147	-15.740	0.86	2.0	4
MW-06	9	-17	0.95	-1.0010	-16.685	2.95	6.0	13

Table
Mann-Kendall Statistical Analysis (2005-2012) - 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	9	32	0.99	11.6885	2.065	499	566.0	596
MW-09	9	7	0.73	4.1170	0.412	954	1000.0	1030
MW-03	9	6	0.69	2.2777	0.399	520	571.0	588
MW-02	9	2	0.54	2.1620	0.246	759	880.0	944
MW-06	9	2	0.54	2.3966	0.200	1100	1200.0	1250
MW-11	9	-6	0.69	-1.7153	-0.212	795	810.0	840
MW-04	9	-7	0.73	-2.2329	-0.308	690	724.0	774
MW-01	9	-7	0.73	-1.5921	-0.360	410	442.0	456
MW-10	9	-9	0.79	-3.3705	-0.414	759	814.0	847
MW-12	9	-8	0.76	-2.6356	-0.433	591	609.0	651
MW-13	9	-19	0.97	-2.9679	-0.651	438	456.0	470
MW-08	9	-16	0.94	-13.8040	-1.504	862	918.0	999
MW-07	10	-16	0.91	-31.3250	-1.590	1330	1970.0	2400

Table
Mann-Kendall Statistical Analysis (2005-2012) - 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-11	9	5	0.66	0.5429	0.597	85	91.0	98.1
MW-09	9	3	0.58	0.7199	0.313	212	230.0	240
MW-10	9	3	0.58	0.2146	0.193	105	111.0	124
MW-13	9	-15	0.93	-0.6080	-0.553	101	110.0	112
MW-05	9	-11	0.85	-0.2930	-0.682	41	43.0	51
MW-01	9	-9	0.79	-0.3433	-0.954	33	36.0	40
MW-03	9	-16	0.94	-0.6498	-1.243	48.8	52.3	56
MW-12	9	-15	0.92	-1.4322	-1.351	95.4	106.0	111
MW-04	9	-3	0.58	-0.9261	-1.570	50.7	59.0	71
MW-07	10	-16	0.91	-5.8129	-2.253	189	258.0	320
MW-02	9	-15	0.92	-2.0926	-2.400	81	87.2	120
MW-08	9	-18	0.96	-3.4298	-2.982	98.0	115.0	137
MW-06	9	-10	0.82	-6.1888	-4.126	123	150.0	211

Table
Mann-Kendall Statistical Analysis (2005-2012) - 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-06	9	24	0.99	0.4647	10	< 0.06	4.5	6.02

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-02	9	14	0.91	1.1601	36.369	< 0.06	3.19	9.35
MW-06	9	24	0.99	0.4647	10.327	< 0.06	4.5	6.02
MW-04	9	1	0.50	0.0023	7.697	< 0.005	0.03	1.47
MW-09	9	18	0.96	0.1071	7.342	< 0.06	1.46	2.04
MW-13	9	20	0.97	0.0662	5.297	< 0.06	1.25	1.45
MW-12	9	16	0.94	0.1291	3.436	< 0.06	3.76	4.24
MW-03	9	11	0.85	0.1553	3.216	< 0.06	4.83	5.55
MW-05	9	11	0.85	0.0860	2.538	< 0.06	3.39	4
MW-01	9	3	0.58	0.0337	2.148	< 0.06	1.57	2.02
MW-07	10	12	0.83	0.1978	1.815	< 0.005	10.9	14
MW-10	9	12	0.87	0.0852	1.447	< 0.06	5.89	6.80
MW-08	9	1	0.50	0.0224	0.397	< 0.06	5.66	7.29
MW-11	9	0	0.45	0.0012	0.018	< 0.06	6.99	7.61

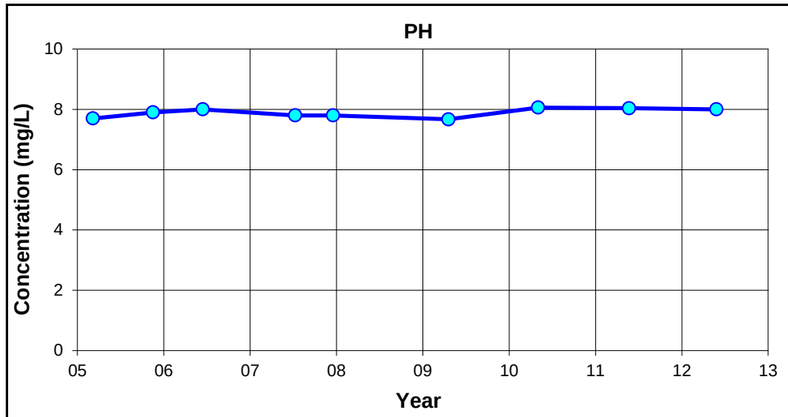
Table
Mann-Kendall Statistical Analysis (2005-2012) - Manganese

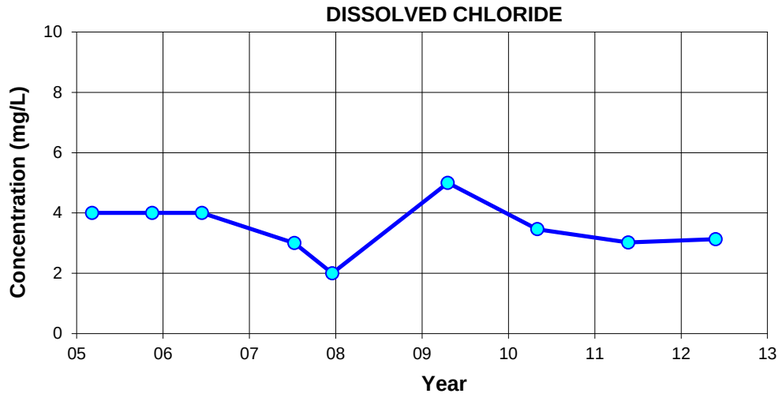
Filtered Trend Results, Probability > 95% And Normalized Slope > ± 10%/Year

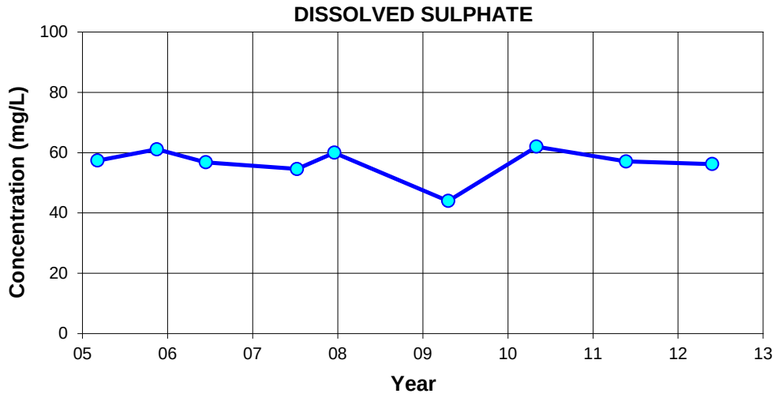
Location	Count	Mann-Kendall S	Probability	Slope (MG/L/year)	Normalized Slope (%/year)	Min (MG/L)	Median (MG/L)	Max (MG/L)

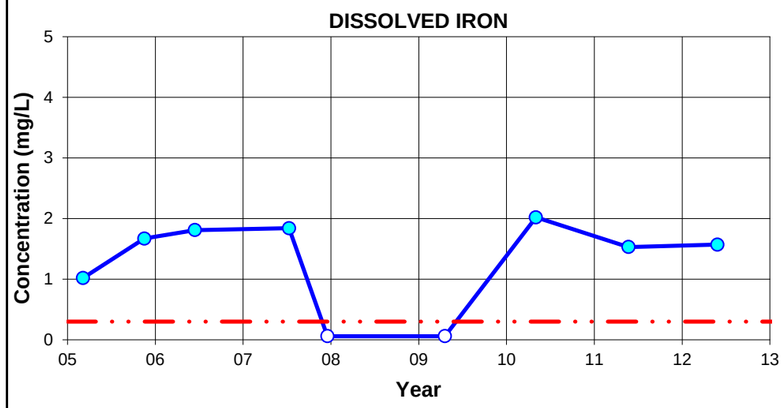
Full Mann-Kendall Analysis, Sorted by Probability

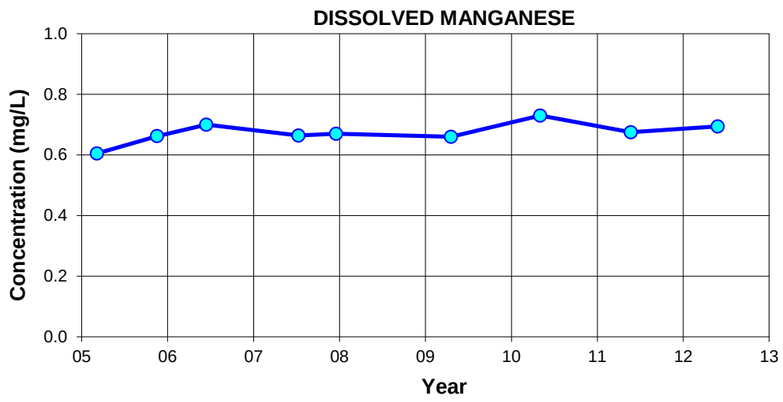
Location	Count	Mann-Kendall S	Probability	Slope (MG/L/year)	Normalized Slope (%/year)	Min (MG/L)	Median (MG/L)	Max (MG/L)
MW-04	9	8	0.76	0.0183	16.061	0.009	0.114	0.722
MW-06	9	23	0.98	0.0949	6.833	0.943	1.39	1.7
MW-05	9	22	0.98	0.0418	6.344	0.402	0.66	0.758
MW-12	9	17	0.95	0.0082	1.900	0.365	0.435	0.456
MW-09	9	10	0.82	0.0083	1.060	0.714	0.784	0.86
MW-01	9	16	0.94	0.0066	0.994	0.605	0.67	0.730
MW-10	9	6	0.69	0.0027	0.426	0.566	0.655	0.735
MW-11	9	0	0.45	-0.0002	-0.037	0.605	0.659	0.687
MW-03	9	0	0.45	-0.0001	-0.065	0.239	0.25	0.277
MW-07	10	-9	0.76	-0.0124	-0.679	1.21	1.835	2.3
MW-13	9	-18	0.96	-0.0029	-1.177	0.231	0.25	0.263
MW-08	9	-12	0.87	-0.0076	-1.704	0.384	0.45	0.481
MW-02	9	-14	0.91	-0.0420	-7.937	0.236	0.53	1.09

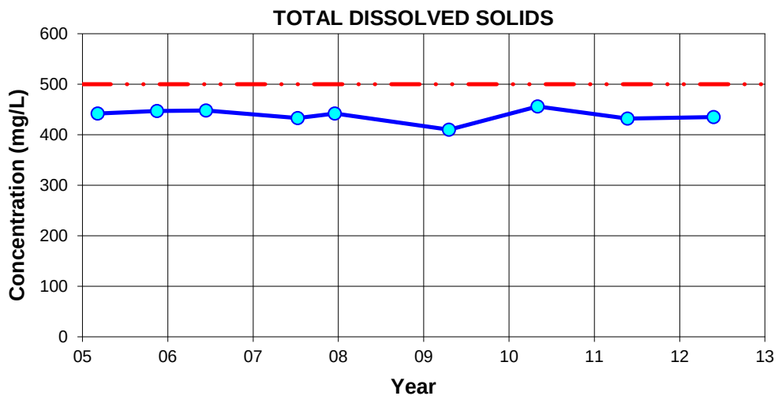


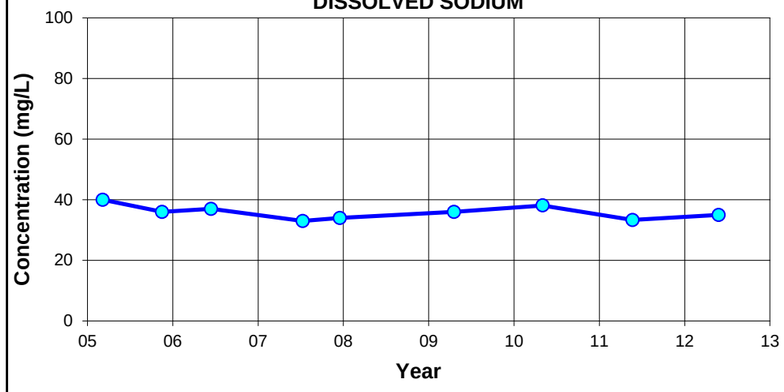


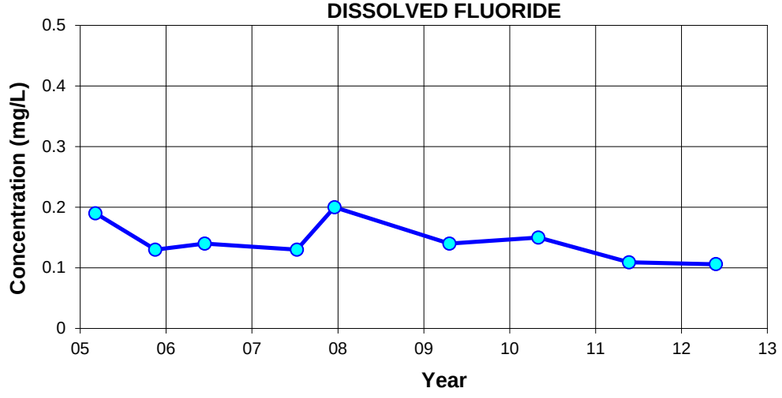


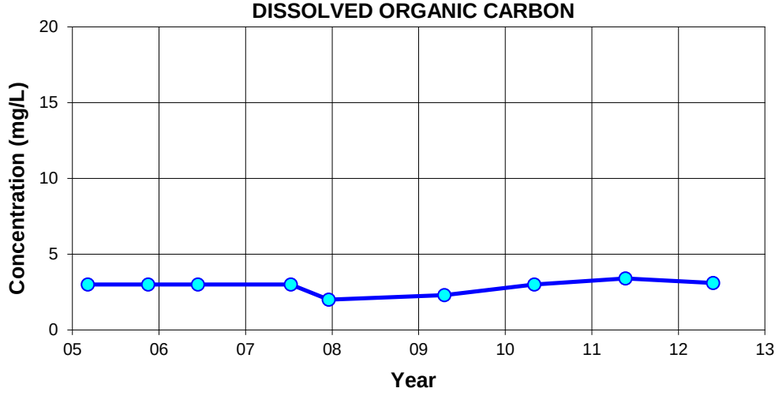












Notes:

- *Filled symbols denote sample values*
- *Unfilled symbols denote values are less than detection limit(s)*
- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

Northeast Capital Industrial Association
2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

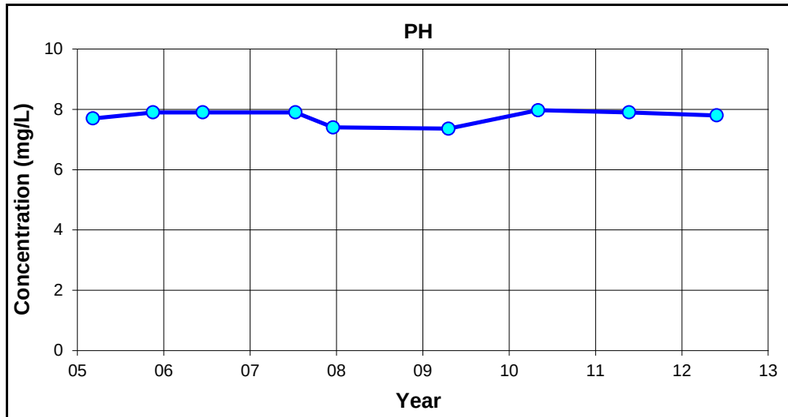
MW-01

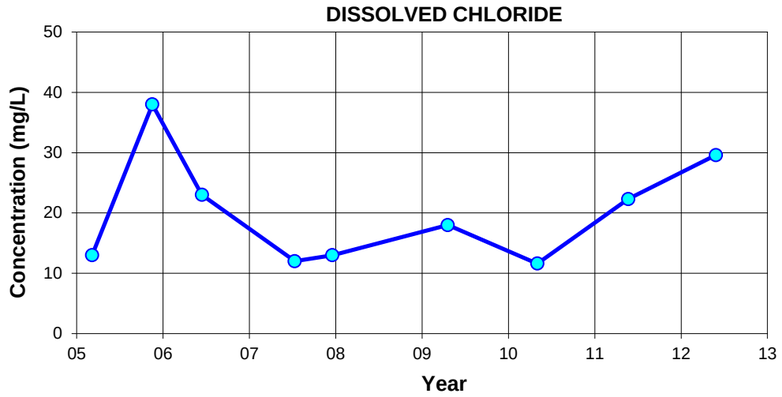
WorleyParsons
resources & energy

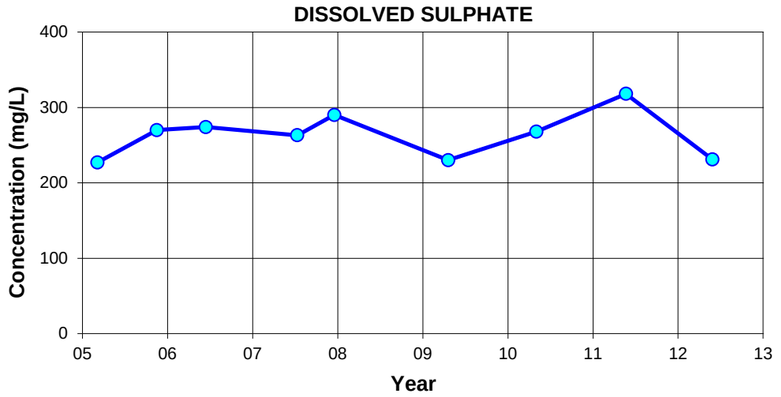
02-Oct-12 (date)	edited by	KS (drawn by)	app by	PROJECT NUMBER: 307075-01129	FIGURE: A5-1

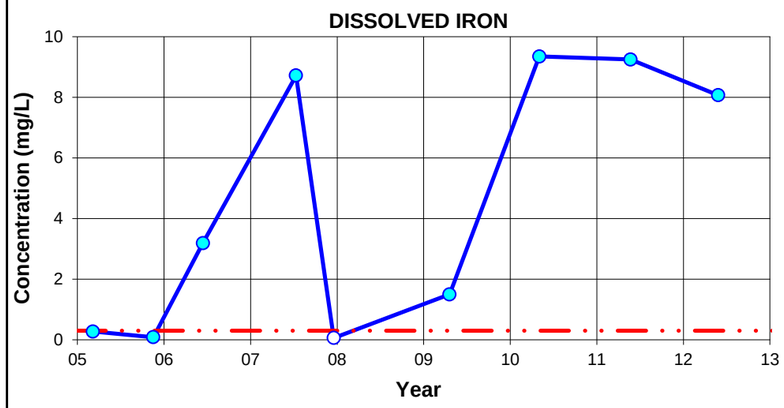
File Location: Edmonton

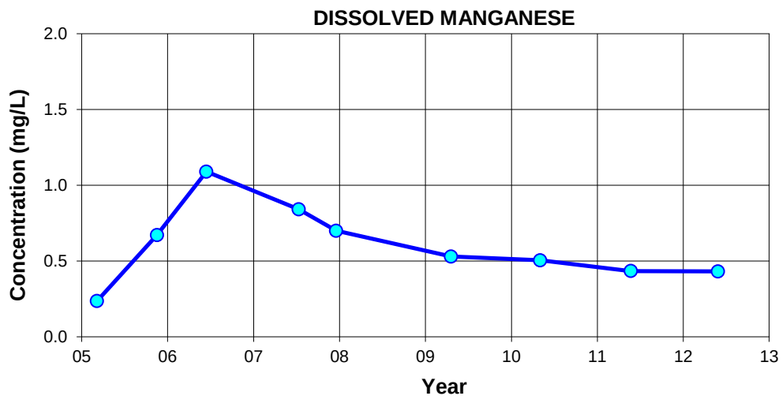
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

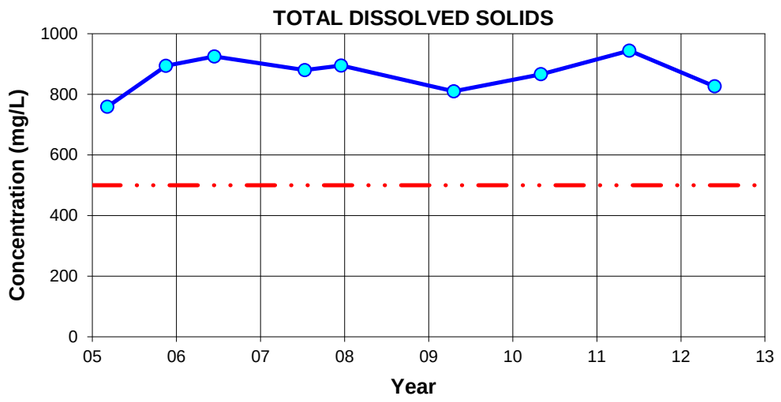


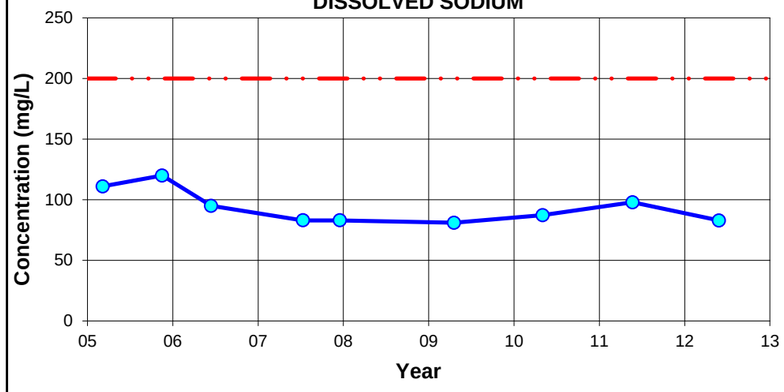


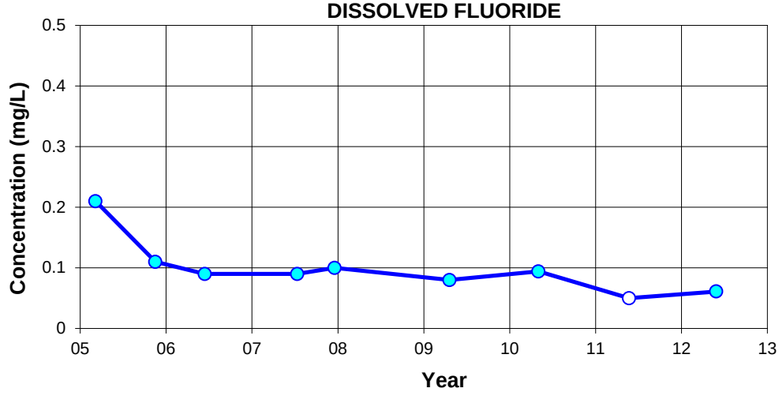


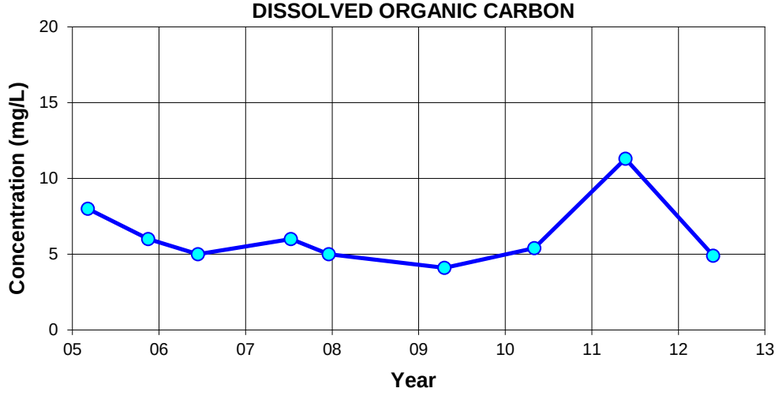












Notes:

- *Filled symbols denote sample values*
- *Unfilled symbols denote values are less than detection limit(s)*
- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

Northeast Capital Industrial Association
2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-02

WorleyParsons
resources & energy

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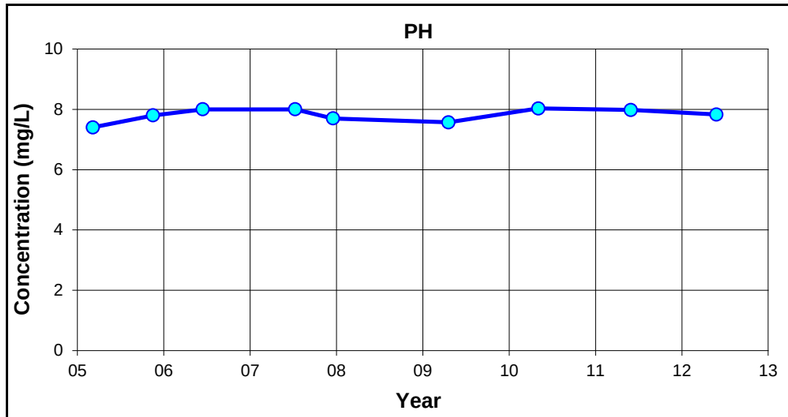
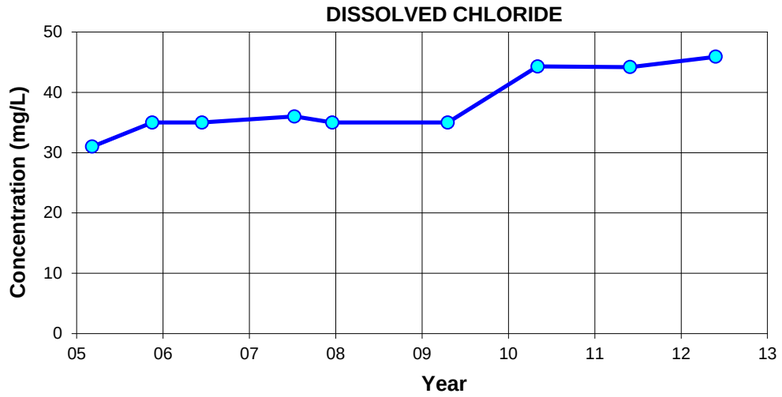
PROJECT NUMBER: **307075-01129**

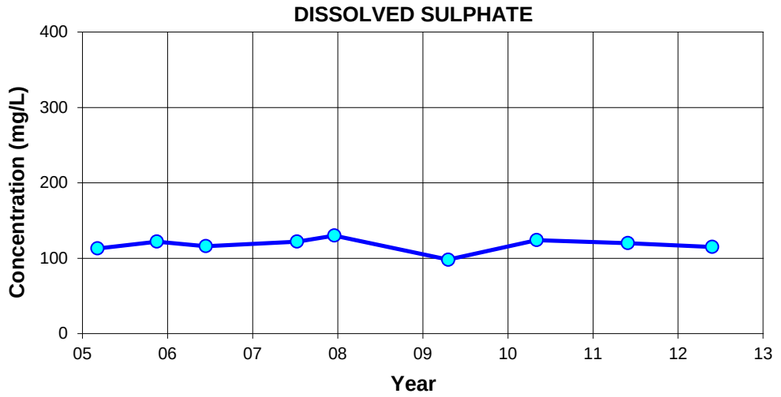
FIGURE: **A5-2**

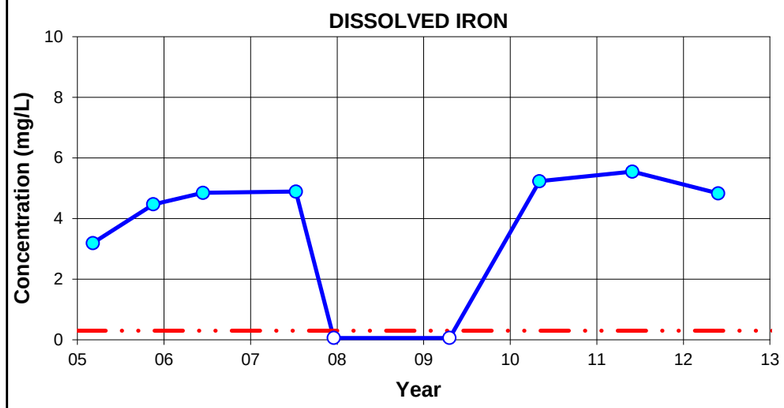
File Location: Edmonton

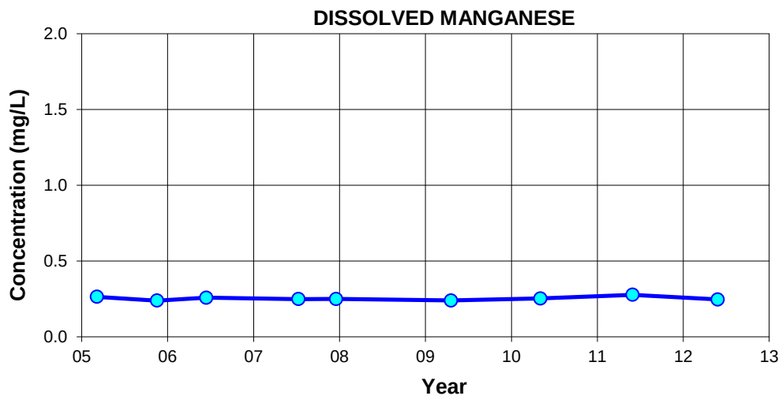
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

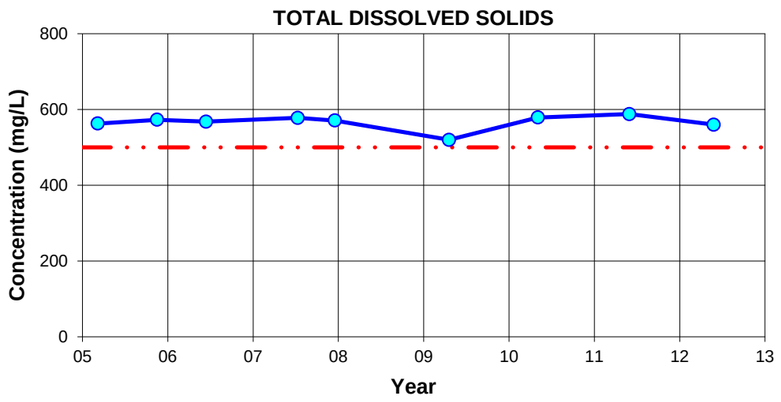


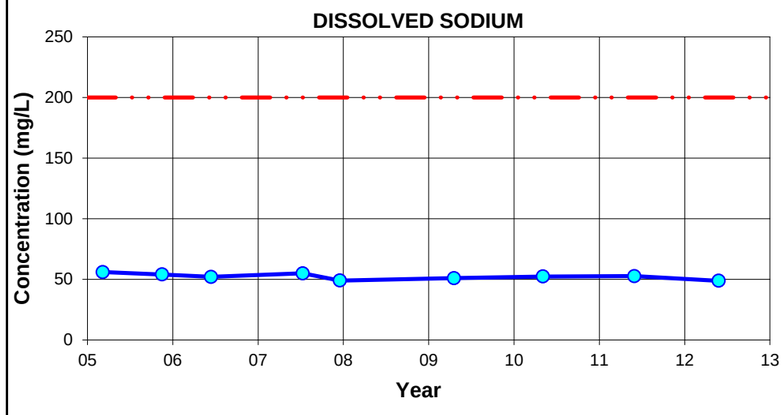


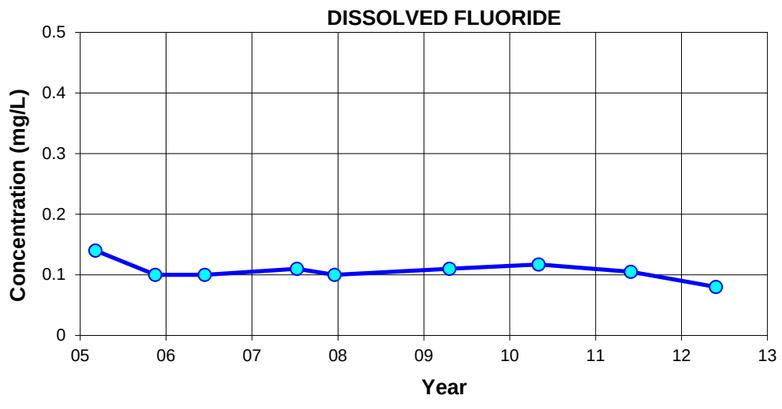


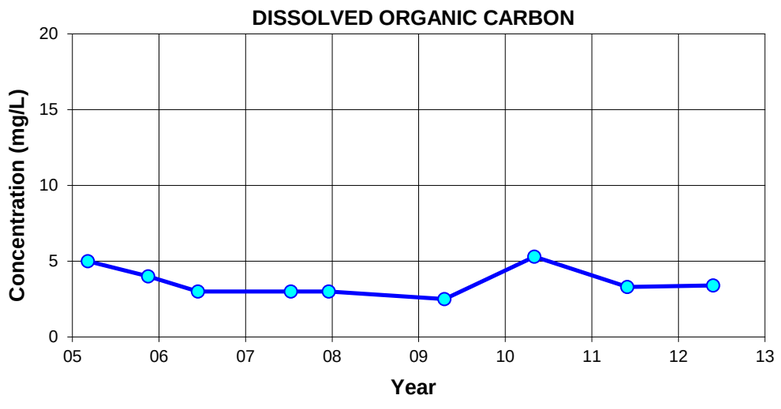












Notes:

- *Filled symbols denote sample values*
- *Unfilled symbols denote values are less than detection limit(s)*
- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

Northeast Capital Industrial Association
2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-03

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resources & energy

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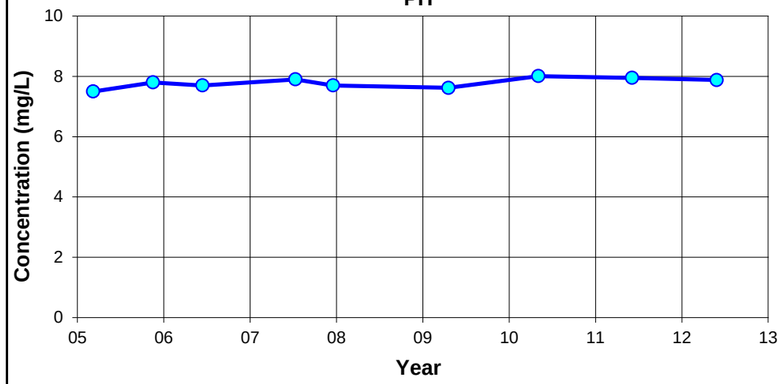
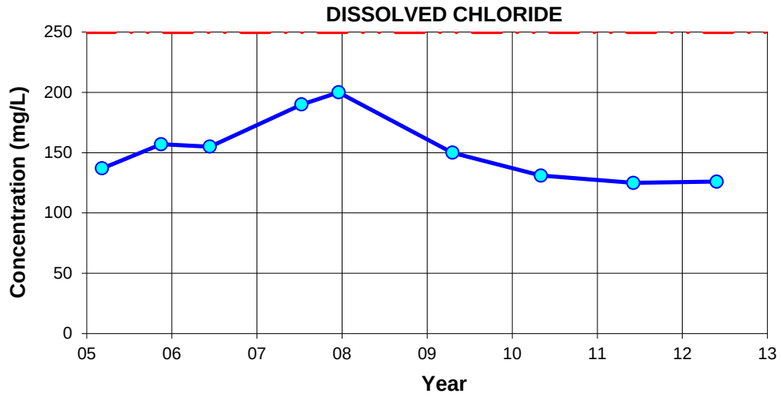
PROJECT NUMBER: **307075-01129**

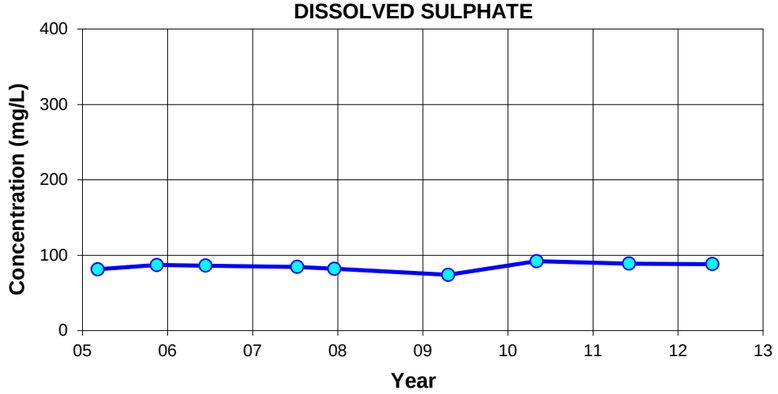
FIGURE: **A5-3**

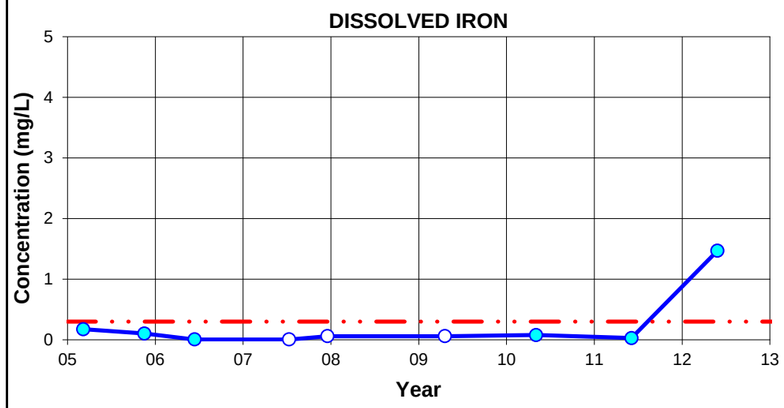
File Location: Edmonton

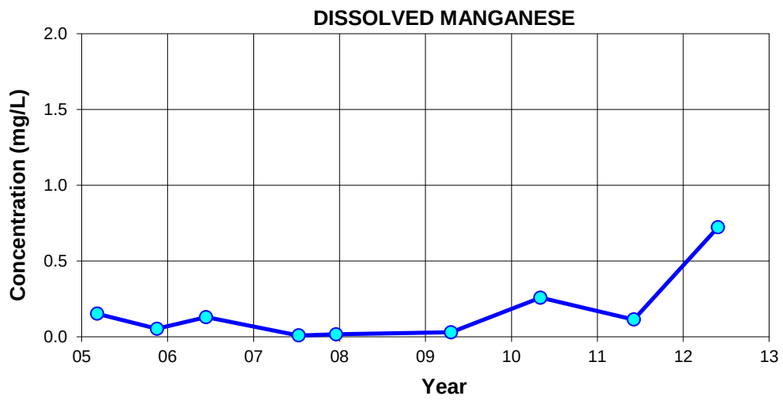
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

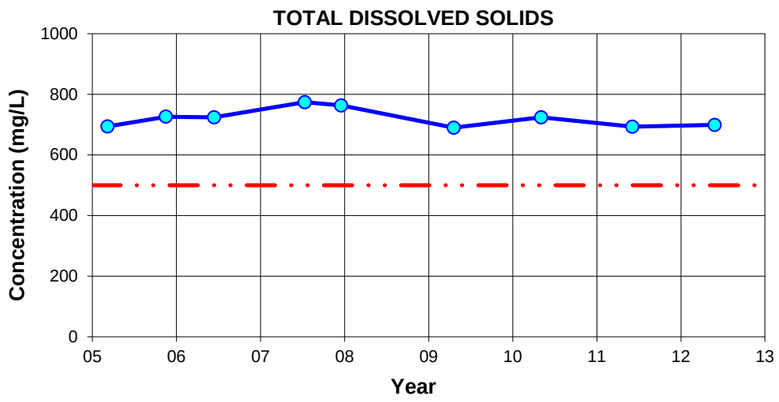


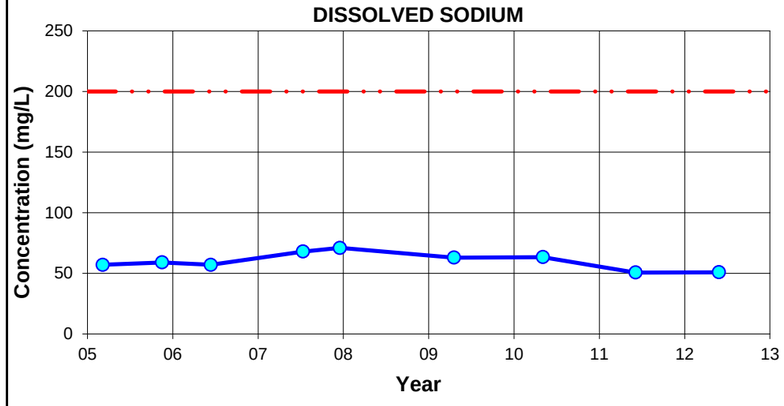


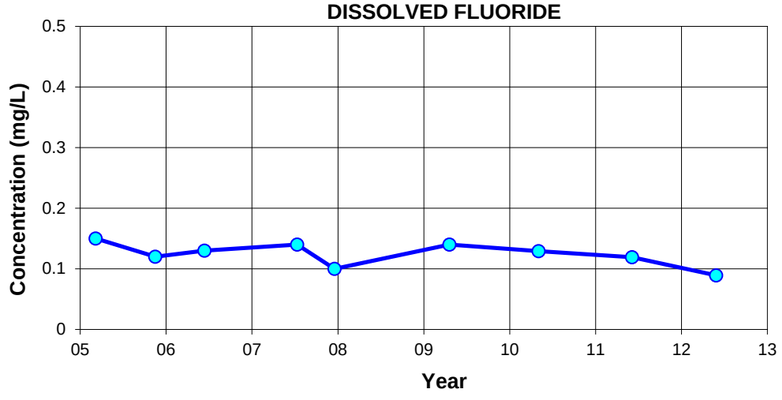


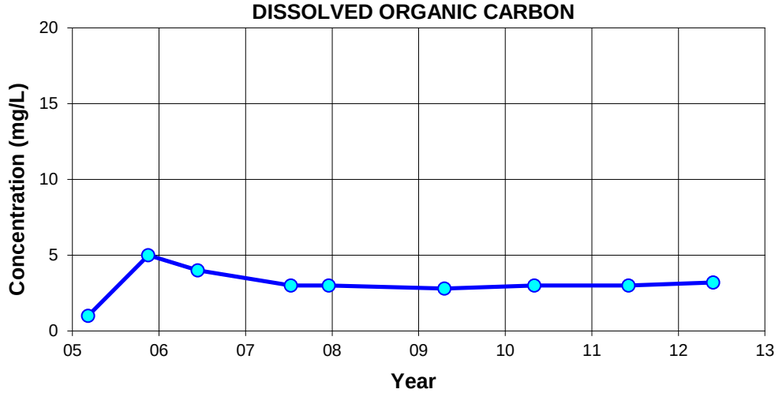












Notes:

- *Filled symbols denote sample values*
- *Unfilled symbols denote values are less than detection limit(s)*
- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

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2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-04

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resources & energy

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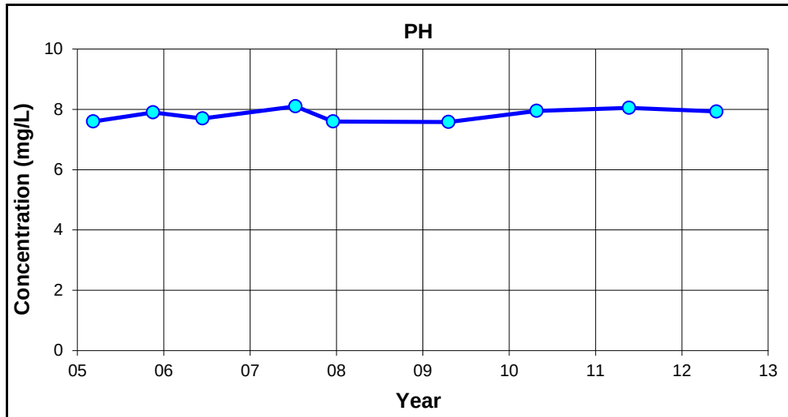
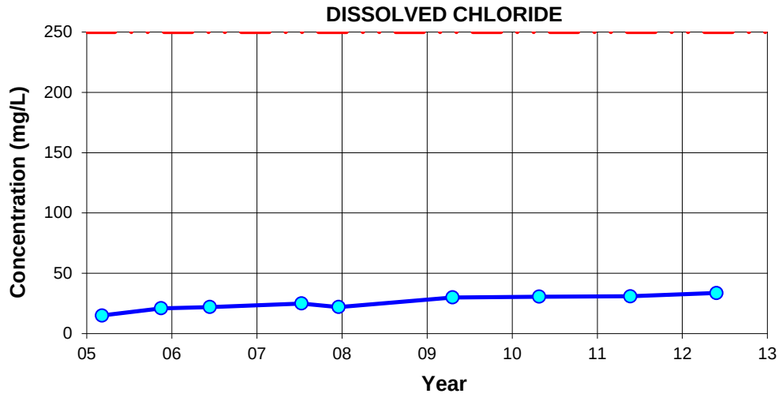
PROJECT NUMBER: **307075-01129**

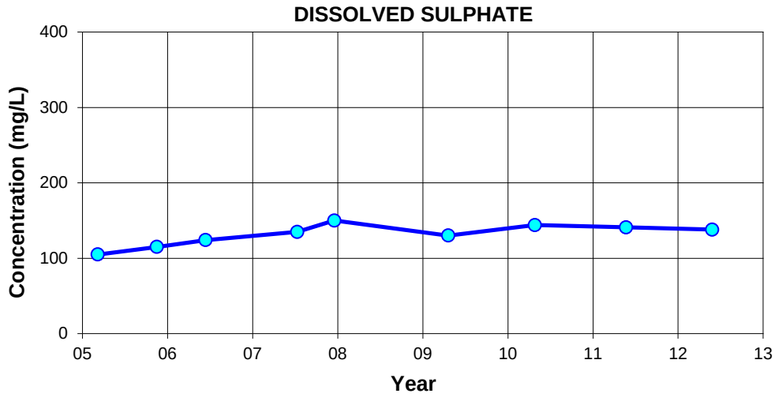
FIGURE: **A5-4**

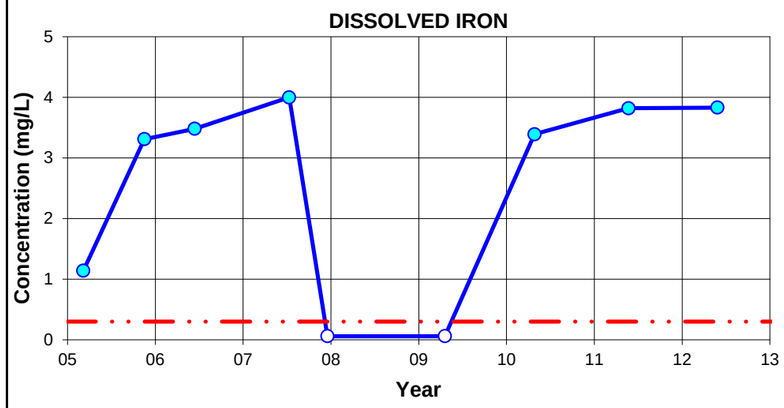
File Location: Edmonton

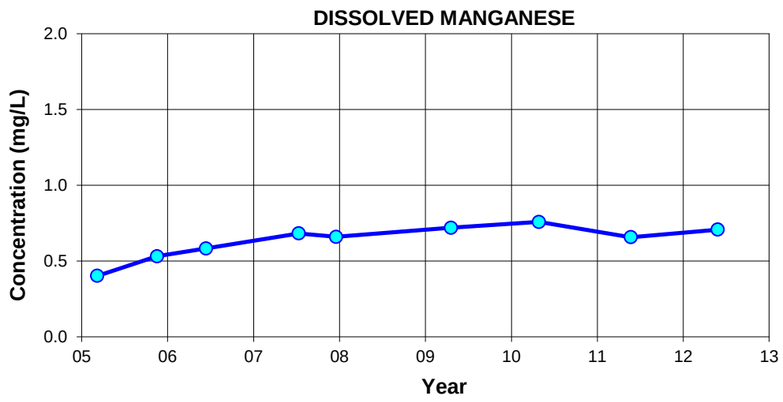
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

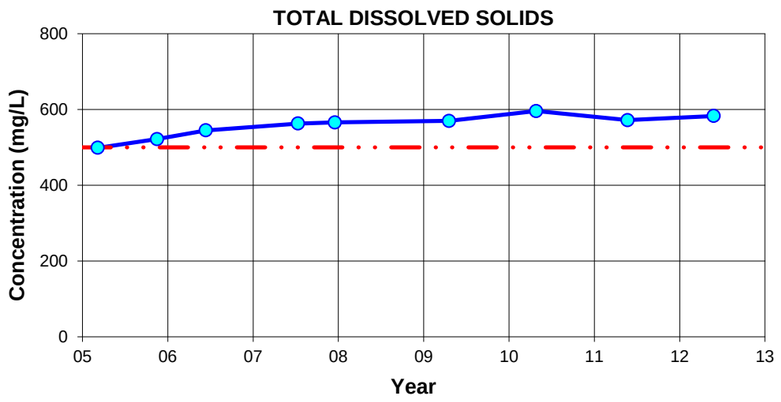


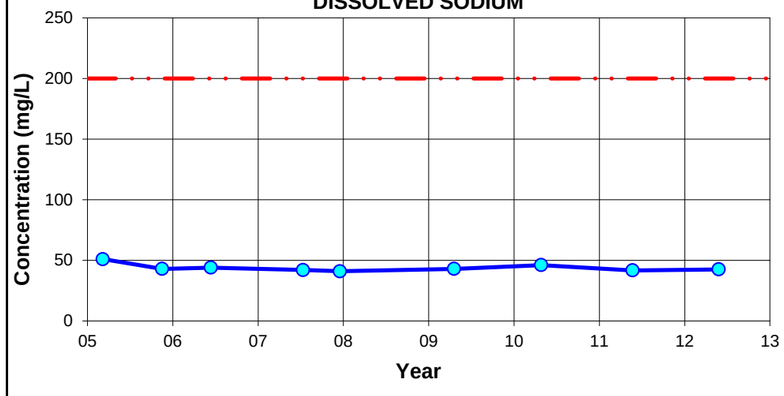


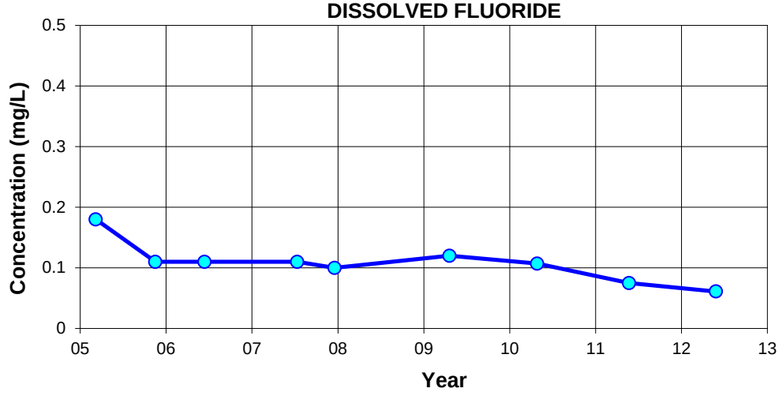


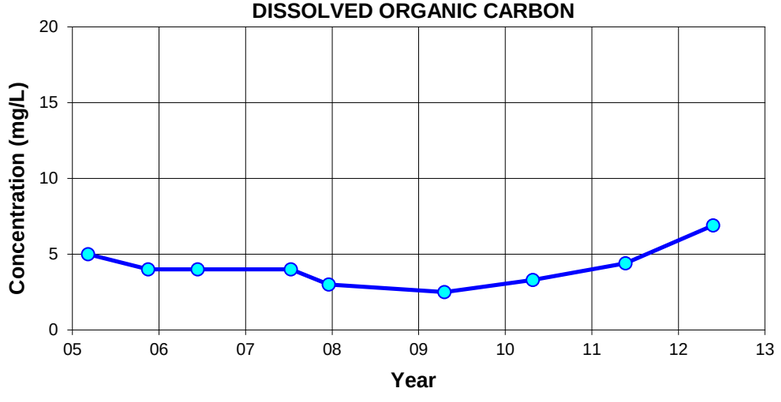












Notes:

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- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

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2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-05

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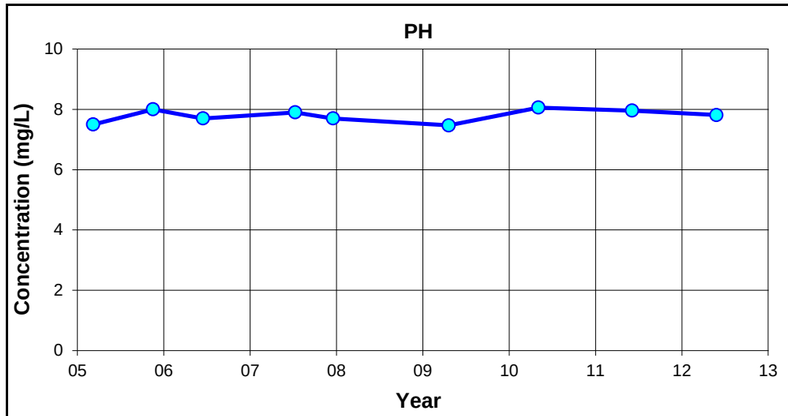
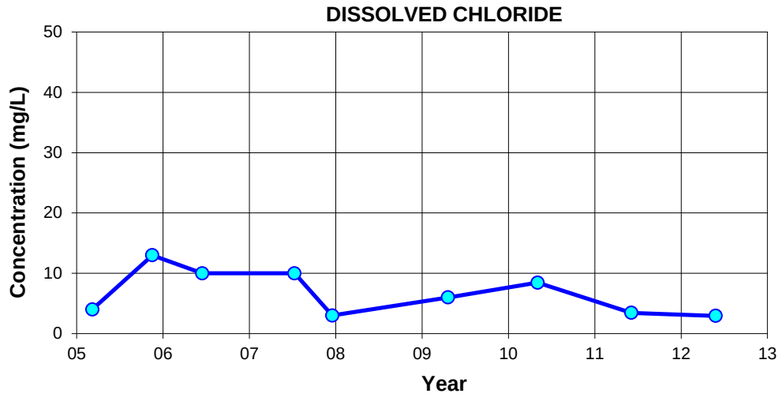
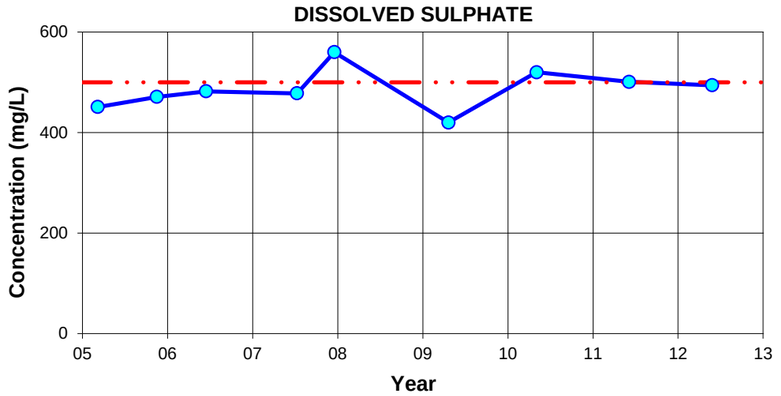
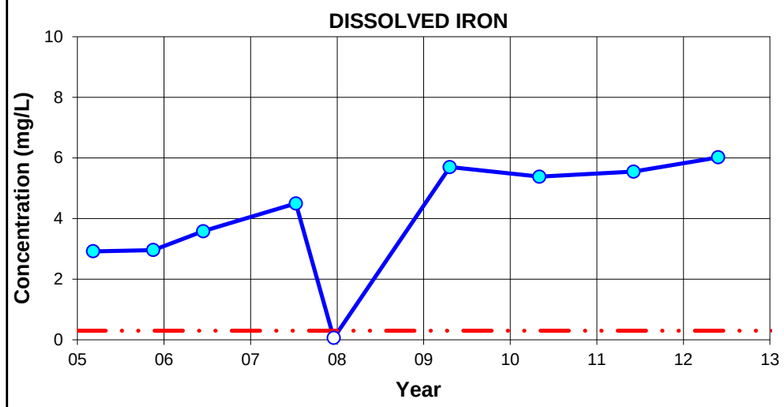
File Location: Edmonton

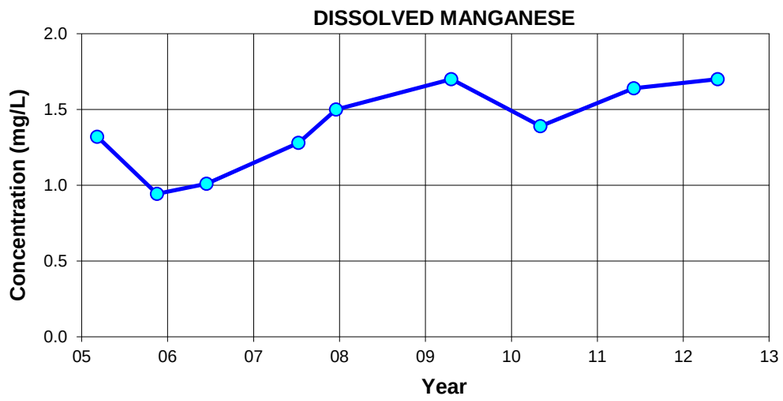
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

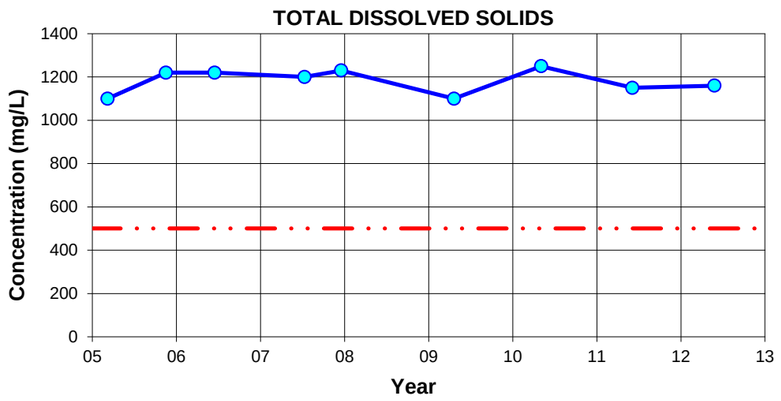


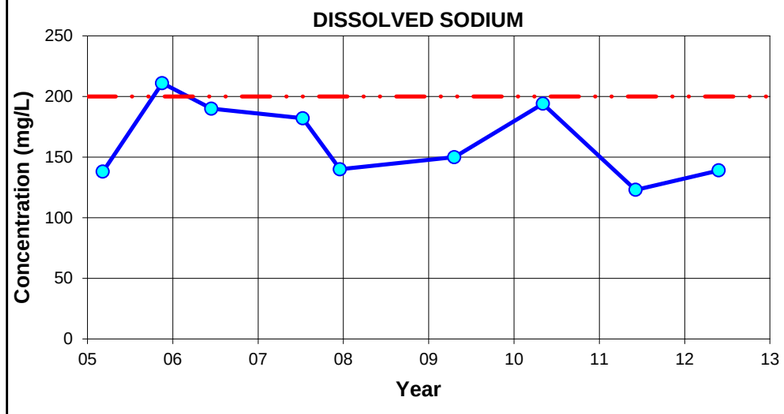


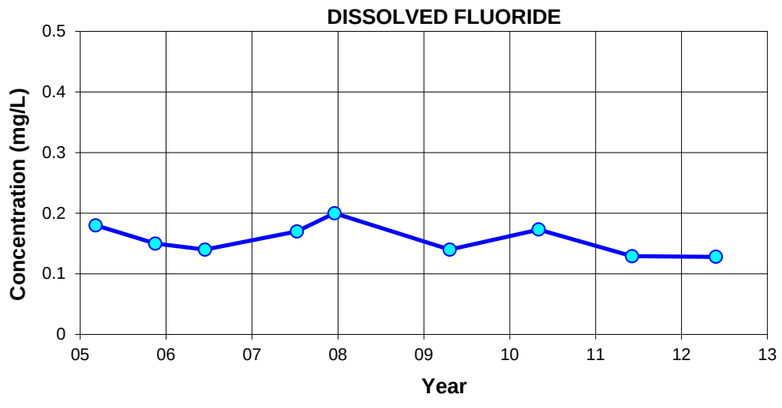


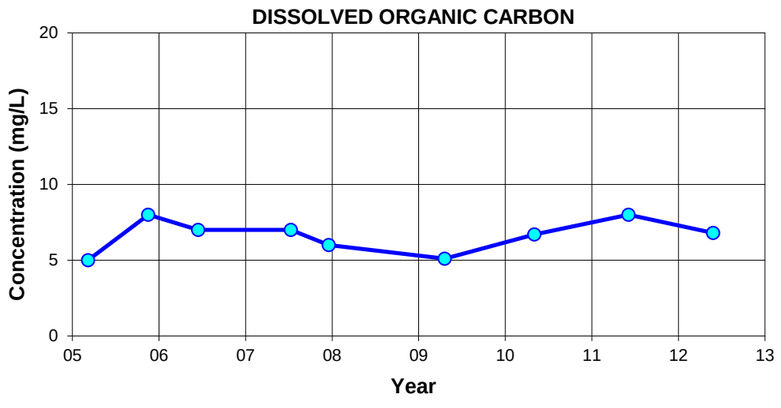












Notes:

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- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

Northeast Capital Industrial Association
2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-06

WorleyParsons
resources & energy

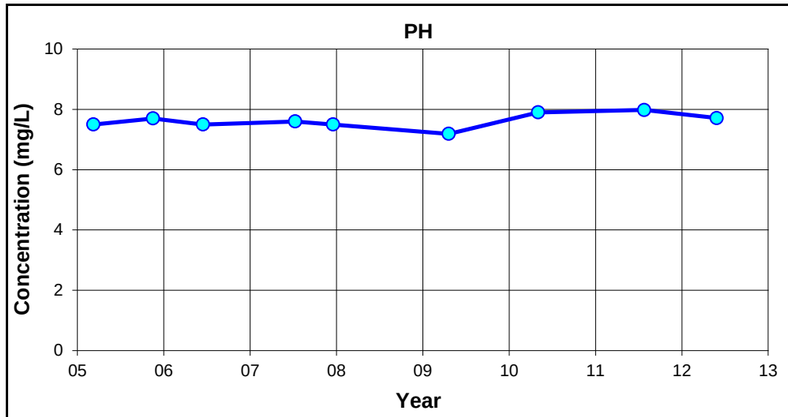
02-Oct-12 date	edited by	KS drawn by	app by

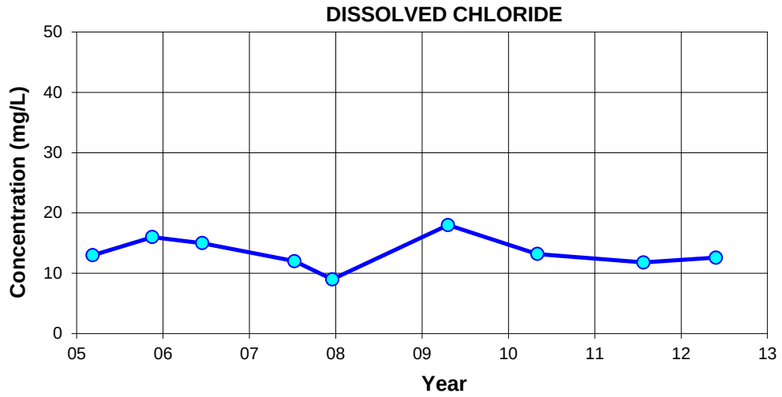
PROJECT NUMBER: **307075-01129**

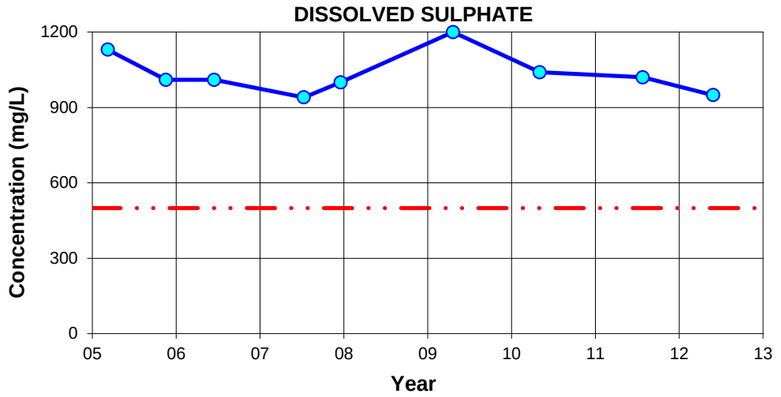
FIGURE: **A5-6**

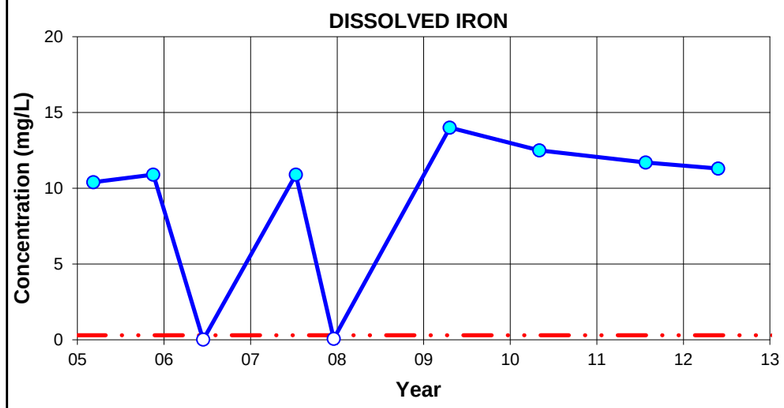
File Location: Edmonton

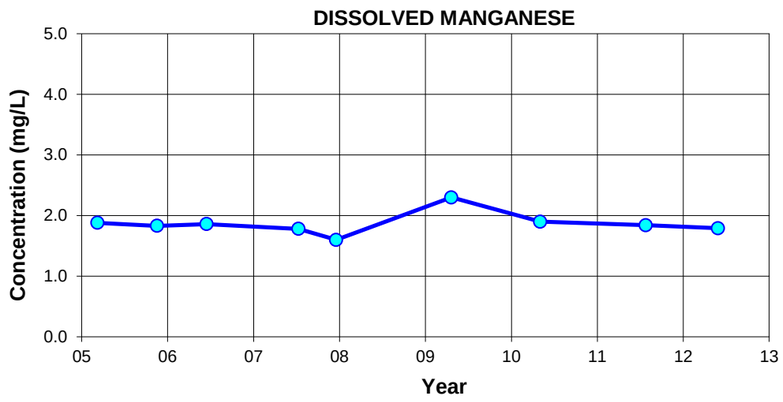
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

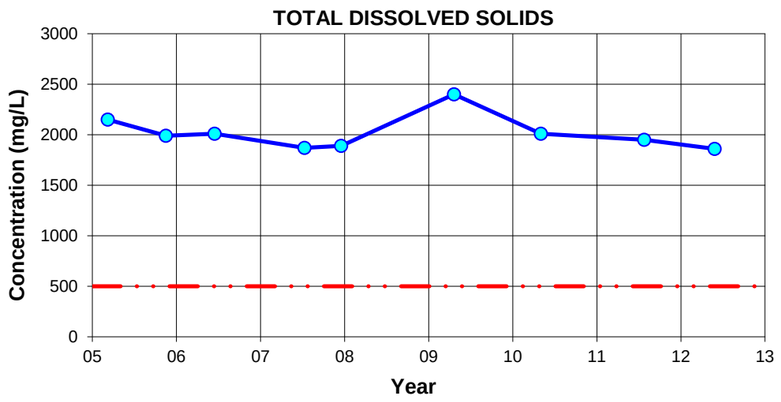


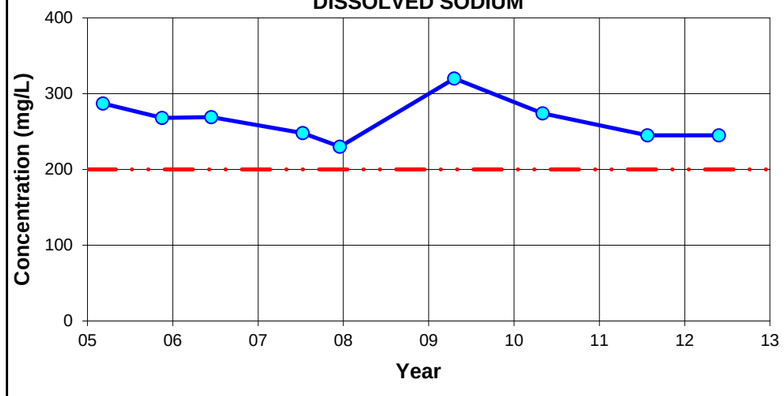


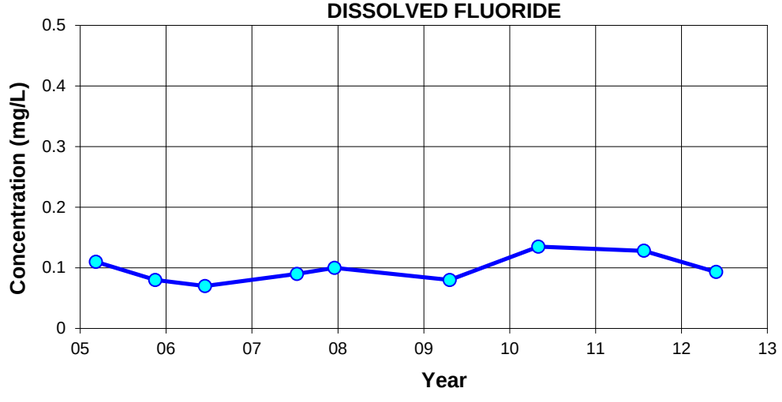


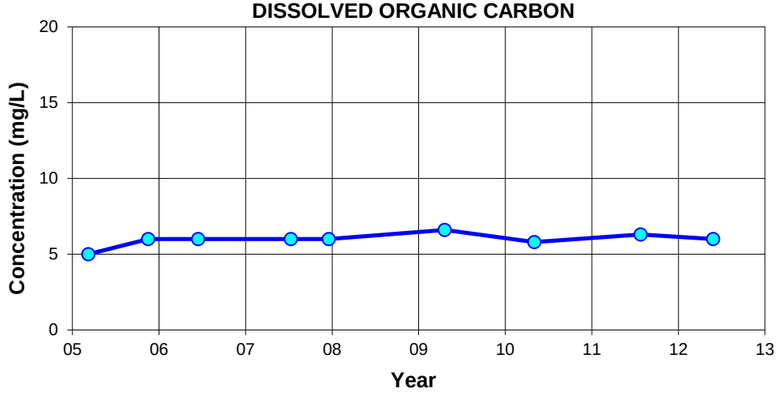












Notes:

- *Filled symbols denote sample values*
- *Unfilled symbols denote values are less than detection limit(s)*
- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

Northeast Capital Industrial Association
2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-07

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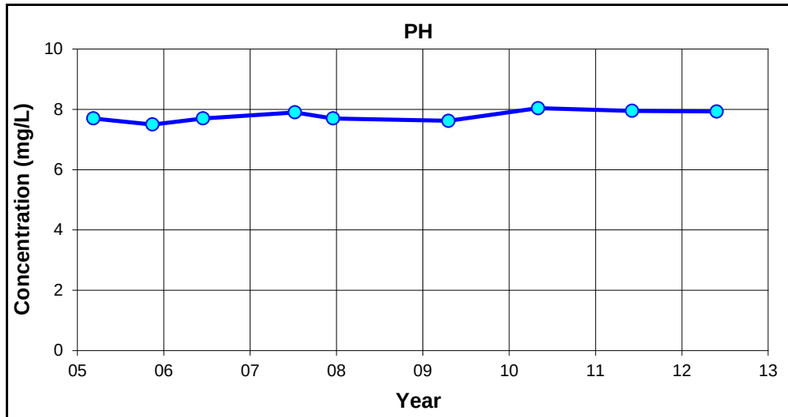
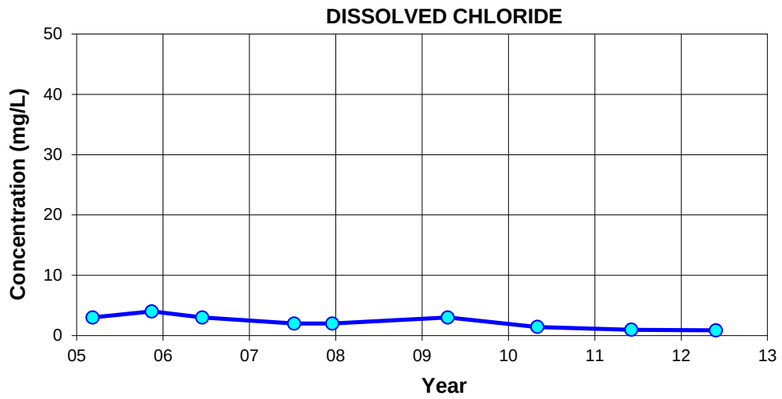
PROJECT NUMBER: **307075-01129**

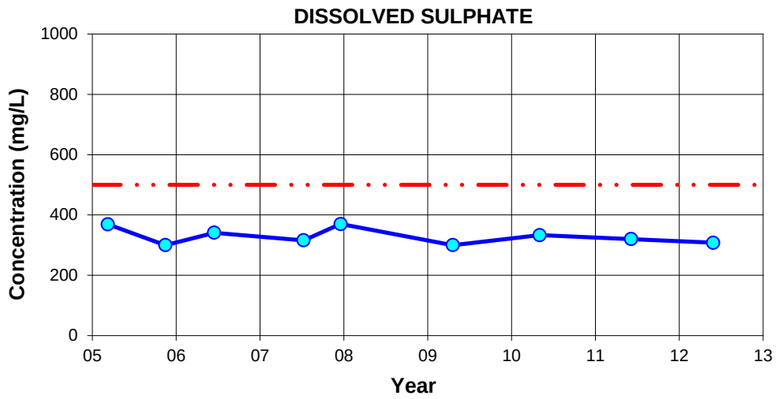
FIGURE: **A5-7**

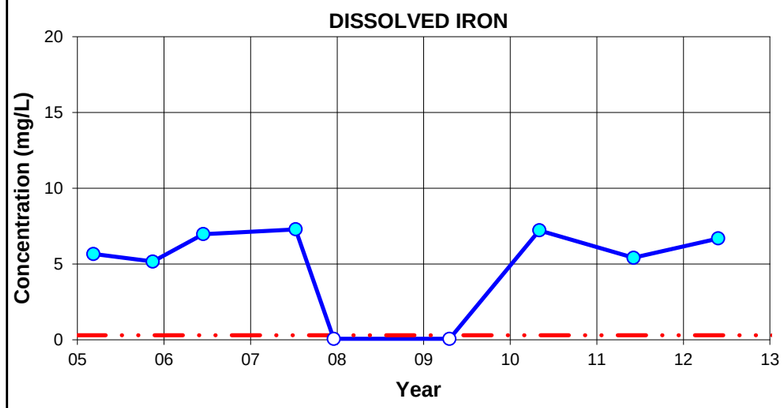
File Location: Edmonton

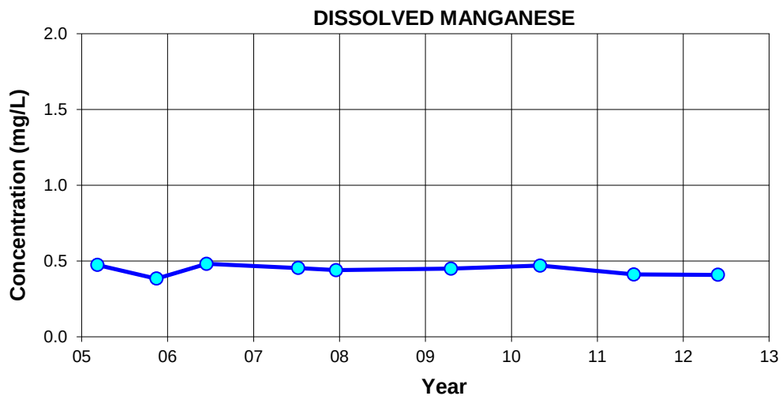
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

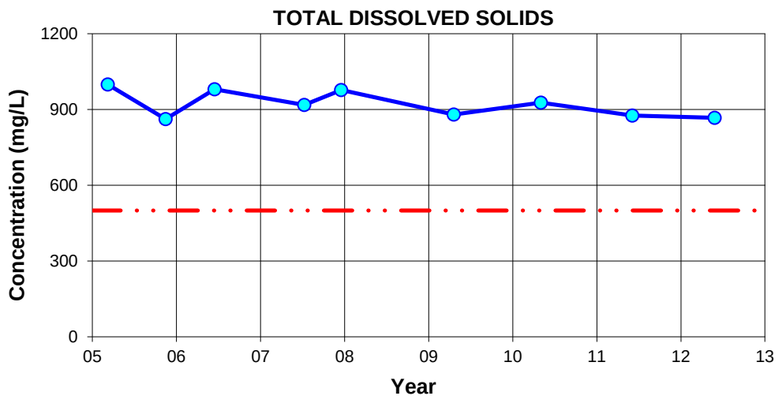


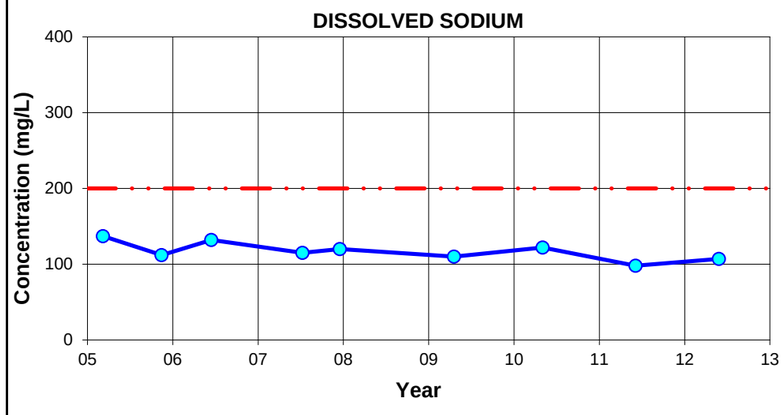


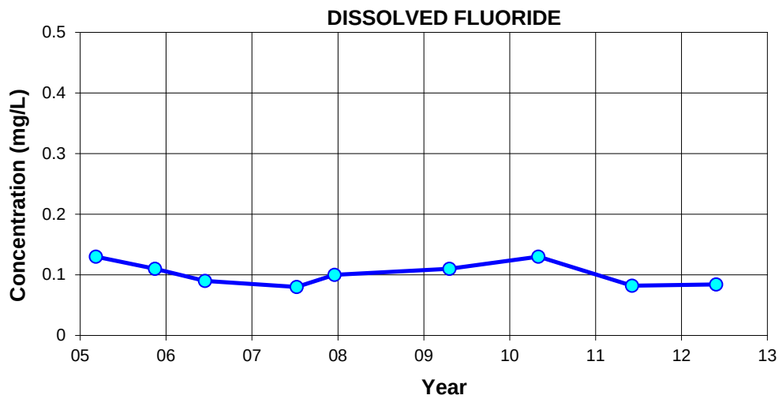


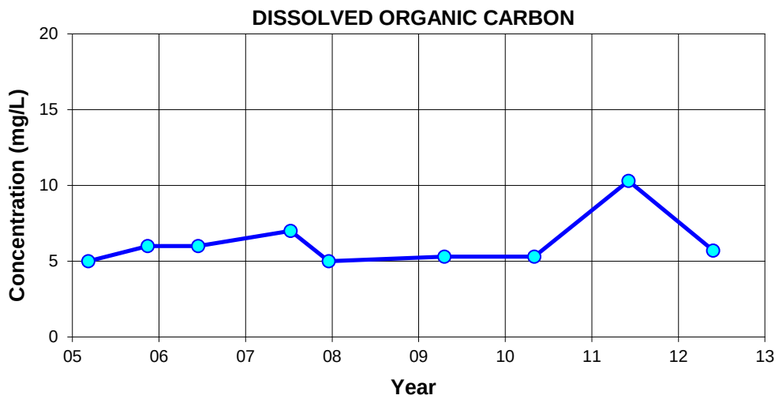












Notes:

- *Filled symbols denote sample values*
- *Unfilled symbols denote values are less than detection limit(s)*
- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

Northeast Capital Industrial Association
2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-08

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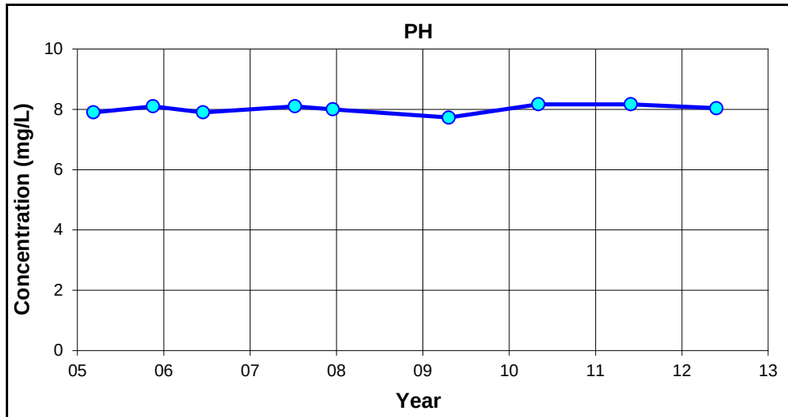
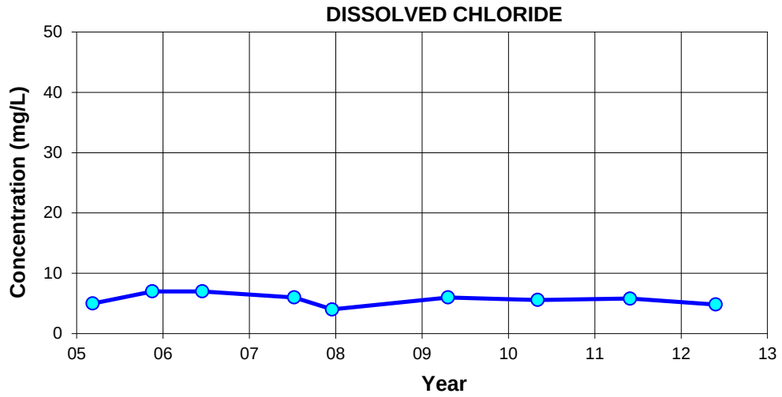
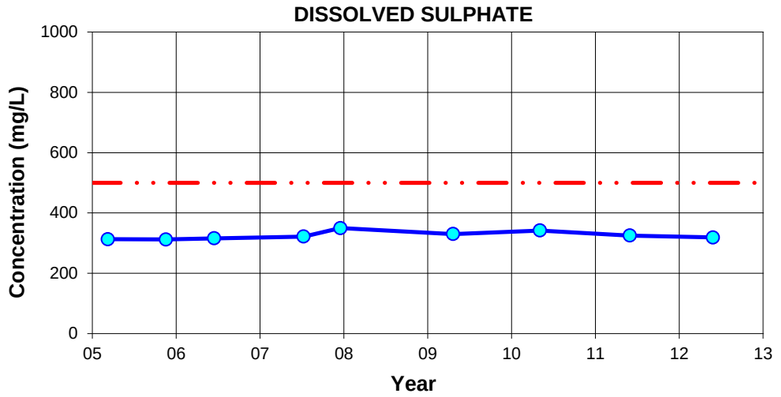
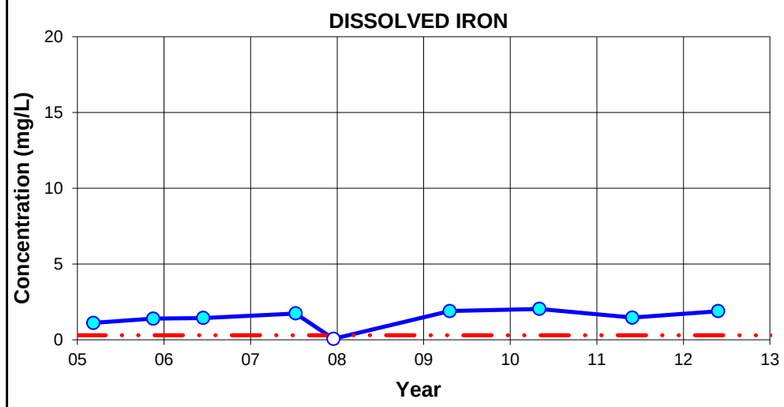
File Location: Edmonton

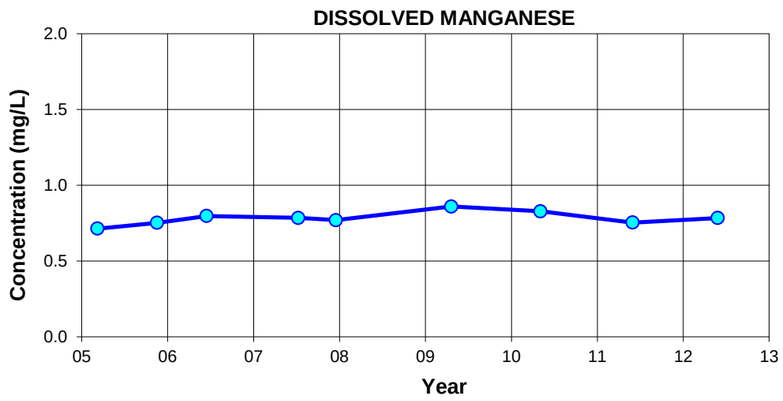
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

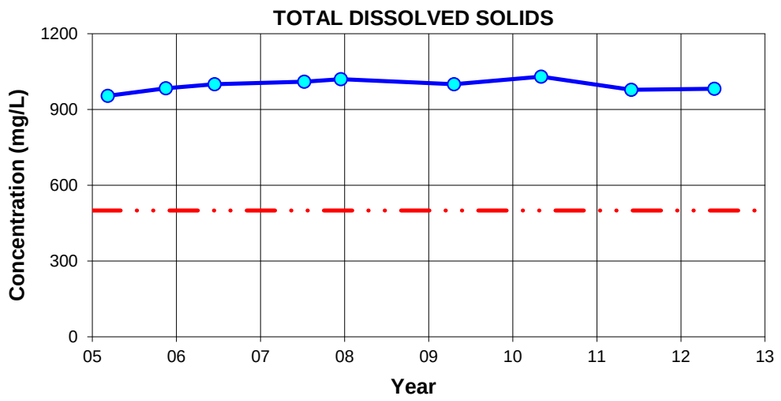


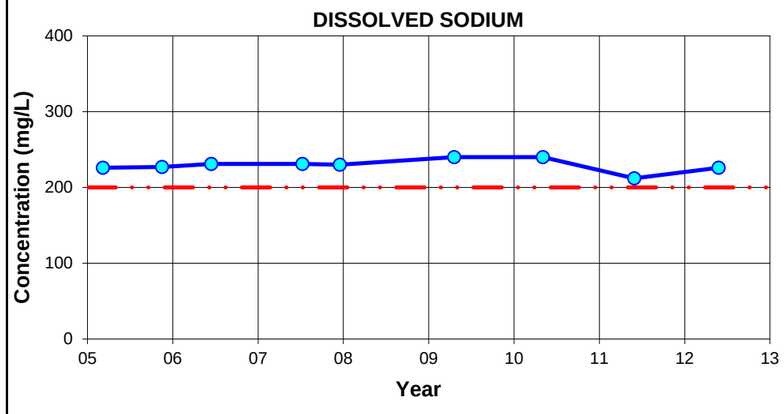


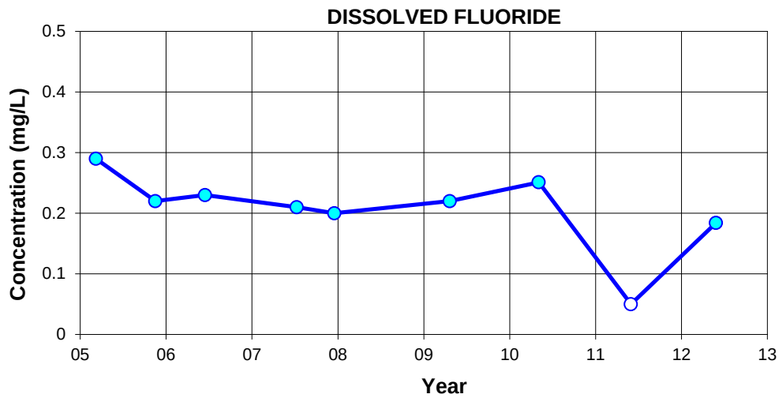


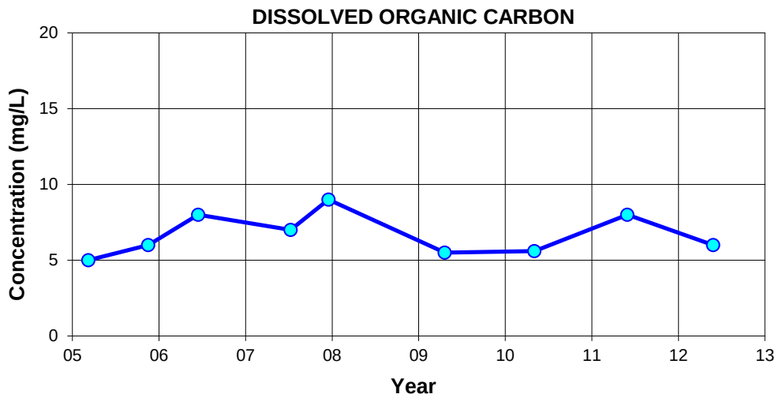












Notes:

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- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

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2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-09

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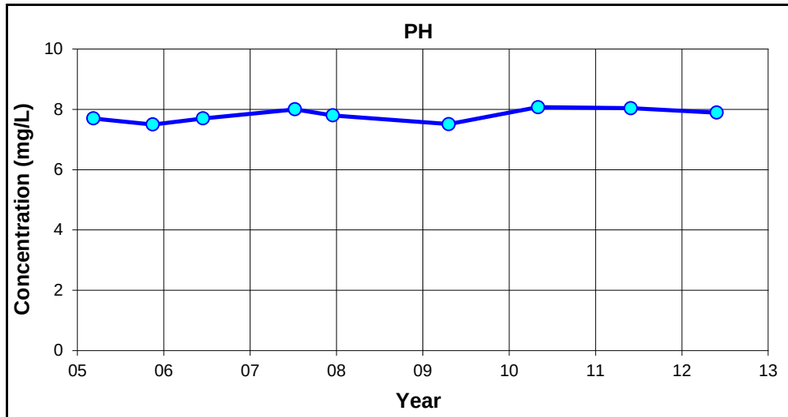
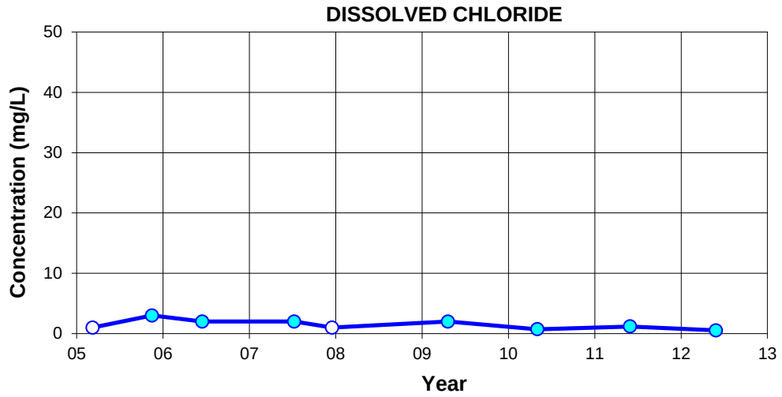
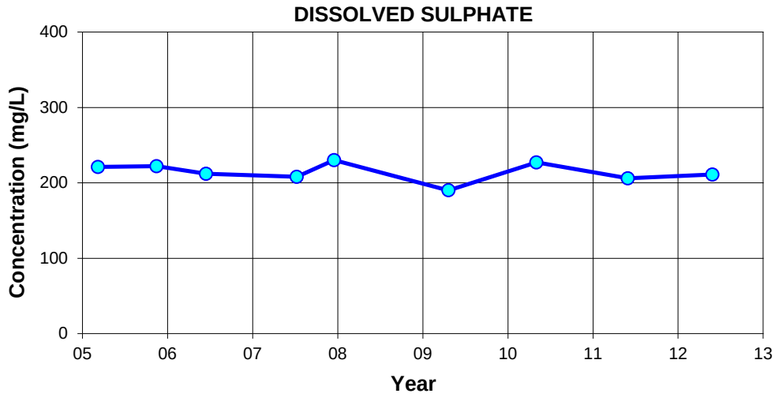
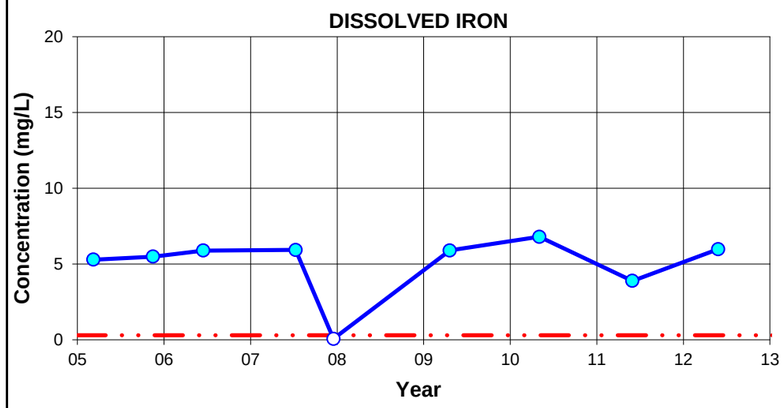
File Location: Edmonton

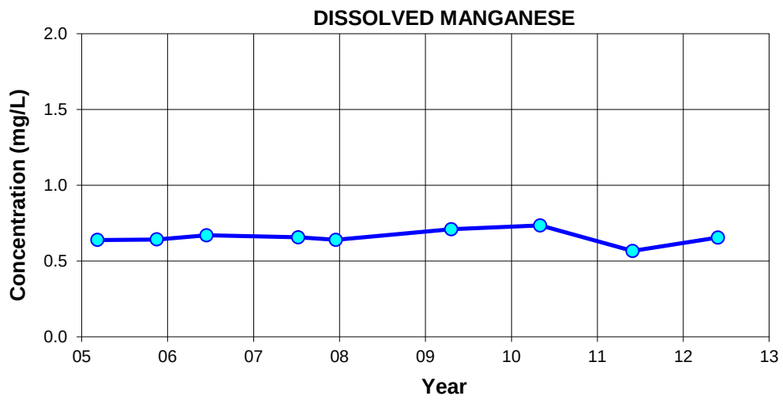
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

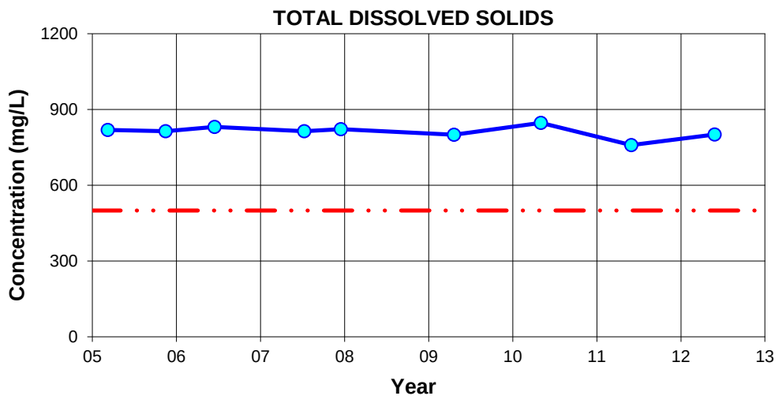


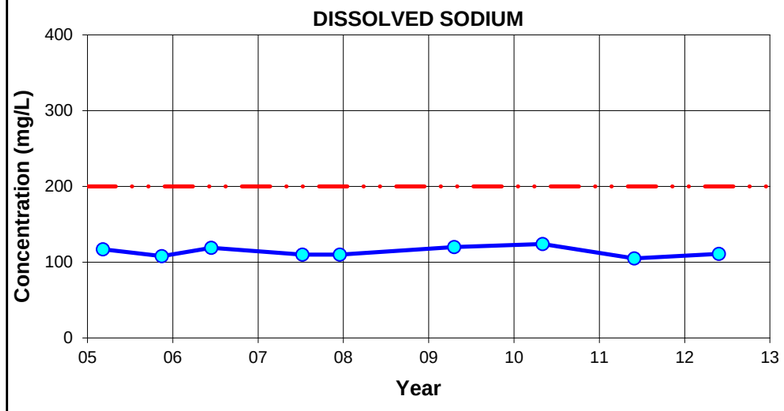


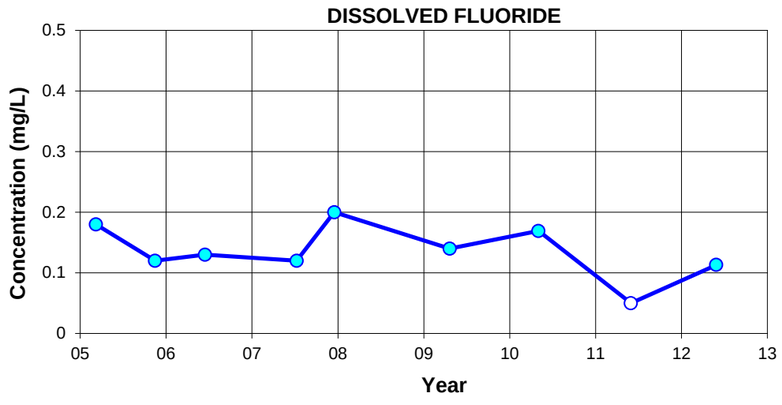


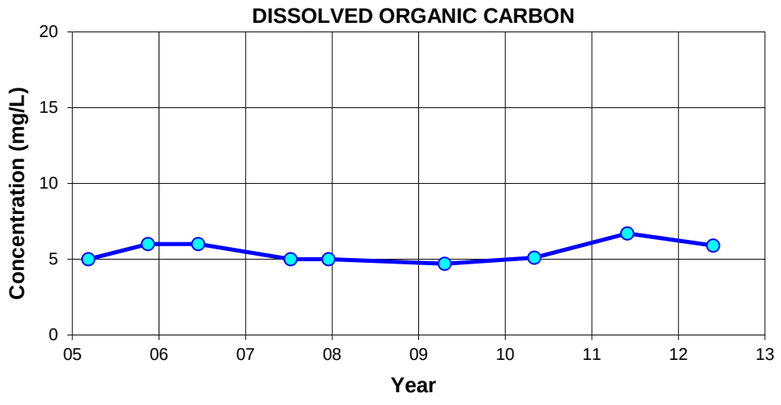












Notes:

- *Filled symbols denote sample values*
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- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

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2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-10

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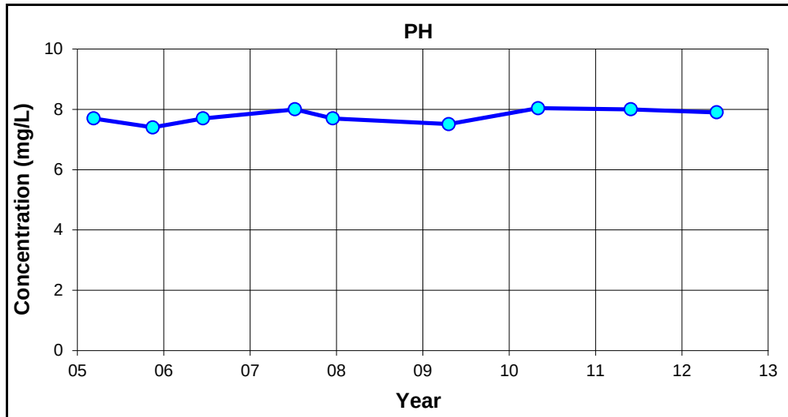
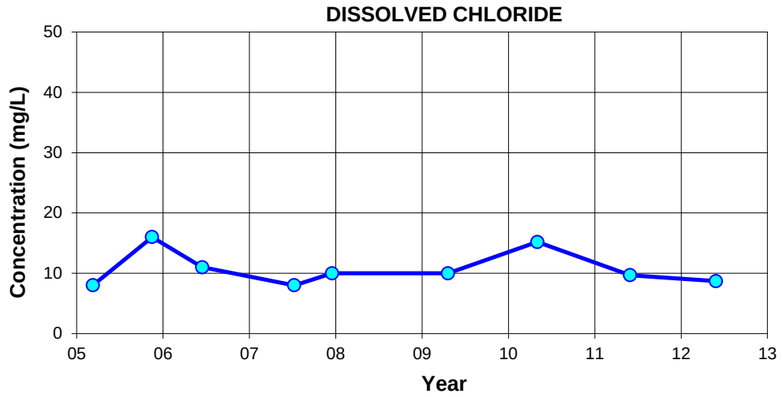
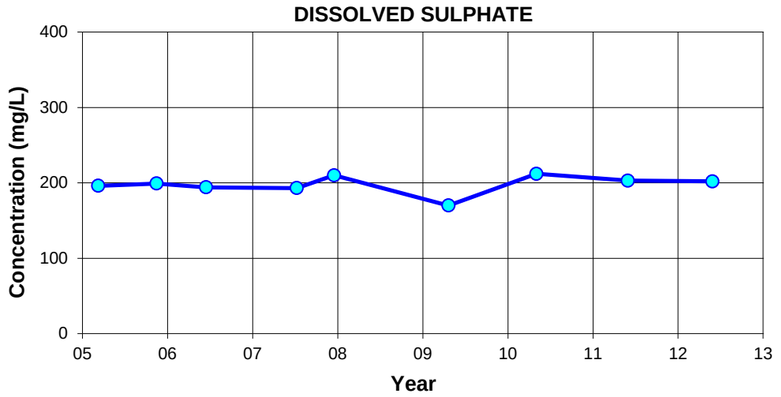
02-Oct-12 date	edited by	KS drawn by	app by	PROJECT NUMBER: 307075-01129	FIGURE: A5-10

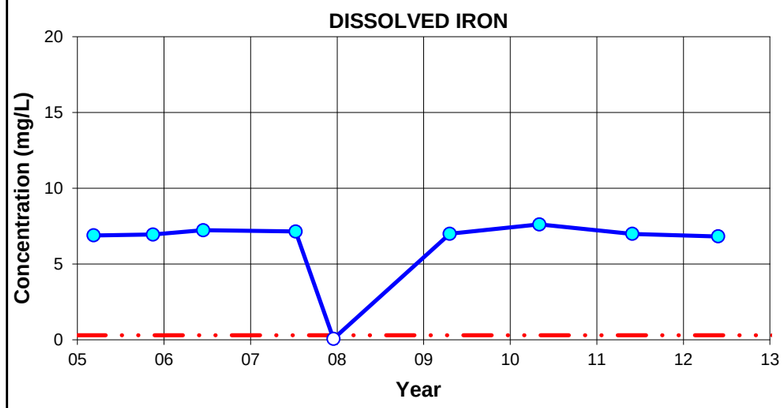
File Location: Edmonton

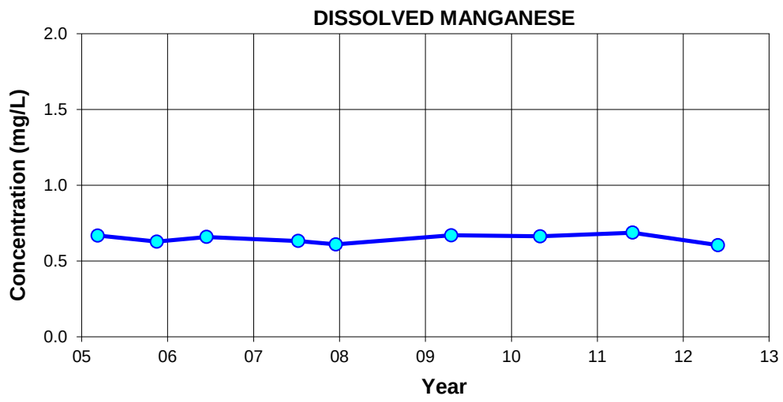
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

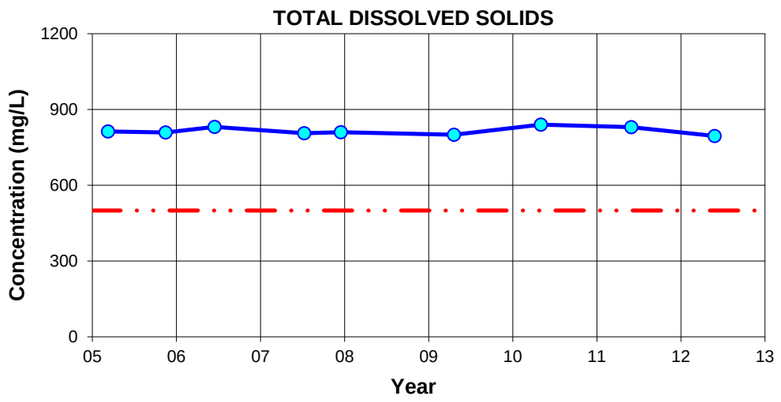


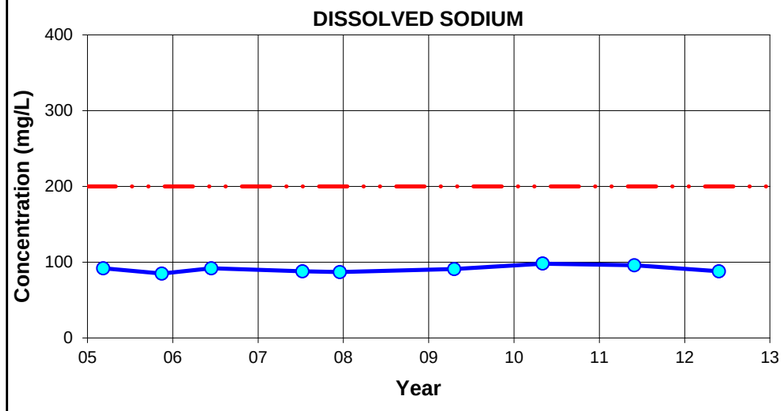


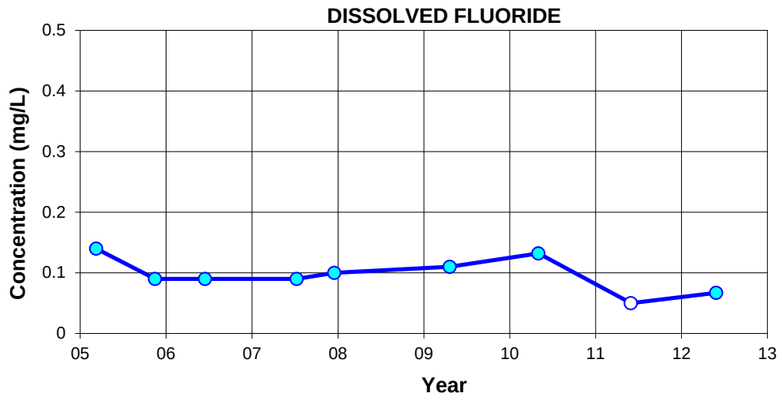


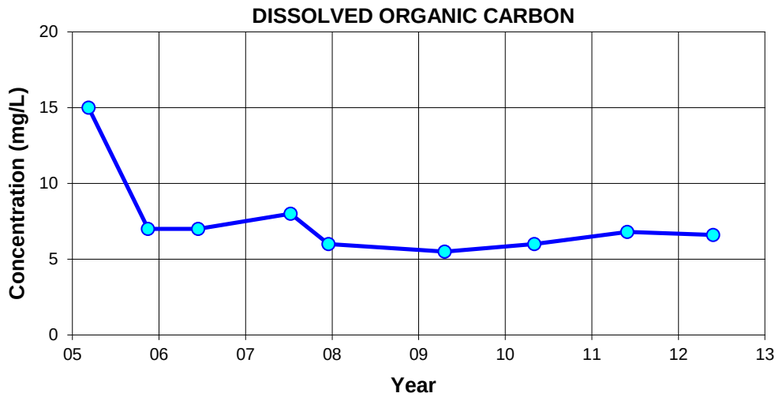












Notes:

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- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Organic Carbon: N/A*

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2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-11

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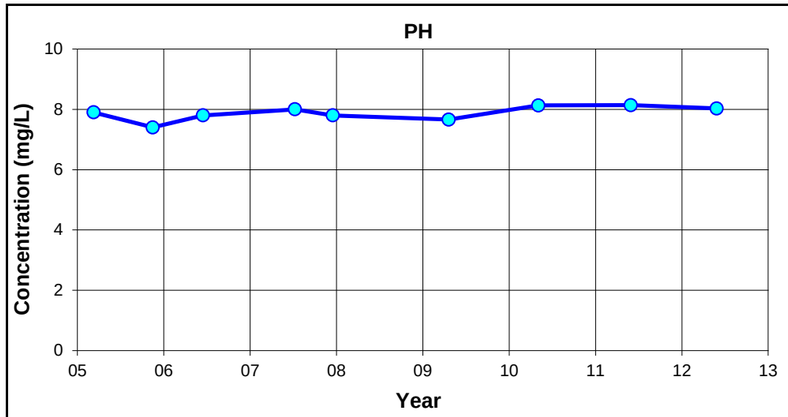
02-Oct-12 date	edited by	KS drawn by	app by

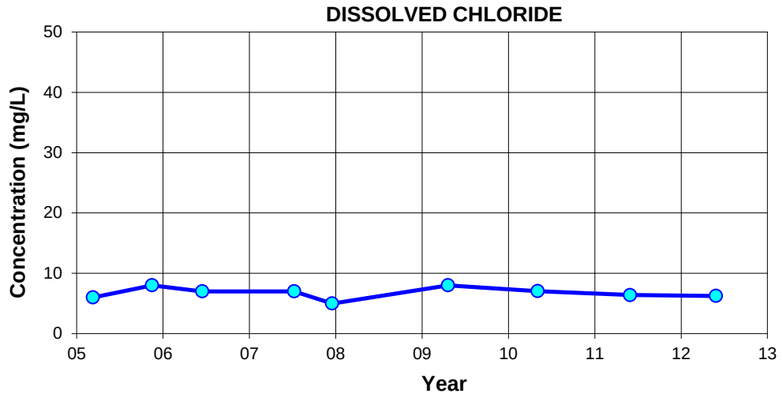
PROJECT NUMBER: **307075-01129**

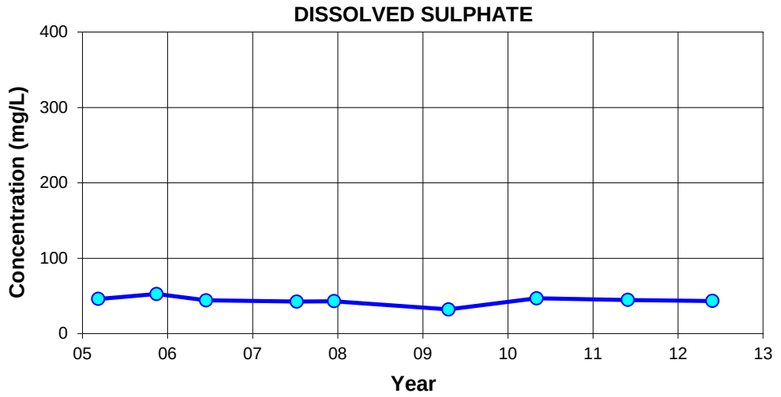
FIGURE: **A5-11**

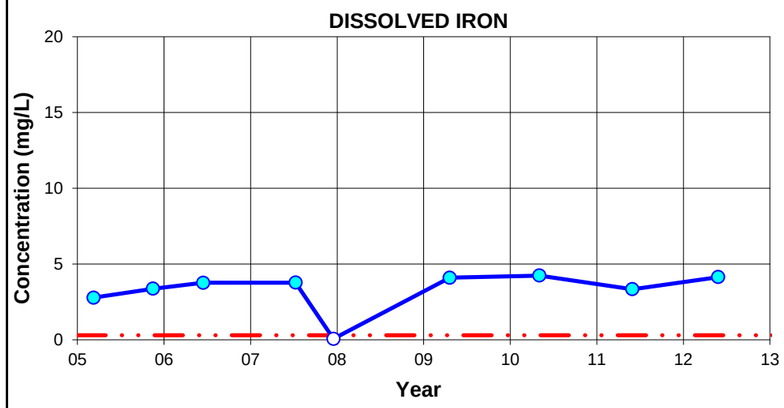
File Location: Edmonton

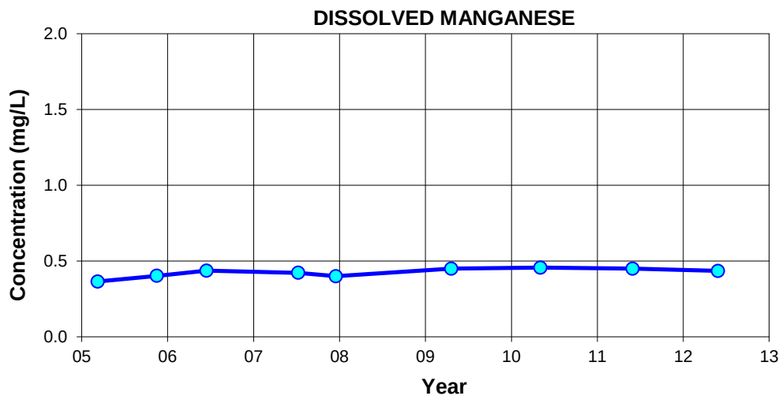
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

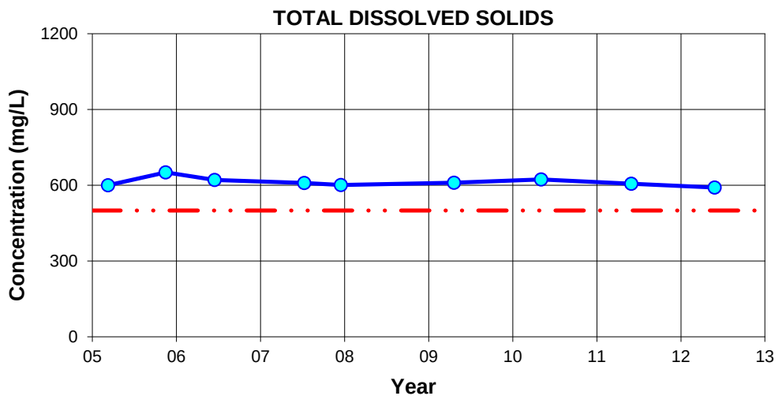


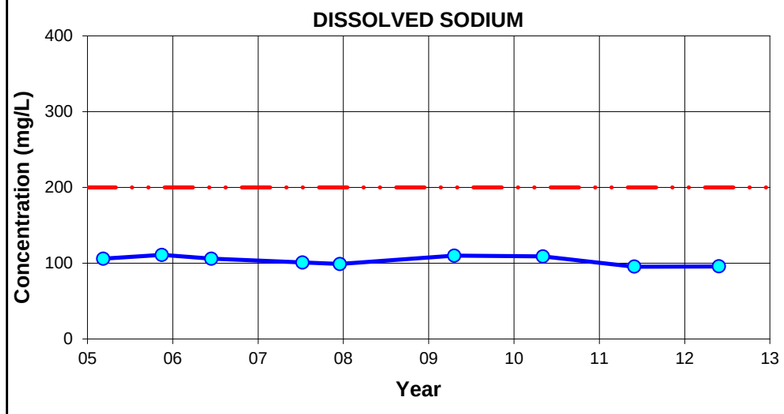


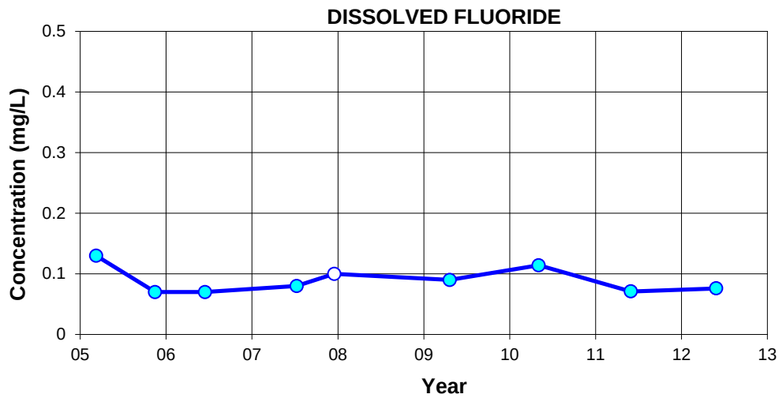


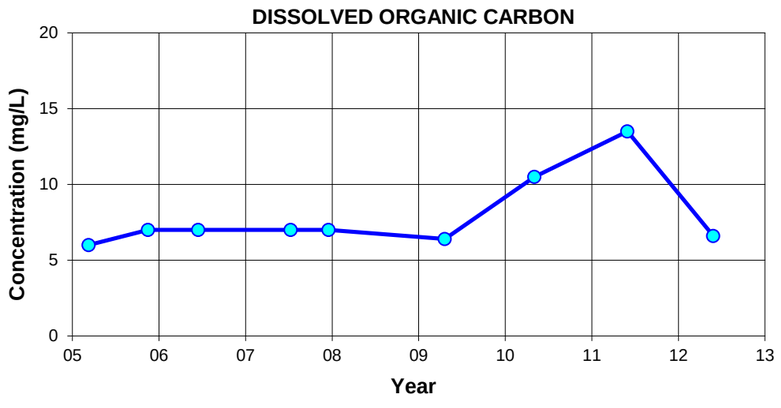












Notes:

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- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

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2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-12

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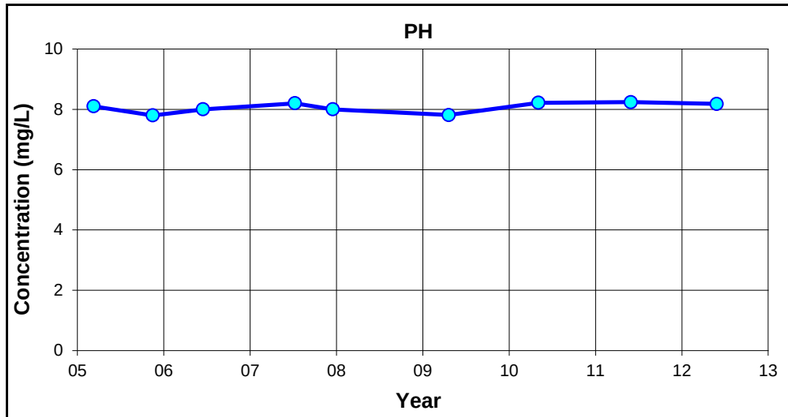
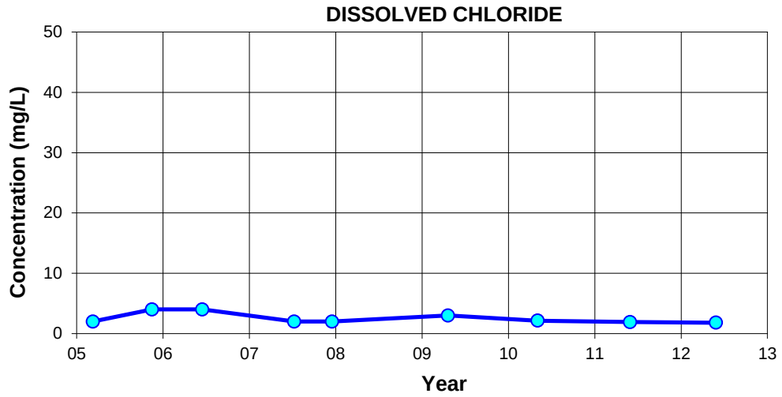
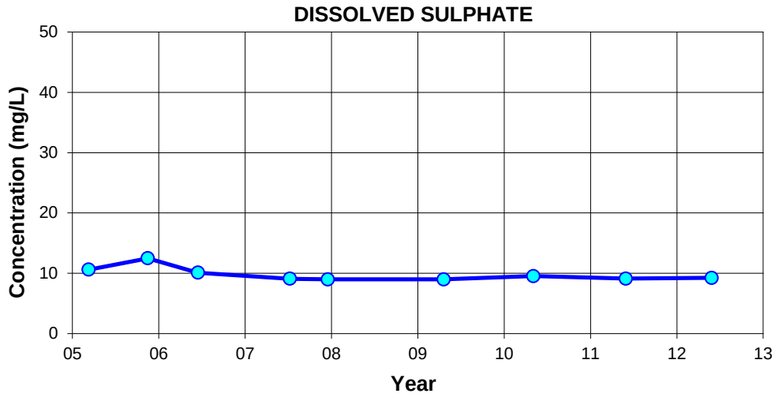
02-Oct-12 date	edited by	KS drawn by	app by	PROJECT NUMBER: 307075-01129	FIGURE: A5-12

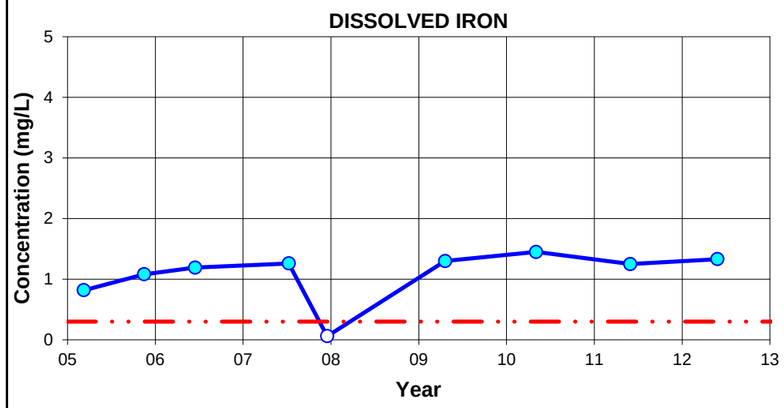
File Location: Edmonton

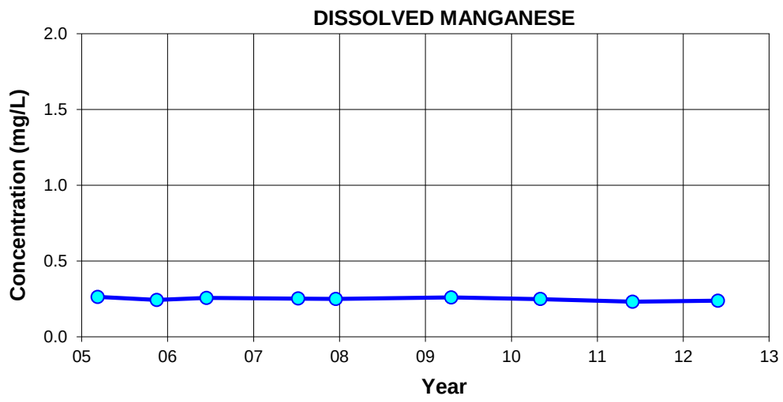
J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

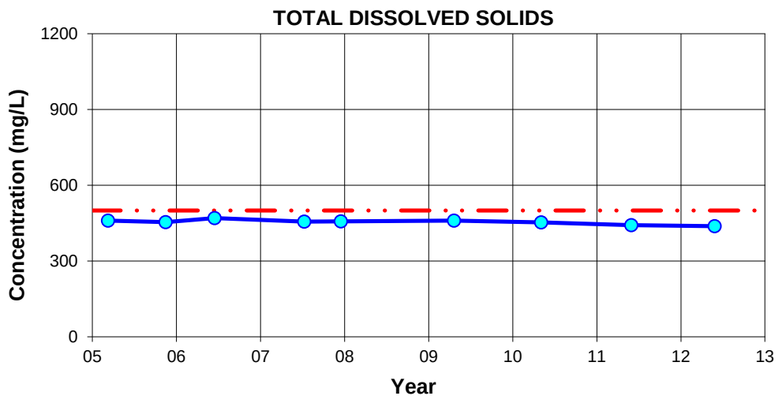


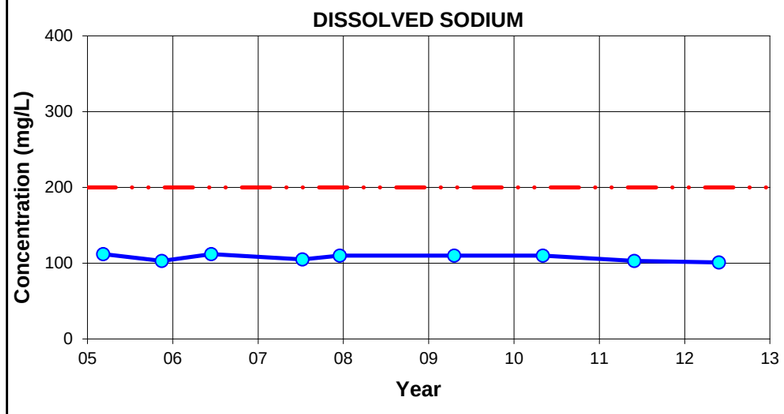


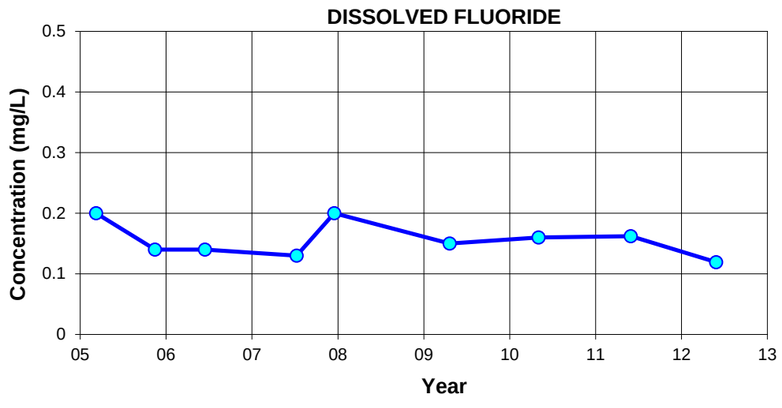


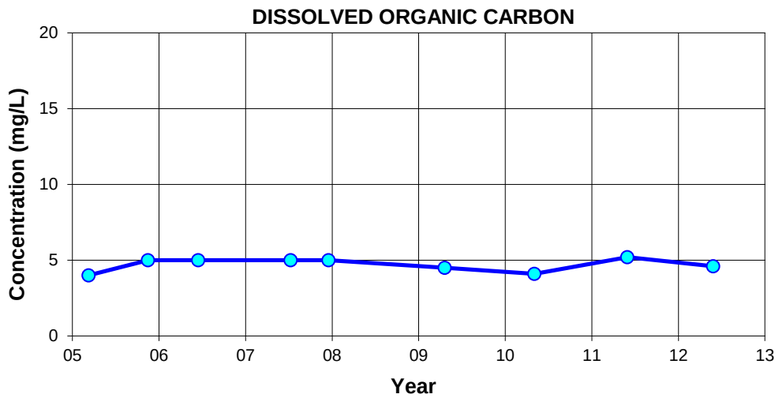












Notes:

- *Filled symbols denote sample values*
- *Unfilled symbols denote values are less than detection limit(s)*
- *Canadian Drinking Water Quality Guidelines (Health Canada 2010)*
  - *pH: 6.5 - 8.5*
  - *Dissolved Chloride: 250 mg/L*
  - *Dissolved Sulphate: 500 mg/L*
  - *Dissolved Iron: 0.3 mg/L*
  - *Dissolved Manganese: 0.05 mg/L*
  - *Total Dissolved Solids: 500 mg/L*
  - *Dissolved Sodium: 200 mg/L*
  - *Dissolved Fluoride: 1.5 mg/L*
  - *Dissolved Organic Carbon: N/A*

Infrastructure & Environment

Northeast Capital Industrial Association
2012 Groundwater Quality Monitoring
Hydrochemical Control Charts

MW-13

WorleyParsons
resources & energy

02-Oct-12 date	edited by	KS drawn by	app by	PROJECT NUMBER: 307075-01129	FIGURE: A5-13

File Location: Edmonton

J:\E001s\E00100102 (NCIA 2011 Beverly Channel GW Monitoring)\12.0_Reports\12.3_Backend\Appendices\Appendix 5 - Hydrochemical Control Charts

Appendix 6 Statistical Tables

Appendix 6

Statistical Tables: MW-01

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	15.15	15.7	15.4	0.2	9
Groundwater Surface Elevation	(m asl)	602.49	602.4	602.81	602.81	602.66	602.75	602.34	602.64	602.89	602.34	602.89	602.6	0.2	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	749	741	749	741	749	746.3	4.6	3
pH	(---)	---	---	---	---	---	---	6.95	7.11	6.88	6.88	7.11	7.0	0.1	3
Temperature	(°C)	---	---	---	---	---	---	5.6	7.7	7.6	5.6	7.7	7.0	1.2	3
Select Indicator Parameters															
Calcium	(mg/L)	94.6	94.8	99.7	95.1	87	84	98.6	91.1	93	84	99.7	93.1	5.09	9
Chloride	(mg/L)	4	4	4	3	2	5	3.46	3.02	3.13	2	5	3.5	0.86	9
Fluroide	(mg/L)	0.19	0.13	0.14	0.13	0.2	0.14	0.15	0.109	0.106	0.106	0.2	0.1	0.03	9
Iron	(mg/L)	1.02	1.67	1.81	1.84	<0.06	<0.06	2.02	1.53	1.57	1.02	2.02	1.6	0.32	9
Magnesium	(mg/L)	24.8	26.9	27.3	26.1	23	24	28.4	25.4	23.7	23	28.4	25.5	1.81	9
Manganese	(mg/L)	0.605	0.662	0.7	0.664	0.67	0.66	0.73	0.675	0.694	0.605	0.73	0.7	0.03	9
Potassium	(mg/L)	3.1	2.3	2.9	2.3	2.2	2.4	---	2.68	2.7	2.2	3.1	2.6	0.32	8
Sodium	(mg/L)	40	36	37	33	34	36	38.1	33.3	35	33	40	35.8	2.30	9
Bicarbonate	(mg/L)	444	451	448	445	470	450	453	446	450	444	470	450.8	7.79	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	< 5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	< 5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.003	<0.050	<0.050	<0.050	0.003	0.003	0.0	N/A	9
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	0.003	0.003	0.0	N/A	9
Sulphate	(mg/L)	57.4	61.1	56.8	54.6	60	44	62	57.1	56.2	44	62	56.6	5.30	9
Dissolved Organic Carbon	(mg/L)	3	3	3	3	2	2.3	3	3.4	3.1	2	3.4	2.9	0.43	9
Electrical Conductivity	(µS/cm)	762	760	748	718	770	770	762	768	769	718	770	758.6	16.74	9
Ion Balance	(%)	100	97.6	103	98.6	0.87	93	102	94.9	94.7	0.87	103	87.2	32.54	9
pH	(---)	7.7	7.9	8	7.8	7.8	7.67	8.06	8.04	8	7.67	8.06	7.9	0.15	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	0.002	0.003	0.0	0.00	9
Total Dissolved Solids	(mg/L)	442	447	448	433	442	410	456	432	435	410	456	438.3	13.18	9
Total Alkalinity as $CaCO_3$	(mg/L)	364	370	367	365	390	370	371	366	369	364	390	370.2	7.81	9
Total Hardness as $CaCO_3$	(mg/L)	338	347	361	345	310	310	363	332	330	310	363	337.3	19.20	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	0.02	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	0.0051	< 0.0050	0.0051	0.02	0.0	0.01	9
Antimony	(mg/L)	0.0008	0.0005	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0004	0.0008	0.0	0.00	9
Arsenic	(mg/L)	0.0008	0.0009	0.0009	0.0009	<0.001	0.0008	0.00095	0.00093	0.00088	0.0008	0.00095	0.0	0.00	9
Barium	(mg/L)	0.199	0.143	0.134	0.127	0.11	---	0.132	0.147	0.12	0.11	0.199	0.1	0.03	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
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	0.045	0.054	0.1	0.00	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Chromium	(mg/L)	0.0009	<0.0004	0.0027	0.0011	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.0009	0.0027	0.0	0.00	9
Cobalt	(mg/L)	0.0017	0.0015	0.0008	0.0009	0.0009	0.0008	0.00088	0.00084	0.00068	0.00068	0.0017	0.0	0.00	9
Copper	(mg/L)	<0.0006	0.0007	<0.0006	<0.0006	<0.0002	0.0005	<0.0010	0.0017	< 0.0010	0.0005	0.0017	0.0	0.00	9
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0004	0.0004	0.0	N/A	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	0.000001	0.000001	0.0	N/A	9
Molybdenum	(mg/L)	0.0007	0.0013	0.0004	0.0009	0.0008	0.0004	0.00046	0.00039	0.000423	0.00039	0.0013	0.0	0.00	9
Nickel	(mg/L)	0.0004	0.0012	<0.0001	0.003	0.0027	0.0009	0.0025	<0.0020	< 0.0020	0.0004	0.003	0.0	0.00	9
Selenium	(mg/L)	<0.0004	<0.0004	<0.0004	0.0005	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0005	0.0	N/A	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	0.579	0.551	0.554	0.558	0.53	---	---	---	---	0.53	0.579	0.6	0.02	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.0008	0.0013	0.0	0.00	9
Uranium	(mg/L)	0.0026	0.0023	0.0022	0.0022	0.0024	0.0021	0.00209	0.00205	0.00194	0.00194	0.0026	0.0	0.00	9
Vanadium	(mg/L)	0.0003	0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.00010	0.00016	< 0.00010	0.0001	0.0003	0.0	0.00	9
Zinc	(mg/L)	0.004	<0.002	0.005	<0.002	<0.003	<0.003	<0.0020	0.0074	0.0034	0.0034	0.0074	0.0	0.00	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6

Statistical Tables: MW-02

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	26.26	27.23	27.0	0.3	9
Groundwater Surface Elevation	(m asl)	604.17	604.08	604.26	604.13	604.32	604.18	604.11	605.05	604.15	604.08	605.05	604.3	0.3	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,306	1,397	1023	1023	1397	1242.0	195.0	3
pH	(---)	---	---	---	---	---	---	7.04	7.02	7.49	7.02	7.49	7.2	0.3	3
Temperature	(°C)	---	---	---	---	---	---	4.8	8.3	7.3	4.8	8.3	6.8	1.8	3
Select Indicator Parameters															
Calcium	(mg/L)	113	125	162	154	140	130	147	141	135	113	162	138.6	14.96	9
Chloride	(mg/L)	13	38	23	12	13	18	11.6	22.3	29.6	11.6	38	20.1	9.13	9
Fluroide	(mg/L)	0.21	0.11	0.09	0.09	0.1	0.08	0.094	<0.050	0.061	0.061	0.21	0.1	0.05	9
Iron	(mg/L)	0.275	0.085	3.19	8.72	<0.06	1.5	9.35	9.25	8.07	0.085	9.35	5.1	4.18	9
Magnesium	(mg/L)	34.5	51.3	55.4	54.4	46	44	54	51.3	44.8	34.5	55.4	48.4	6.75	9
Manganese	(mg/L)	0.236	0.671	1.09	0.841	0.7	0.53	0.505	0.434	0.431	0.236	1.09	0.6	0.25	9
Potassium	(mg/L)	6.8	7.2	5.5	4.3	4.5	4.4	---	4.25	5.81	4.25	7.2	5.3	1.18	8
Sodium	(mg/L)	111	120	95	83	83	81	87.2	97.9	82.9	81	120	93.4	13.96	9
Bicarbonate	(mg/L)	514	575	629	630	660	610	597	628	605	514	660	605.3	41.9	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	0.005	0.1	0.053	0.1	9
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	0.005	0.1	0.053	0.1	9
Sulphate	(mg/L)	227	270	274	263	290	230	268	318	321	227	321	273.4	33.0	9
Dissolved Organic Carbon	(mg/L)	8	6	5	6	5	4.1	5.4	11.3	4.9	4.1	11.3	6.2	2.2	9
Electrical Conductivity	(µS/cm)	1210	1400	1420	1360	1400	1400	1290	1,500	1,350	1210	1500	1370.0	82.6	9
Ion Balance	(%)	101	98.4	102	98.7	0.84	89	100	89.1	91	0.84	102	85.6	32.2	9
pH	(---)	7.7	7.9	7.9	7.9	7.4	7.36	7.97	7.9	7.8	7.36	7.97	7.8	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	0.002	0.002	0.002	<0.0010	<0.0010	<0.0011	0.002	0.002	0.002	0.000	9
Total Dissolved Solids	(mg/L)	759	894	925	880	895	810	866	944	826	759	944	866.6	58.7	9
Total Alkalinity as $CaCO_3$	(mg/L)	422	471	516	516	540	500	489	515	496	422	540	496.1	34.0	9
Total Hardness as $CaCO_3$	(mg/L)	424	523	633	609	530	500	589	563	522	424	633	543.7	63.2	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	0.02	0.03	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0106	0.0106	0.03	0.020	0.0097	9
Antimony	(mg/L)	0.001	0.0006	0.0007	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.001	0.001	0.0002	9
Arsenic	(mg/L)	0.0025	0.0014	0.0024	0.0036	0.003	0.0038	0.00369	0.00327	0.00312	0.0014	0.0038	0.003	0.0008	9
Barium	(mg/L)	0.204	0.152	0.107	0.0749	0.04	---	0.0544	0.042	0.0586	0.04	0.204	0.092	0.0590	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Bismuth	(mg/L)	<0.00005	<0.0001	0.00005	<0.00005	---	---	---	---	---	0.00005	0.00005	0.000	N/A	4
Boron	(mg/L)	0.12	0.189	0.152	0.136	0.13	---	0.144	0.135	0.133	0.12	0.189	0.142	0.0211	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Chromium	(mg/L)	0.0013	<0.0004	0.004	<0.0004	0.004	<0.001	<0.0050	<0.0050	< 0.0050	0.0013	0.004	0.003	0.0016	9
Cobalt	(mg/L)	0.0008	0.0031	0.0031	0.0032	0.0026	0.0017	0.00157	0.001	0.00103	0.0008	0.0032	0.002	0.0010	9
Copper	(mg/L)	0.0015	0.0021	0.0011	0.0007	0.0005	0.0002	<0.0010	<0.0010	< 0.0010	0.0002	0.0021	0.001	0.0007	9
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0003	<0.0002	<0.00010	<0.00010	< 0.00010	0.0003	0.0004	0.000	0.0001	9
Mercury	(mg/L)	0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	0.000001	0.0001	0.000	0.0001	9
Molybdenum	(mg/L)	0.0046	0.0148	0.0009	0.0008	0.0006	0.0005	0.00041	0.0004	0.000615	0.0004	0.0148	0.003	0.0048	9
Nickel	(mg/L)	<0.0001	0.0644	0.0012	0.0055	0.0046	0.0019	0.0043	<0.0020	0.0027	0.0012	0.0644	0.012	0.0231	9
Selenium	(mg/L)	0.0008	0.0006	0.0005	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0008	0.001	0.0002	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	1.03	1.54	1.46	1.46	1.3	---	---	---	---	1.03	1.54	1.358	0.2030	5
Thallium	(mg/L)	<0.0005	0.00006	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	0.00006	0.00006	0.000	N/A	9
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	0.00104	0.002	0.001	0.0004	9
Uranium	(mg/L)	0.0032	0.0053	0.0023	0.0019	0.0014	0.0014	0.00139	0.00114	0.00123	0.00114	0.0053	0.002	0.0014	9
Vanadium	(mg/L)	0.0017	0.0005	<0.0001	<0.0001	0.002	<0.001	<0.00010	<0.00010	< 0.00010	0.0005	0.002	0.001	0.0008	9
Zinc	(mg/L)	0.004	<0.002	0.1012	<0.002	<0.003	<0.003	0.0044	0.0025	0.0031	0.0025	0.1012	0.023	0.0437	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6
Statistical Tables: MW-03

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	22.32	23.47	22.7	0.4	9
Groundwater Surface Elevation	(m asl)	601.93	600.96	601.93	601.98	601.07	601.89	601.61	602.11	601.86	600.96	602.11	601.7	0.4	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	974	976	958	958	976	969.3	9.9	3
pH	(---)	---	---	---	---	---	---	7.14	7.08	7.72	7.08	7.72	7.3	0.4	3
Temperature	(°C)	---	---	---	---	---	---	6.6	8.9	8.3	6.6	8.9	7.9	1.2	3
Select Indicator Parameters															
Calcium	(mg/L)	106	104	109	108	98	92	104	115	102	92	115	104.2	6.6	9
Chloride	(mg/L)	31	35	35	36	35	35	44.3	44.2	45.9	31	45.9	37.9	5.4	9
Fluroide	(mg/L)	0.14	0.1	0.1	0.11	0.1	0.11	0.117	0.105	0.08	0.08	0.14	0.1	0.0	9
Iron	(mg/L)	3.19	4.47	4.85	4.89	<0.06	<0.06	5.23	5.55	4.83	3.19	5.55	4.7	0.8	9
Magnesium	(mg/L)	36.1	36.4	36.6	37.7	32	32	36.8	40.1	31.8	31.8	40.1	35.5	2.9	9
Manganese	(mg/L)	0.264	0.239	0.258	0.249	0.25	0.24	0.253	0.277	0.246	0.239	0.277	0.3	0.0	9
Potassium	(mg/L)	3.5	3	3	3	2.7	2.8	---	3.2	3.05	2.7	3.5	3.0	0.2	8
Sodium	(mg/L)	56	54	52	55	49	51	52.3	52.7	48.8	48.8	56	52.3	2.5	9
Bicarbonate	(mg/L)	442	445	439	440	460	430	435	433	434	430	460	439.8	8.9	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.009	<0.050	<0.050	<0.050	0.009	0.009	0.0	N/A	9
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	0.009	0.009	0.0	N/A	9
Sulphate	(mg/L)	113	122	116	122	130	98	124	120	115	98	130	117.8	9.0	9
Dissolved Organic Carbon	(mg/L)	5	4	3	3	3	2.5	5.3	3.3	3.4	2.5	5.3	3.6	1.0	9
Electrical Conductivity	(µS/cm)	937	949	943	930	960	950	967	1,000	988	930	1000	958.2	23.3	9
Ion Balance	(%)	103	98.1	102	102	0.87	95	96.4	105	91.7	0.87	105	88.2	33.0	9
pH	(---)	7.4	7.8	8	8	7.7	7.57	8.03	7.98	7.83	7.4	8.03	7.8	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	0.002	0.003	0.0	0.0	9
Total Dissolved Solids	(mg/L)	563	573	568	578	571	520	579	588	560	520	588	566.7	19.5	9
Total Alkalinity as $CaCO_3$	(mg/L)	362	365	360	361	380	350	357	355	355	350	380	360.6	8.6	9
Total Hardness as $CaCO_3$	(mg/L)	413	410	423	425	370	360	411	452	386	360	452	405.6	28.9	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.01	0.01	0.0	N/A	9
Antimony	(mg/L)	0.0007	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0004	0.0007	0.0	0.0	9
Arsenic	(mg/L)	0.0012	0.0014	0.0013	0.0014	<0.001	0.0013	0.00154	0.00141	0.00132	0.0012	0.00154	0.0	0.0	9
Barium	(mg/L)	0.0744	0.0418	0.0411	0.0379	0.03	---	0.038	0.0389	0.035	0.03	0.0744	0.0	0.0	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.00045	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Bismuth	(mg/L)	<0.00005	0.00009	<0.00005	<0.00005	---	---	---	---	---	0.00009	0.00009	0.0	N/A	4
Boron	(mg/L)	0.128	0.119	0.109	0.115	0.11	---	0.116	0.103	0.088	0.088	0.128	0.1	0.0	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Chromium	(mg/L)	0.0009	<0.0004	0.0029	0.0012	0.002	<0.001	<0.0050	<0.0050	< 0.0050	0.0009	0.0029	0.0	0.0	9
Cobalt	(mg/L)	0.0012	0.0008	0.0008	0.0008	0.0008	0.0006	0.00076	0.00061	0.00062	0.0006	0.0012	0.0	0.0	9
Copper	(mg/L)	<0.0006	0.0008	0.0007	<0.0006	0.0002	0.0007	<0.0010	<0.0010	< 0.0010	0.0002	0.0008	0.0	0.0	9
Lead	(mg/L)	<0.0001	<0.0001	<0.0001	0.0005	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0002	0.0005	0.0	0.0	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	0.00009	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	0.000001	0.00009	0.0	0.0	9
Molybdenum	(mg/L)	0.0008	0.0015	0.0007	0.0029	0.0012	0.0007	0.00079	0.00056	0.000535	0.000535	0.0029	0.0	0.0	9
Nickel	(mg/L)	<0.0001	0.0003	<0.0001	<0.00001	0.0042	0.001	0.0027	<0.0020	< 0.0020	0.0003	0.0042	0.0	0.0	9
Selenium	(mg/L)	<0.0004	0.0005	0.0005	<0.0002	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0005	0.0	0.0	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	0.811	0.828	0.845	0.001	0.82	---	---	---	---	0.001	0.845	0.7	0.4	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	0.0007	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	0.0007	0.0007	0.0	N/A	9
Tin	(mg/L)	<0.0002	<0.0002	<0.0002	0.882	<0.001	<0.001	---	---	---	0.882	0.882	0.9	N/A	6
Titanium	(mg/L)	0.001	0.0019	0.001	<0.00005	0.002	<0.001	0.00079	<0.00030	< 0.00030	0.00079	0.002	0.0	0.0	9
Uranium	(mg/L)	0.0007	0.0007	0.0007	0.0002	0.0006	0.0006	0.00056	0.00058	0.00051	0.0002	0.0007	0.0	0.0	9
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.001	0.001	<0.001	0.00036	<0.00010	< 0.00010	0.00036	0.001	0.0	0.0	9
Zinc	(mg/L)	0.003	<0.002	0.01	<0.002	<0.003	<0.003	<0.0020	<0.0020	< 0.0030	0.003	0.01	0.0	0.0	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	0.0005	0.0005	0.0	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6

Statistical Tables: MW-04

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	18.52	18.87	18.6	0.1	9
Groundwater Surface Elevation	(m asl)	602.2	602.22	602.2	602.24	602.27	602.13	601.92	602.1	602.01	601.92	602.27	602.1	0.1	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,213	1,230	1420	1213	1420	1287.7	114.9	3
pH	(---)	---	---	---	---	---	---	7.14	7.12	7.14	7.12	7.14	7.1	0.0	3
Temperature	(°C)	---	---	---	---	---	---	8.2	8.1	7.8	7.8	8.2	8.0	0.2	3
Select Indicator Parameters															
Calcium	(mg/L)	142	147	147	154	140	140	152	140	141	140	154	144.8	5.45	9
Chloride	(mg/L)	137	157	155	190	200	150	131	125	126	125	200	152.3	27.06	9
Fluroide	(mg/L)	0.15	0.12	0.13	0.14	0.1	0.14	0.129	0.119	0.089	0.089	0.15	0.1	0.02	9
Iron	(mg/L)	0.173	0.104	0.005	<0.005	<0.06	<0.06	0.078	0.028	1.47	0.005	1.47	0.3	0.57	9
Magnesium	(mg/L)	37.7	40	42.7	43.6	35	37	44	41.3	38.1	35	44	39.9	3.18	9
Manganese	(mg/L)	0.152	0.053	0.13	0.009	0.016	0.03	0.258	0.114	0.722	0.009	0.722	0.2	0.22	9
Potassium	(mg/L)	9.9	9.5	10.2	10.4	10	9.4	---	8.78	8.93	8.78	10.4	9.6	0.59	8
Sodium	(mg/L)	57	59	57	68	71	63	63.4	50.7	50.9	50.7	71	60.0	7.02	9
Bicarbonate	(mg/L)	458	449	455	449	460	450	470	482	500	449	500	463.7	17.4	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.8	1.2	0.5	0.5	0.6	0.4	0.09	0.264	<0.050	0.09	1.2	0.544	0.3	9
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	0.09	1.2	0.544	0.3	9
Sulphate	(mg/L)	81.4	87	86.2	84.5	82	74	92.1	88.9	88.2	74	92.1	84.9	5.3	9
Dissolved Organic Carbon	(mg/L)	1	5	4	3	3	2.8	3	3	3.2	1	5	3.1	1.1	9
Electrical Conductivity	(µS/cm)	1200	1280	1280	1360	1400	1200	1220	1,280	1,280	1200	1400	1277.8	68.2	9
Ion Balance	(%)	98.5	98.2	99.4	99.9	0.9	99	107	96.3	92.8	0.9	107	88.0	32.9	9
pH	(---)	7.5	7.8	7.7	7.9	7.7	7.62	8.01	7.95	7.88	7.5	8.01	7.8	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.0010	<0.0010	<0.0010	0.002	0.002	0.002	N/A	9
Total Dissolved Solids	(mg/L)	694	726	724	774	763	690	724	693	699	690	774	720.8	30.8	9
Total Alkalinity as $CaCO_3$	(mg/L)	375	368	373	368	380	370	385	395	409	368	409	380.3	13.9	9
Total Hardness as $CaCO_3$	(mg/L)	510	532	543	564	500	500	561	520	509	500	564	526.6	24.8	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0135	0.0135	0.0135	0.014	N/A	9
Antimony	(mg/L)	0.0009	0.0007	0.0008	<0.0004	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0007	0.0009	0.001	0.0001	9
Arsenic	(mg/L)	0.0011	0.0006	0.0006	0.0008	<0.001	<0.0002	0.00117	<0.00040	0.00054	0.00054	0.00117	0.001	0.0003	9
Barium	(mg/L)	0.0737	0.0809	0.764	0.085	0.08	---	0.0843	0.0832	0.0954	0.0737	0.764	0.168	0.2408	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Bismuth	(mg/L)	<0.00005	0.00007	<0.00005	<0.00005	---	---	---	---	---	0.00007	0.00007	0.000	N/A	4
Boron	(mg/L)	0.101	0.093	0.092	0.1	0.09	---	0.098	0.09	0.086	0.086	0.101	0.094	0.0054	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000024	<0.00010	<0.00010	< 0.00010	0.000024	0.000024	0.000	N/A	9
Chromium	(mg/L)	0.0018	0.0007	0.0017	0.0047	0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.0007	0.0047	0.002	0.0016	9
Cobalt	(mg/L)	0.0007	0.0049	<0.0001	0.0001	<0.0003	<0.0003	0.00054	0.00015	0.00088	0.0001	0.0049	0.001	0.0018	9
Copper	(mg/L)	0.0008	0.0012	0.0009	<0.0006	0.0006	0.0009	<0.0010	<0.0010	< 0.0010	0.0006	0.0012	0.001	0.0002	9
Lead	(mg/L)	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0002	0.0002	0.000	0.0000	9
Mercury	(mg/L)	<0.0001	0.0002	<0.0001	0.0002	<0.00005	0.000003	<0.00010	<0.000020	< 0.000020	0.000003	0.0002	0.000	0.0001	9
Molybdenum	(mg/L)	0.0005	0.003	0.0005	0.0005	0.0006	0.0004	0.00038	0.00038	0.000398	0.00038	0.003	0.001	0.0009	9
Nickel	(mg/L)	<0.0001	0.014	0.0007	0.0042	0.0052	0.0021	0.0047	<0.0020	0.0024	0.0007	0.014	0.005	0.0044	9
Selenium	(mg/L)	0.0006	0.0009	0.001	0.0006	<0.001	<0.0002	0.00106	<0.00040	< 0.00040	0.0006	0.00106	0.001	0.0002	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	0.561	0.616	0.585	0.59	0.61	---	---	---	---	0.561	0.616	0.592	0.0219	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	0.00024	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	0.00024	0.00024	0.000	N/A	9
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	0.0003	0.002	0.001	0.0006	9
Uranium	(mg/L)	0.0029	0.0025	0.0028	0.0027	0.0023	0.0029	0.00284	0.00333	0.00396	0.0023	0.00396	0.003	0.0005	9
Vanadium	(mg/L)	<0.0001	<0.0001	0.0022	0.0009	<0.001	<0.001	0.00072	<0.00010	< 0.00010	0.00072	0.0022	0.001	0.0008	9
Zinc	(mg/L)	0.004	0.029	0.005	0.005	<0.003	<0.003	<0.0020	<0.0020	< 0.0030	0.004	0.029	0.011	0.0122	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
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	0.0	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
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	0.0	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6
Statistical Tables: MW-05

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	25.32	26.77	25.7	0.5	8
Groundwater Surface Elevation	(m asl)	599.57	598.12	599.19	599.37	599.55	599.28	598.97	599.31	599.18	598.12	599.57	599.2	0.5	8
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	985	1,070	982	985	1070	1027.5	60.1	2
pH	(---)	---	---	---	---	---	---	7.08	7.06	7.28	7.06	7.08	7.1	0.0	2
Temperature	(°C)	---	---	---	---	---	---	7.6	8.3	9.7	7.6	8.3	8.0	0.5	2
Select Indicator Parameters															
Calcium	(mg/L)	96.2	98.6	107	110	100	120	120	105	112	96.2	120	107.1	9.16	8
Chloride	(mg/L)	15	21	22	25	22	30	30.6	30.9	33.7	15	30.9	24.6	5.65	8
Fluroide	(mg/L)	0.18	0.11	0.11	0.11	0.1	0.12	0.107	0.075	0.061	0.075	0.18	0.1	0.03	8
Iron	(mg/L)	1.14	3.31	3.48	4	<0.06	<0.06	3.39	3.82	3.83	1.14	4	3.2	1.04	8
Magnesium	(mg/L)	27.5	30.1	33.5	34.3	30	34	36.7	32.7	31.3	27.5	36.7	32.4	2.95	8
Manganese	(mg/L)	0.402	0.531	0.583	0.682	0.66	0.72	0.758	0.657	0.707	0.402	0.758	0.6	0.11	8
Potassium	(mg/L)	6.1	6.9	7.6	7.3	7.4	7.6	---	7.29	8	6.1	7.6	7.2	0.53	7
Sodium	(mg/L)	51	43	44	42	41	43	46.1	41.7	42.6	41	51	44.0	3.24	8
Bicarbonate	(mg/L)	403	422	421	426	440	420	428	433	442	403	440	424.1	10.9	8
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.1	N/A	N/A	N/A	N/A	8
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<05	<06	N/A	N/A	N/A	N/A	8
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<5.0	<5.1	N/A	N/A	N/A	N/A	8
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.007	<0.050	<0.050	<0.050	0.007	0.007	0.007	N/A	8
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	0.007	0.007	0.007	N/A	8
Sulphate	(mg/L)	105	115	124	135	150	130	144	141	138	105	150	130.5	15.2	8
Dissolved Organic Carbon	(mg/L)	5	4	4	4	3	2.5	3.3	4.4	6.9	2.5	5	3.8	0.8	8
Electrical Conductivity	(µS/cm)	831	881	902	931	930	960	969	990	1000	831	990	924.3	51.7	8
Ion Balance	(%)	103	95.4	101	98.5	0.88	100	103	91.1	92.3	0.88	103	86.6	34.9	8
pH	(---)	7.6	7.9	7.7	8.1	7.6	7.58	7.95	8.05	7.93	7.58	8.1	7.8	0.2	8
Phenols	(mg/L)	<0.001	<0.001	<0.001	0.002	<0.001	0.003	<0.0010	<0.0010	<0.0010	0.002	0.003	0.003	0.001	8
Total Dissolved Solids	(mg/L)	499	522	545	563	566	570	596	572	583	499	596	554.1	30.9	8
Total Alkalinity as $CaCO_3$	(mg/L)	330	346	345	349	360	350	351	355	362	330	360	348.3	8.8	8
Total Hardness as $CaCO_3$	(mg/L)	353	370	405	416	380	430	451	397	409	353	451	400.3	32.3	8
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	N/A	N/A	N/A	N/A	8
Antimony	(mg/L)	0.0008	0.0005	0.0007	0.0005	<0.0002	<0.0002	0.00052	<0.00040	< 0.00040	0.0005	0.0008	0.001	0.0001	8
Arsenic	(mg/L)	0.0035	0.0081	0.0051	0.0018	0.001	0.0014	0.0017	0.00159	0.00107	0.001	0.0081	0.003	0.0025	8
Barium	(mg/L)	0.0618	0.0564	0.454	0.0455	0.04	---	0.0478	0.0552	0.0455	0.04	0.454	0.109	0.1525	7
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	8
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	0.00006	0.00006	0.000	N/A	4
Boron	(mg/L)	0.14	0.116	0.081	0.052	0.06	---	0.064	0.052	< 0.050	0.052	0.14	0.081	0.0344	7
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	8
Chromium	(mg/L)	0.0009	<0.0004	0.0016	0.0005	0.003	<0.001	<0.0050	<0.0050	< 0.0050	0.0005	0.003	0.002	0.0011	8
Cobalt	(mg/L)	0.0008	0.001	0.0007	0.0008	0.0007	0.0007	0.00082	0.00075	0.00067	0.0007	0.001	0.001	0.0001	8
Copper	(mg/L)	<0.0006	0.0007	0.0006	0.0009	<0.0002	0.0008	<0.0010	<0.0010	< 0.0010	0.0006	0.0009	0.001	0.0001	8
Lead	(mg/L)	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0002	0.0002	0.000	0.0000	8
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	0.000001	0.000001	0.000	N/A	8
Molybdenum	(mg/L)	0.0022	0.0029	0.0013	0.0006	0.0005	0.0006	0.00063	0.00042	0.000321	0.00042	0.0029	0.001	0.0009	8
Nickel	(mg/L)	<0.0001	0.0022	0.0002	0.0034	0.0029	0.0014	0.0039	<0.0020	< 0.0020	0.0002	0.0039	0.002	0.0014	8
Selenium	(mg/L)	0.0004	0.0004	<0.0004	0.0005	<0.001	<0.0002	0.00086	<0.00040	< 0.00040	0.0004	0.00086	0.001	0.0002	8
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	8
Strontium	(mg/L)	0.71	0.667	0.659	0.684	0.63	---	---	---	---	0.63	0.71	0.670	0.0297	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	8
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	0.0005	0.002	0.001	0.0005	8
Uranium	(mg/L)	0.0014	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.00066	0.00063	0.00066	0.0014	0.001	0.0002	8
Vanadium	(mg/L)	0.0002	0.0001	0.0008	<0.0001	0.001	<0.001	0.00017	<0.00010	< 0.00010	0.0001	0.001	0.000	0.0004	8
Zinc	(mg/L)	0.003	<0.002	0.004	0.005	<0.003	<0.003	0.0025	<0.0020	< 0.0030	0.0025	0.005	0.004	0.0011	8
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	8
Toluene	(mg/L)	<0.0005	<0.0005	0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	0.0005	0.0005	0.0	N/A	8
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	8
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	8
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	N/A	N/A	N/A	N/A	8
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	N/A	N/A	N/A	N/A	8
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	N/A	N/A	N/A	N/A	8

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

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Appendix 6
Statistical Tables: MW-06

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	31.97	32.76	32.2	0.2	9
Groundwater Surface Elevation	(m asl)	598.11	598.11	597.52	598.15	598.31	598.29	598.04	598.18	598.20	597.52	598.31	598.1	0.2	9
Field-Measured Parameters											N/A	N/A	N/A	N/A	0
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,773	1,762	1699	1699	1773	1744.7	39.9	3
pH	(---)	---	---	---	---	---	---	7.21	7.22	7.29	7.21	7.29	7.2	0.0	3
Temperature	(°C)	---	---	---	---	---	---	5.7	11.1	7.6	5.7	11.1	8.1	2.7	3
Select Indicator Parameters															
Calcium	(mg/L)	171	148	168	157	160	180	156	164	167	148	180	163.4	9.4	9
Chloride	(mg/L)	4	13	10	10	3	6	8.45	3.45	2.95	2.95	13	6.8	3.7	9
Fluroide	(mg/L)	0.18	0.15	0.14	0.17	0.2	0.14	0.173	0.129	0.128	0.128	0.2	0.2	0.0	9
Iron	(mg/L)	2.92	2.96	3.58	4.5	<0.06	5.7	5.38	5.55	6.02	2.92	6.02	4.6	1.3	9
Magnesium	(mg/L)	58.9	52	57.7	55.3	54	62	57.1	60.4	56.5	52	62	57.1	3.1	9
Manganese	(mg/L)	1.32	0.943	1.01	1.28	1.5	1.7	1.39	1.64	1.7	0.943	1.7	1.4	0.3	9
Potassium	(mg/L)	6.1	5	5.5	4.8	5	5.5	---	5.02	5.8	4.8	6.1	5.3	0.5	8
Sodium	(mg/L)	138	211	190	182	140	150	194	123	139	123	211	163.0	31.3	9
Bicarbonate	(mg/L)	560	641	633	637	630	590	626	603	602	560	641	613.6	26.9	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	<0.1	<0.1	<0.1	<0.1	<0.2	0.004	<0.050	<0.050	<0.050	0.004	0.004	0.0	N/A	9
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	0.004	0.004	0.0	N/A	9
Sulphate	(mg/L)	451	471	482	478	560	420	520	501	494	420	560	486.3	40.0	9
Dissolved Organic Carbon	(mg/L)	5	8	7	7	6	5.1	6.7	8	6.8	5	8	6.6	1.1	9
Electrical Conductivity	(µS/cm)	1580	1780	1700	1760	1700	1700	1770	1,780	1730	1580	1780	1722.2	63.4	9
Ion Balance	(%)	105	101	104	99.4	0.85	110	98.8	91.3	94.7	0.85	110	89.5	33.7	9
pH	(---)	7.5	8	7.7	7.9	7.7	7.47	8.06	7.96	7.81	7.47	8.06	7.8	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	0.002	0.003	0.0	0.0	9
Total Dissolved Solids	(mg/L)	1,100	1,220	1,220	1,200	1,230	1,100	1,250	1,150	1160	1100	1250	1181.1	56.0	9
Total Alkalinity as $CaCO_3$	(mg/L)	459	526	519	522	510	490	513	494	493	459	526	502.9	21.2	9
Total Hardness as $CaCO_3$	(mg/L)	670	584	657	620	620	710	625	658	650	584	710	643.8	36.3	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	0.0288	0.0104	0.01	0.0288	0.0	0.0	9
Antimony	(mg/L)	0.0009	0.0005	0.0009	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0009	0.0	0.0	9
Arsenic	(mg/L)	0.0042	0.0038	0.0034	0.0042	0.003	0.005	0.00507	0.0057	0.00525	0.003	0.0057	0.0	0.0	9
Barium	(mg/L)	0.071	0.0557	0.0666	0.043	0.03	---	0.0353	0.0309	0.0265	0.0265	0.071	0.0	0.0	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	0.00006	0.00006	0.0	N/A	4
Boron	(mg/L)	0.148	0.16	0.149	0.159	0.13	---	0.15	0.138	0.122	0.122	0.16	0.1	0.0	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000009	<0.00010	<0.00010	< 0.00010	0.000009	0.000009	0.0	N/A	9
Chromium	(mg/L)	0.0035	<0.0004	0.0015	0.0014	0.002	<0.001	<0.0050	<0.0050	< 0.0050	0.0014	0.0035	0.0	0.0	9
Cobalt	(mg/L)	0.0012	0.0012	0.0007	0.0009	0.0008	0.0004	0.00052	0.00036	0.0003	0.0003	0.0012	0.0	0.0	9
Copper	(mg/L)	0.0011	0.0012	0.0014	0.0014	0.0011	<0.0002	0.0012	<0.0010	< 0.0010	0.0011	0.0014	0.0	0.0	9
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0002	0.0004	0.0	0.0	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	N/A	N/A	N/A	N/A	9
Molybdenum	(mg/L)	0.0014	0.0015	0.0014	0.0016	0.0012	0.001	0.00094	0.0008	0.000878	0.0008	0.0016	0.0	0.0	9
Nickel	(mg/L)	<0.0001	0.0004	<0.0001	0.006	0.0052	0.0015	0.0039	<0.0020	< 0.0020	0.0004	0.006	0.0	0.0	9
Selenium	(mg/L)	0.0005	0.0005	0.0007	<0.0004	<0.001	<0.0002	0.00041	<0.00040	< 0.00040	0.00041	0.0007	0.0	0.0	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.00021	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	1.2	1.26	1.28	1.42	1.4	---	---	---	---	1.2	1.42	1.3	0.1	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.0005	<0.0005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.00063	0.002	0.0	0.0	9
Uranium	(mg/L)	0.0023	0.0015	0.0016	0.0016	0.0018	0.0017	0.00146	0.0018	0.00173	0.00146	0.0023	0.0	0.0	9
Vanadium	(mg/L)	0.0002	0.0001	<0.001	<0.0001	0.001	<0.001	0.00016	0.00016	< 0.00010	0.0001	0.001	0.0	0.0	9
Zinc	(mg/L)	0.004	<0.002	0.008	0.003	<0.003	<0.003	0.0063	<0.0020	0.0036	0.003	0.008	0.0	0.0	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6

Statistical Tables: MW-07

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	July 2011	Spring 2012	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	33.78	34.6	34.1	0.3	10
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	596.41	597.23	596.9	0.3	10
Field-Measured Parameters																
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	2,640	---	2,680	2540	2540	2680	2620.0	72.1	3
pH	(---)	---	---	---	---	---	---	6.91	---	7.11	7.04	6.91	7.11	7.0	0.1	3
Temperature	(°C)	---	---	---	---	---	---	7.2	---	7.2	8.1	7.2	8.1	7.5	0.5	3
Select Indicator Parameters																
Calcium	(mg/L)	287	270	284	257	220	330	262	---	256	247	220	330	268.1	30.6	9
Chloride	(mg/L)	13	16	15	12	9	18	13.2	---	11.8	12.6	9	18	13.4	2.6	9
Fluroide	(mg/L)	0.11	0.08	0.07	0.09	0.1	0.08	0.135	---	0.128	0.093	0.07	0.135	0.10	0.02	9
Iron	(mg/L)	10.4	10.9	<0.005	10.9	<0.06	14	12.5	---	11.7	11.3	10.4	14	11.7	1.2	9
Magnesium	(mg/L)	100	94.8	96.4	89.8	72	110	93.5	---	87.9	80.4	72	110	91.6	11.0	9
Manganese	(mg/L)	1.88	1.83	1.86	1.78	1.6	2.3	1.9	---	1.84	1.79	1.6	2.3	1.9	0.2	9
Potassium	(mg/L)	6.6	5.5	6.2	4.6	5.1	6.6	---	---	5.55	6.96	4.6	6.96	5.9	0.8	8
Sodium	(mg/L)	287	268	269	248	230	320	274	---	245	245	230	320	265.1	27.2	9
Bicarbonate	(mg/L)	664	666	661	641	660	730	657	---	659	648	641	730	665.1	25.6	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	---	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	---	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	---	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	0.1	<0.1	<0.2	0.004	<0.050	---	<0.050	<0.050	0.004	0.1	0.1	0.1	9
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	0.004	0.1	0.1	0.1	9
Sulphate	(mg/L)	1,130	1,010	1,010	940	1,000	1,200	1,040	---	1,020	949	940	1200	1033.2	83.2	9
Dissolved Organic Carbon	(mg/L)	5	6	6	6	6	6.6	5.8	---	6.3	6	5	6.6	6.0	0.4	9
Electrical Conductivity	(µS/cm)	2680	2670	2530	2290	2500	3000	2600	---	2670	17	17	3000	2328.6	887.1	9
Ion Balance	(%)	102	102	105	103	0.84	110	100	---	95.2	96.9	0.84	110	90.5	33.9	9
pH	(---)	7.5	7.7	7.5	7.6	7.5	7.19	7.9	---	7.98	7.71	7.19	7.98	7.6	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	---	<0.0010	<0.0011	0.002	0.003	0.003	0.001	9
Total Dissolved Solids	(mg/L)	2,150	1,990	2,010	1,870	1,890	2,400	2,010	---	1,950	1,860	1860	2400	2014.4	170.3	9
Total Alkalinity as $CaCO_3$	(mg/L)	544	546	542	526	540	600	538	---	540	531	526	600	545.2	21.5	9
Total Hardness as $CaCO_3$	(mg/L)	1130	1060	1110	1010	850	1300	1040	---	1000	948	850	1300	1049.8	126.1	9
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	0.0116	0.0116	0.0	N/A	10
Antimony	(mg/L)	0.0008	0.0007	0.0007	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	<0.00040	< 0.00040	0.0005	0.0008	0.001	0.0001	10
Arsenic	(mg/L)	0.0017	0.0019	0.0022	0.0027	0.001	0.0021	0.00361	0.0057	0.00333	0.00376	0.001	0.0057	0.003	0.001	10
Barium	(mg/L)	0.0733	0.053	0.0543	0.0596	0.04	---	0.049	0.0954	0.0483	0.0544	0.04	0.0954	0.059	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	0.00005	<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	0.215	0.366	0.282	0.045	9
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000016	<0.00010	<0.00010	<0.00010	< 0.00010	0.000016	0.000016	0.00002	N/A	10
Chromium	(mg/L)	0.0017	<0.0004	0.0018	0.0011	0.004	<0.001	<0.0050	<0.0050	<0.0050	< 0.0050	0.0011	0.004	0.002	0.001	10
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	0.0026	0.001	0.001	10
Copper	(mg/L)	0.0024	0.0018	0.0023	0.0015	0.0016	0.0007	0.0014	<0.0010	<0.0010	< 0.0010	0.0007	0.0024	0.002	0.001	10
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0003	<0.0002	<0.00010	<0.00010	<0.00010	< 0.00010	0.0003	0.0004	0.0004	0.0001	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)	0.001	0.001	0.0008	0.0012	0.0011	0.0004	0.00097	0.0151	0.000781	0.000974	0.0004	0.0151	0.002	0.0045	10
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0056	0.0059	0.0024	0.0056	0.0021	<0.0020	0.0026	0.0021	0.0059	0.004	0.002	10
Selenium	(mg/L)	0.0008	<0.0004	0.0007	0.0008	<0.001	<0.0002	0.00127	<0.00040	<0.00040	< 0.00040	0.0007	0.00127	0.001	0.0003	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)	2.49	2.45	2.58	2.49	2.2	---	---	---	---	---	2.2	2.58	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	0.000	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	0.0003	0.002	0.001	0.0005	10
Uranium	(mg/L)	0.0018	0.0017	0.0017	0.0016	0.0014	0.0016	0.00156	0.00138	0.00152	0.00143	0.00138	0.0018	0.002	0.0001	10
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	0.002	<0.001	<0.00010	<0.00010	<0.00010	< 0.00010	0.002	0.002	0.002	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	0.002	0.006	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	<0.001	< 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. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*
4. *Routine Parameters from Spring 2011 have been determined to be anomlous and have not been included in the statistical analysis.*

Appendix 6
Statistical Tables: MW-08

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	27.57	27.83	27.7	0.1	9
Groundwater Surface Elevation	(m asl)	598.7	598.7	598.86	598.72	598.87	598.81	598.61	598.72	598.75	598.61	598.87	598.7	0.1	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,359	1,378	1363	1359	1378	1366.7	10.0	3
pH	(---)	---	---	---	---	---	---	7.09	7.41	7.31	7.09	7.41	7.3	0.2	3
Temperature	(°C)	---	---	---	---	---	---	5.4	9.0	7.3	5.4	9	7.2	1.8	3
Select Indicator Parameters															
Calcium	(mg/L)	147	133	161	150	130	150	146	136	135	130	161	143.1	10.18	9
Chloride	(mg/L)	3	4	3	2	2	3	1.43	0.97	0.86	0.86	4	2.3	1.07	9
Fluroide	(mg/L)	0.13	0.11	0.09	0.08	0.1	0.11	0.13	0.082	0.084	0.08	0.13	0.1	0.02	9
Iron	(mg/L)	5.66	5.16	6.97	7.29	<0.06	<0.06	7.22	5.41	6.69	5.16	7.29	6.3	0.91	9
Magnesium	(mg/L)	45	37.4	44.2	42.9	36	40	43.2	38.3	35	35	45	40.2	3.73	9
Manganese	(mg/L)	0.474	0.384	0.481	0.454	0.44	0.45	0.47	0.411	0.409	0.384	0.481	0.4	0.03	9
Potassium	(mg/L)	6	5.2	6.1	5	5.4	5.6	---	5.12	5.69	5	6.1	5.5	0.41	8
Sodium	(mg/L)	137	112	132	115	120	110	122	98	107	98	137	117.0	12.24	9
Bicarbonate	(mg/L)	593	549	594	583	630	560	558	565	560	549	630	576.9	25.6	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.007	<0.050	<0.050	<0.050	0.007	0.1	0.054	0.1	9
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	0.007	0.1	0.054	0.1	9
Sulphate	(mg/L)	369	300	341	316	370	300	333	320	308	300	370	328.6	27.0	9
Dissolved Organic Carbon	(mg/L)	5	6	6	7	5	5.3	5.3	10.3	5.7	5	10.3	6.2	1.7	9
Electrical Conductivity	(µS/cm)	1470	1310	1240	1390	1400	1400	1360	1400	1360	1240	1470	1370.0	65.0	9
Ion Balance	(%)	98.8	95.9	104	100	0.84	100	101	89.8	92.3	0.84	104	87.0	32.6	9
pH	(---)	7.7	7.5	7.7	7.9	7.7	7.62	8.04	7.95	7.93	7.5	8.04	7.8	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.001	0.002	<0.0010	0.0016	<0.0010	0.001	0.002	0.002	0.001	9
Total Dissolved Solids	(mg/L)	999	862	980	918	977	880	927	876	867	862	999	920.7	53.4	9
Total Alkalinity as $CaCO_3$	(mg/L)	486	450	487	478	520	450	458	463	459	450	520	472.3	22.8	9
Total Hardness as $CaCO_3$	(mg/L)	552	486	584	551	480	530	542	497	481	480	584	522.6	37.8	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0104	0.0104	0.0104	0.010	N/A	9
Antimony	(mg/L)	0.0006	0.0005	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0006	0.001	0.0001	9
Arsenic	(mg/L)	0.0042	0.0046	0.0044	0.0052	0.002	0.0062	0.00672	0.00667	0.006	0.002	0.00672	0.005	0.0015	9
Barium	(mg/L)	0.084	0.115	0.0629	0.0519	0.03	---	0.0675	0.0614	0.0499	0.03	0.115	0.065	0.0254	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Bismuth	(mg/L)	<0.00005	0.00009	<0.00005	<0.00005	---	---	---	---	---	0.00009	0.00009	0.000	N/A	4
Boron	(mg/L)	0.244	0.184	0.206	0.176	0.17	---	0.179	0.18	0.154	0.154	0.244	0.187	0.0273	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.000005	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Chromium	(mg/L)	0.0011	0.0005	0.0012	0.0016	0.003	<0.001	<0.0050	<0.0050	< 0.0050	0.0005	0.003	0.001	0.0009	9
Cobalt	(mg/L)	0.0008	0.0009	0.0004	0.0005	0.0004	<0.0003	0.00035	0.00036	0.00018	0.00018	0.0009	0.000	0.0002	9
Copper	(mg/L)	0.001	0.001	0.0011	0.0012	0.0006	0.0016	<0.0010	<0.0010	< 0.0010	0.0006	0.0016	0.001	0.0003	9
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0002	0.0004	0.000	0.0001	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	N/A	N/A	N/A	N/A	9
Molybdenum	(mg/L)	0.0012	0.0025	0.0011	0.0016	0.0014	0.002	0.00168	0.00154	0.00137	0.0011	0.0025	0.002	0.0004	9
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0031	0.0036	0.0017	0.0027	0.0025	< 0.0020	0.0017	0.0036	0.003	0.0007	9
Selenium	(mg/L)	0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	0.00159	< 0.00040	0.0004	0.00159	0.001	0.0007	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	1.4	1.27	1.45	1.59	1.4	---	---	---	---	1.27	1.59	1.422	0.1152	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.0008	0.002	0.001	0.0004	9
Uranium	(mg/L)	0.0011	0.0015	0.0009	0.0008	0.0008	0.0007	0.00072	0.0008	0.00069	0.00069	0.0015	0.001	0.0003	9
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	0.001	<0.001	0.00017	0.00018	< 0.00010	0.00017	0.001	0.000	0.0004	9
Zinc	(mg/L)	0.003	<0.002	0.006	0.004	<0.003	<0.003	0.0163	0.0116	0.0042	0.003	0.0163	0.008	0.0053	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

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Appendix 6
Statistical Tables: MW-09

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2010	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	28.25	28.61	28.4	0.1	9
Groundwater Surface Elevation	(m asl)	596.32	596.25	596.46	596.38	596.39	596.46	596.12	596.48	596.36	596.12	596.48	596.4	0.1	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,538	1,548	1507	1507	1548	1531.0	21.4	3
pH	(---)	---	---	---	---	---	---	7.35	7.49	7.43	7.35	7.49	7.4	0.1	3
Temperature	(°C)	---	---	---	---	---	---	6.8	9.1	7.7	6.8	9.1	7.9	1.2	3
Select Indicator Parameters															
Calcium	(mg/L)	71.6	92.6	98.1	94.9	83	97	93.1	87.4	88.3	71.6	98.1	89.6	8.29	9
Chloride	(mg/L)	5	7	7	6	4	6	5.57	5.84	4.82	4	7	5.7	0.98	9
Fluroide	(mg/L)	0.29	0.22	0.23	0.21	0.2	0.22	0.251	<0.050	0.184	0.184	0.29	0.2	0.03	9
Iron	(mg/L)	1.11	1.4	1.44	1.74	<0.06	1.9	2.04	1.46	1.89	1.11	2.04	1.6	0.32	9
Magnesium	(mg/L)	26	27.3	27.7	27.6	22	27	27.8	25.2	23.7	22	27.8	26.0	2.04	9
Manganese	(mg/L)	0.714	0.752	0.797	0.785	0.77	0.86	0.828	0.754	0.784	0.714	0.86	0.8	0.04	9
Potassium	(mg/L)	4.2	3.9	3.9	3.3	3.5	4.1	---	4.09	4.22	3.3	4.22	3.9	0.34	8
Sodium	(mg/L)	226	227	231	231	230	240	240	212	226	212	240	229.2	8.38	9
Bicarbonate	(mg/L)	626	640	644	656	670	630	639	646	643	626	670	643.8	13.2	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	0.005	0.1	0.053	0.1	9
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	0.005	0.1	0.053	0.1	9
Sulphate	(mg/L)	313	312	316	322	350	330	342	325	319	312	350	325.4	13.1	9
Dissolved Organic Carbon	(mg/L)	5	6	8	7	9	5.5	5.6	8	6	5	9	6.7	1.4	9
Electrical Conductivity	(µS/cm)	1520	1550	1520	1530	1500	1500	1540	1580	1550	1500	1580	1532.2	25.9	9
Ion Balance	(%)	93.2	98	99.9	97.9	0.86	100	98.4	90	94.1	0.86	100	85.8	32.0	9
pH	(---)	7.9	8.1	7.9	8.1	8	7.73	8.17	8.17	8.04	7.73	8.17	8.0	0.1	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	<0.0010	0.002	0.003	0.003	0.001	9
Total Dissolved Solids	(mg/L)	954	984	1,000	1,010	1,020	1,000	1,030	978	982	954	1030	995.3	23.4	9
Total Alkalinity as $CaCO_3$	(mg/L)	513	524	528	538	550	520	524	530	527	513	550	528.2	10.7	9
Total Hardness as $CaCO_3$	(mg/L)	286	344	359	351	300	350	347	322	318	286	359	330.8	25.5	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	0.14	0.02	<0.01	<0.01	<0.001	0.1	<0.0050	<0.0050	0.0112	0.0112	0.14	0.068	0.0626	9
Antimony	(mg/L)	0.0007	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0004	0.0007	0.001	0.0001	9
Arsenic	(mg/L)	0.0019	0.0018	0.0018	0.002	0.002	0.0023	0.00255	0.0028	0.00234	0.0018	0.0028	0.002	0.0004	9
Barium	(mg/L)	0.0608	0.052	0.0389	0.0302	0.02	---	0.025	0.0294	0.0209	0.02	0.0608	0.035	0.0149	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
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	0.226	0.339	0.274	0.0337	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000008	<0.00010	<0.00010	< 0.00010	0.000008	0.000008	0.000	N/A	9
Chromium	(mg/L)	0.0016	0.0006	0.0013	0.0016	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.0006	0.0016	0.001	0.0005	9
Cobalt	(mg/L)	0.0011	0.0023	0.0011	0.0009	0.0009	0.0008	0.00085	0.00128	0.0008	0.0008	0.0023	0.001	0.0005	9
Copper	(mg/L)	0.001	0.0011	0.0012	0.0008	0.0008	0.0003	<0.0010	<0.0010	< 0.0010	0.0003	0.0012	0.001	0.0003	9
Lead	(mg/L)	0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0001	0.0001	0.000	N/A	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	N/A	N/A	N/A	N/A	9
Molybdenum	(mg/L)	0.0019	0.0038	0.0015	0.0017	0.0018	0.0016	0.00158	0.00156	0.00143	0.00143	0.0038	0.002	0.0007	9
Nickel	(mg/L)	0.0002	0.0087	<0.0001	0.003	0.0023	0.0017	0.0027	<0.0020	< 0.0020	0.0002	0.0087	0.003	0.0029	9
Selenium	(mg/L)	<0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0005	0.001	N/A	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	0.00013	< 0.00010	0.00013	0.00013	0.000	N/A	9
Strontium	(mg/L)	0.843	0.869	0.861	0.961	0.81	---	---	---	---	0.81	0.961	0.869	0.0563	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.00078	0.0058	0.003	0.0021	9
Uranium	(mg/L)	0.0019	0.0015	0.0014	0.0014	0.0014	0.0012	0.00121	0.00132	0.00121	0.0012	0.0019	0.001	0.0002	9
Vanadium	(mg/L)	0.0005	0.0002	<0.0001	0.0005	<0.001	<0.001	<0.00010	0.00012	< 0.00010	0.00012	0.0005	0.000	0.0002	9
Zinc	(mg/L)	0.003	<0.002	0.005	<0.002	0.003	<0.003	<0.0020	0.002	0.003	0.002	0.005	0.003	0.0011	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	0.3	0.3	0.3	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6

Statistical Tables: MW-10

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	26.7	26.93	26.8	0.1	9
Groundwater Surface Elevation	(m asl)	597.78	597.77	597.95	597.8	597.93	597.95	597.74	597.97	597.81	597.74	597.97	597.9	0.1	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---		1,192	1267	1192	1267	1229.5	53.0	2
pH	(---)	---	---	---	---	---	---		7.36	7.29	7.29	7.36	7.3	0.0	2
Temperature	(°C)	---	---	---	---	---	---		9.1	7.4	7.4	9.1	8.3	1.2	2
Select Indicator Parameters															
Calcium	(mg/L)	131	129	139	132	120	140	139	113	127	113	140	130.0	9.12	9
Chloride	(mg/L)	<1	3	2	2	<1	2	0.73	1.19	0.53	0.53	3	1.6	0.87	9
Fluroide	(mg/L)	0.18	0.12	0.13	0.12	0.2	0.14	0.169	<0.050	0.113	0.113	0.2	0.1	0.03	9
Iron	(mg/L)	5.29	5.49	5.89	5.93	<0.06	5.9	6.8	3.89	5.98	3.89	6.8	5.6	0.84	9
Magnesium	(mg/L)	36.1	35.2	37.8	36.9	29	36	39.1	30.2	31.6	29	39.1	34.7	3.54	9
Manganese	(mg/L)	0.639	0.642	0.67	0.656	0.64	0.71	0.735	0.566	0.655	0.566	0.735	0.7	0.05	9
Potassium	(mg/L)	5.3	5	5.6	4.7	4.8	5.6	---	5.58	5.79	4.7	5.79	5.3	0.41	8
Sodium	(mg/L)	117	108	119	110	110	120	124	105	111	105	124	113.8	6.40	9
Bicarbonate	(mg/L)	628	634	641	651	660	620	633	607	639	607	660	634.8	15.8	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	0.005	0.1	0.053	0.1	9
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	0.005	0.1	0.053	0.1	9
Sulphate	(mg/L)	221	222	212	208	230	190	227	206	211	190	230	214.1	12.4	9
Dissolved Organic Carbon	(mg/L)	5	6	6	5	5	4.7	5.1	6.7	5.9	4.7	6.7	5.5	0.7	9
Electrical Conductivity	(µS/cm)	1270	1260	1120	1270	1300	1300	1270	1260	1290	1120	1300	1260.0	54.8	9
Ion Balance	(%)	99.7	93.8	103	97.2	0.84	110	104	89.9	93.5	0.84	110	88.0	33.3	9
pH	(---)	7.7	7.5	7.7	8	7.8	7.51	8.07	8.04	7.89	7.5	8.07	7.8	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.0010	0.0018	<0.0010	0.0018	0.002	0.002	0.000	9
Total Dissolved Solids	(mg/L)	819	814	831	814	822	800	847	759	801	759	847	811.9	24.5	9
Total Alkalinity as $CaCO_3$	(mg/L)	514	520	525	533	540	510	519	497	524	497	540	520.2	12.6	9
Total Hardness as $CaCO_3$	(mg/L)	476	467	503	482	410	490	508	407	447	407	508	465.6	37.2	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0139	0.0139	0.0139	0.014	N/A	9
Antimony	(mg/L)	0.0007	0.0006	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0007	0.001	0.0001	9
Arsenic	(mg/L)	0.003	0.0037	0.0036	0.0039	0.002	0.0044	0.00459	0.00287	0.0042	0.002	0.00459	0.004	0.0008	9
Barium	(mg/L)	0.0296	0.0331	0.0319	0.0291	0.02	---	0.029	0.0321	0.0273	0.02	0.0331	0.029	0.0041	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
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	0.15	0.209	0.178	0.0203	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000007	<0.00010	<0.00010	< 0.00010	0.000007	0.000007	0.000	N/A	9
Chromium	(mg/L)	0.0012	<0.0004	0.0011	0.0015	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.0011	0.0015	0.001	0.0002	9
Cobalt	(mg/L)	0.0003	0.0005	0.0003	0.0004	0.0005	<0.0003	0.00044	0.00031	0.00032	0.0003	0.0005	0.000	0.0001	9
Copper	(mg/L)	0.0007	0.0009	0.0009	0.0008	0.0006	0.0006	0.0015	<0.0010	< 0.0010	0.0006	0.0015	0.001	0.0003	9
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0004	0.0004	0.000	N/A	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.000001	<0.00010	<0.000020	< 0.000020	N/A	N/A	N/A	N/A	9
Molybdenum	(mg/L)	0.0009	0.001	0.0009	0.0009	0.0011	0.0009	0.00097	0.00481	0.000884	0.000884	0.00481	0.001	0.0013	9
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.003	0.0029	0.001	0.0029	<0.0020	< 0.0020	0.001	0.003	0.002	0.0010	9
Selenium	(mg/L)	<0.0004	0.0006	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	0.0006	0.0006	0.001	N/A	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	1.29	1.43	1.41	1.55	1.3	---	---	---	---	1.29	1.55	1.396	0.1067	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.0007	0.002	0.001	0.0005	9
Uranium	(mg/L)	0.0019	0.0015	0.0014	0.0013	0.0014	0.0011	0.00115	0.00133	0.00113	0.0011	0.0019	0.001	0.0002	9
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	0.00021	< 0.00010	0.00021	0.0004	0.000	0.0001	9
Zinc	(mg/L)	0.003	<0.002	0.009	0.015	<0.003	<0.003	0.0023	0.003	< 0.0030	0.0023	0.015	0.006	0.0055	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6
Statistical Tables: MW-11

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	30.34	30.64	30.4	0.1	9
Groundwater Surface Elevation	(m asl)	594.56	594.75	594.82	594.78	594.76	594.81	594.52	594.7	594.81	594.52	594.82	594.7	0.1	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,303	1,341	1282	1282	1341	1308.7	29.9	3
pH	(---)	---	---	---	---	---	---	7.06	7.42	7.19	7.06	7.42	7.2	0.2	3
Temperature	(°C)	---	---	---	---	---	---	7.2	6.9	9.8	6.9	9.8	8.0	1.6	3
Select Indicator Parameters															
Calcium	(mg/L)	150	140	153	143	130	150	144	148	134	130	153	143.6	7.75	9
Chloride	(mg/L)	8	16	11	8	10	10	15.2	9.69	8.71	8	16	10.7	2.94	9
Fluroide	(mg/L)	0.14	0.09	0.09	0.09	0.1	0.11	0.132	<0.050	0.067	0.067	0.14	0.1	0.02	9
Iron	(mg/L)	6.89	6.95	7.23	7.15	<0.06	7	7.61	6.99	6.82	6.82	7.61	7.1	0.25	9
Magnesium	(mg/L)	45.8	42.5	45.7	45.3	38	45	45.9	46.4	38.7	38	46.4	43.7	3.23	9
Manganese	(mg/L)	0.668	0.628	0.659	0.632	0.61	0.67	0.663	0.687	0.605	0.605	0.687	0.6	0.03	9
Potassium	(mg/L)	4.9	4.5	4.8	3.9	4.3	4.9	---	5.36	5.34	3.9	5.36	4.8	0.50	8
Sodium	(mg/L)	92	85	92	88	87	91	98.1	96	87.9	85	98.1	90.8	4.29	9
Bicarbonate	(mg/L)	642	654	672	662	680	640	650	653	648	640	680	655.7	13.4	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.003	<0.050	<0.050	<0.050	0.003	0.1	0.052	0.1	9
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	0.003	0.1	0.052	0.1	9
Sulphate	(mg/L)	196	199	194	193	210	170	212	203	202	170	212	197.7	12.3	9
Dissolved Organic Carbon	(mg/L)	15	7	7	8	6	5.5	6	6.8	6.6	5.5	15	7.5	2.9	9
Electrical Conductivity	(µS/cm)	1270	1270	1100	1280	1300	1300	1290	1320	1300	1100	1320	1270.0	65.8	9
Ion Balance	(%)	104	93.4	101	98.6	0.87	110	99.1	102	91.8	0.87	110	89.0	33.5	9
pH	(---)	7.7	7.4	7.7	8	7.7	7.51	8.04	8	7.9	7.4	8.04	7.8	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.004	<0.0010	<0.0010	<0.0010	0.002	0.004	0.003	0.001	9
Total Dissolved Solids	(mg/L)	813	809	831	806	810	800	840	830	795	795	840	814.9	15.3	9
Total Alkalinity as $CaCO_3$	(mg/L)	526	536	551	542	560	530	533	536	531	526	560	538.3	10.9	9
Total Hardness as $CaCO_3$	(mg/L)	563	525	570	544	480	560	549	561	494	480	570	538.4	32.2	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	0.02	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0106	0.0106	0.02	0.015	0.0066	9
Antimony	(mg/L)	0.0008	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0004	0.0008	0.001	0.0002	9
Arsenic	(mg/L)	0.0022	0.0025	0.0022	0.0023	<0.001	0.0024	0.00259	0.00239	0.00232	0.0022	0.00259	0.002	0.0001	9
Barium	(mg/L)	0.0494	0.0466	0.044	0.0377	0.03	---	0.0396	0.0423	0.0386	0.03	0.0494	0.041	0.0060	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Bismuth	(mg/L)	<0.00005	0.00008	<0.00005	<0.00005	---	---	---	---	---	0.00008	0.00008	0.000	N/A	4
Boron	(mg/L)	0.189	0.227	0.205	0.186	0.18	---	0.189	0.199	0.161	0.161	0.227	0.192	0.0193	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000009	<0.00010	<0.00010	< 0.00010	0.000009	0.000009	0.000	N/A	9
Chromium	(mg/L)	0.0011	0.0006	0.0013	0.0016	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.0006	0.0016	0.001	0.0004	9
Cobalt	(mg/L)	0.0006	0.0007	0.0003	0.0004	0.0006	0.0004	0.00047	0.00047	0.00038	0.0003	0.0007	0.000	0.0001	9
Copper	(mg/L)	<0.0006	0.0009	0.0009	<0.0006	0.0008	0.0007	<0.0010	0.0017	< 0.0010	0.0007	0.0017	0.001	0.0004	9
Lead	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000001	<0.00010	<0.000020	< 0.000020	0.000001	0.000001	0.000	N/A	9
Molybdenum	(mg/L)	0.001	0.0009	0.0006	0.0007	0.001	0.0007	0.00072	0.00061	0.000669	0.0006	0.001	0.001	0.0002	9
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0027	0.0027	0.0008	0.0027	<0.0020	< 0.0020	0.0008	0.0027	0.002	0.0010	9
Selenium	(mg/L)	<0.0004	<0.0004	0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	0.0004	0.0004	0.000	N/A	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	1.27	1.24	1.22	1.35	1.1	---	---	---	---	1.1	1.35	1.236	0.0907	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.0008	0.003	0.002	0.0009	9
Uranium	(mg/L)	0.0012	0.0012	0.0011	0.0011	0.0013	0.001	0.001	0.00109	0.001	0.001	0.0013	0.001	0.0001	9
Vanadium	(mg/L)	0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	0.0001	< 0.00010	0.0001	0.0004	0.000	0.0002	9
Zinc	(mg/L)	0.004	<0.002	0.009	<0.002	<0.003	<0.003	0.0023	0.0105	< 0.0030	0.0023	0.0105	0.006	0.0039	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6
Statistical Tables: MW-12

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	32.76	33.62	33.0	0.3	9
Groundwater Surface Elevation	(m asl)	593.12	593.02	592.45	593.17	593.3	593.31	593.06	593.23	593.18	592.45	593.31	593.1	0.3	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	1,032	983	1024	983	1032	1013.0	26.3	3
pH	(---)	---	---	---	---	---	---	7.32	6.95	7.37	6.95	7.37	7.2	0.2	3
Temperature	(°C)	---	---	---	---	---	---	5.1	8.7	7.3	5.1	8.7	7.0	1.8	3
Select Indicator Parameters															
Calcium	(mg/L)	95.7	94.9	100	95.4	82	98	96.4	98.1	89.8	82	100	94.5	5.48	9
Chloride	(mg/L)	6	8	7	7	5	8	7.05	6.4	6.25	5	8	6.7	0.96	9
Fluroide	(mg/L)	0.13	0.07	0.07	0.08	<0.1	0.09	0.114	0.071	0.076	0.07	0.13	0.1	0.02	9
Iron	(mg/L)	2.78	3.37	3.76	3.77	<0.06	4.1	4.24	3.34	4.14	2.78	4.24	3.7	0.50	9
Magnesium	(mg/L)	27.9	28.5	29.1	29.2	23	29	30.2	30.9	25.6	23	30.9	28.2	2.44	9
Manganese	(mg/L)	0.365	0.402	0.436	0.422	0.4	0.45	0.456	0.45	0.435	0.365	0.456	0.4	0.03	9
Potassium	(mg/L)	5	5.2	5.1	4.2	4.3	4.9	---	4.86	5.23	4.2	5.23	4.8	0.39	8
Sodium	(mg/L)	106	111	106	101	99	110	109	95.4	95.7	95.4	111	103.7	6.06	9
Bicarbonate	(mg/L)	636	712	669	670	700	650	667	662	660	636	712	669.6	23.4	9
Carbonate	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	<0.1	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	0.005	0.1	0.053	0.1	9
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	0.005	0.1	0.053	0.1	9
Sulphate	(mg/L)	46	53	44	42.4	43	32	47	---	43	32	52.5	43.8	5.7	8
Dissolved Organic Carbon	(mg/L)	6	7	7	7	7	6.4	10.5	13.5	6.6	6	13.5	7.9	2.5	9
Electrical Conductivity	(µS/cm)	1000	1020	904	1020	1000	1000	1030	1050	1030	904	1050	1006.0	41.8	9
Ion Balance	(%)	102	92.7	100	97.4	0.84	110	100	97.9	91.5	0.84	110	88.0	33.1	9
pH	(---)	7.9	7.4	7.8	8	7.8	7.66	8.13	8.14	8.03	7.4	8.14	7.9	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.0010	<0.0010	---	0.002	0.003	0.003	0.001	8
Total Dissolved Solids	(mg/L)	600	651	621	609	601	610	623	606	591	591	651	612.4	17.6	9
Total Alkalinity as $CaCO_3$	(mg/L)	521	584	549	550	570	540	547	543	541	521	584	549.4	18.1	9
Total Hardness as $CaCO_3$	(mg/L)	354	354	370	358	300	360	365	372	330	300	372	351.4	22.9	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	0.0146	0.0146	0.0146	0.015	N/A	9
Antimony	(mg/L)	0.0008	0.0005	0.0006	0.0005	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0008	0.001	0.0001	9
Arsenic	(mg/L)	0.0022	0.0026	0.0023	0.0025	0.002	0.0026	0.00285	0.00199	0.00267	0.00199	0.00285	0.002	0.0003	9
Barium	(mg/L)	0.153	0.182	0.178	0.146	0.1	---	0.143	0.13	0.112	0.1	0.182	0.143	0.0289	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Bismuth	(mg/L)	<0.00005	0.00006	<0.00005	<0.00005	---	---	---	---	---	0.00006	0.00006	0.000	N/A	4
Boron	(mg/L)	0.234	0.282	0.251	0.233	0.22	---	0.242	0.244	0.219	0.219	0.282	0.241	0.0201	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.00012	<0.001	<0.0002	0.000006	<0.00010	<0.00010	< 0.00010	0.000006	0.000006	0.000	N/A	9
Chromium	(mg/L)	0.0038	<0.0004	0.0016	0.0015	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.0015	0.0038	0.002	0.0013	9
Cobalt	(mg/L)	0.0008	0.001	0.0007	0.0012	0.0007	0.0006	0.00065	0.00043	0.00046	0.00043	0.0012	0.001	0.0002	9
Copper	(mg/L)	<0.0006	0.0008	<0.0006	<0.0006	<0.0002	0.0008	<0.0010	<0.0010	< 0.0010	0.0008	0.0008	0.001	0.0000	9
Lead	(mg/L)	0.0004	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0004	0.0004	0.000	N/A	9
Mercury	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	0.00007	0.000001	<0.00010	<0.000020	< 0.000020	0.000001	0.00007	0.000	0.0000	9
Molybdenum	(mg/L)	0.0015	0.0013	0.0012	0.0017	0.0014	0.0012	0.00115	0.00102	0.00121	0.00102	0.0017	0.001	0.0002	9
Nickel	(mg/L)	<0.0001	<0.0001	<0.0001	0.0033	0.0021	0.0012	0.0022	<0.0020	< 0.0020	0.0012	0.0033	0.002	0.0009	9
Selenium	(mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	N/A	N/A	N/A	N/A	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	0.915	0.903	0.925	0.972	0.84	---	---	---	---	0.84	0.972	0.911	0.0475	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.0007	0.002	0.001	0.0005	9
Uranium	(mg/L)	0.001	0.0011	0.001	0.0009	0.0011	0.0008	0.00083	0.00087	0.00085	0.0008	0.0011	0.001	0.0001	9
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	<0.00010	< 0.00010	0.0004	0.0004	0.000	N/A	9
Zinc	(mg/L)	0.01	<0.002	0.007	0.004	<0.003	<0.003	<0.0020	0.0021	< 0.0030	0.0021	0.01	0.006	0.0035	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*

Appendix 6

Statistical Tables: MW-13

PROJECT NO.: 307075-01129

Monitoring Station	Units	Spring 2005	Fall 2005	Spring 2006	Summer 2007	Fall 2007	Spring 2009	Spring 2010	Spring 2011	Spring 2012	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	32.39	33.45	32.7	0.4	9
Groundwater Surface Elevation	(m asl)	593.68	592.83	593.04	593.74	593.89	593.87	593.6	593.82	593.72	592.83	593.89	593.6	0.4	9
Field-Measured Parameters															
Electrical Conductivity	(µS/cm)	---	---	---	---	---	---	776	541	733	541	776	683.3	125.1	3
pH	(---)	---	---	---	---	---	---	7.53	7.06	7.69	7.06	7.69	7.4	0.3	3
Temperature	(°C)	---	---	---	---	---	---	7.0	8.5	6.9	6.9	8.5	7.5	0.9	3
Select Indicator Parameters															
Calcium	(mg/L)	53.7	51.2	55.6	53	45	54	50	48.1	48	45	55.6	51.0	3.46	9
Chloride	(mg/L)	2	4	4	2	2	3	2.15	1.92	1.81	1.81	4	2.5	0.90	9
Fluroide	(mg/L)	0.2	0.14	0.14	0.13	0.2	0.15	0.16	0.162	0.119	0.119	0.2	0.2	0.03	9
Iron	(mg/L)	0.818	1.08	1.19	1.26	<0.06	1.3	1.45	1.25	1.33	0.818	1.45	1.2	0.19	9
Magnesium	(mg/L)	16.5	16.2	17.1	16.9	14	17	16.4	15.3	14.4	14	17.1	16.0	1.15	9
Manganese	(mg/L)	0.263	0.243	0.256	0.252	0.25	0.26	0.249	0.231	0.238	0.231	0.263	0.2	0.01	9
Potassium	(mg/L)	4.2	3.4	3.9	3.5	3.5	3.9	---	3.74	4	3.4	4.2	3.8	0.28	8
Sodium	(mg/L)	112	103	112	105	110	110	110	103	101	101	112	107.3	4.30	9
Bicarbonate	(mg/L)	531	537	715	541	560	520	530	530	529	520	715	554.8	61.1	9
Carbonate	(mg/L)	<5	<5	541	<5	<1	<0.5	<5.0	<5.0	<5.0	541	541	541.0	N/A	9
Hydroxide	(mg/L)	<5	<5	<5	<5	<1	<0.5	<5.0	<5.0	<5.0	N/A	N/A	N/A	N/A	9
Nitrite-as-Nitrogen	(mg/L)	<0.05	<0.05	<0.05	<0.05	<0.06	<0.003	<0.050	<0.050	<0.050	N/A	N/A	N/A	N/A	9
Nitrate-as-Nitrogen	(mg/L)	0.1	<0.1	0.2	<0.1	<0.2	0.005	<0.050	<0.050	<0.050	0.005	0.2	0.102	0.1	9
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	0.005	0.2	0.102	0.1	9
Sulphate	(mg/L)	11	13	10	9.1	9	9	10	9	9	9	12.5	9.8	1.2	9
Dissolved Organic Carbon	(mg/L)	4	5	5	5	5	4.5	4.1	5.2	4.6	4	5.2	4.7	0.4	9
Electrical Conductivity	(µS/cm)	784	782	715	782	790	770	776	796	786	715	796	775.7	23.9	9
Ion Balance	(%)	100	92.2	99.4	96.3	0.87	100	97.5	92.1	90.5	0.87	100	85.4	31.9	9
pH	(---)	8.1	7.8	8	8.2	8	7.81	8.22	8.24	8.18	7.8	8.24	8.1	0.2	9
Phenols	(mg/L)	<0.001	<0.001	<0.001	0.001	<0.001	0.003	<0.0010	<0.0010	<0.0010	0.001	0.003	0.002	0.001	9
Total Dissolved Solids	(mg/L)	460	454	470	456	457	460	453	442	438	438	470	454.4	9.6	9
Total Alkalinity as $CaCO_3$	(mg/L)	435	440	443	444	460	430	435	434	433	430	460	439.3	9.1	9
Total Hardness as $CaCO_3$	(mg/L)	202	195	209	202	170	200	192	183	179	170	209	192.4	12.7	9
Dissolved Metals Parameters															
Aluminum	(mg/L)	<0.01	0.07	<0.01	<0.01	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.07	0.07	0.070	N/A	9
Antimony	(mg/L)	0.0008	0.0006	0.0006	0.0004	<0.0002	<0.0002	<0.00040	<0.00040	< 0.00040	0.0004	0.0008	0.001	0.0002	9
Arsenic	(mg/L)	0.0012	0.0016	0.0014	0.0014	0.001	0.0015	0.00162	0.00157	0.0014	0.001	0.00162	0.001	0.0002	9
Barium	(mg/L)	0.389	0.413	0.424	0.428	0.29	---	0.407	0.411	0.354	0.29	0.428	0.390	0.0465	8
Beryllium	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
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	0.197	0.301	0.256	0.0293	8
Cadmium	(mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.000005	<0.00010	<0.00010	< 0.00010	0.000005	0.000005	0.000	N/A	9
Chromium	(mg/L)	0.0048	0.0007	0.0011	0.0016	<0.001	<0.001	<0.0050	<0.0050	< 0.0050	0.0007	0.0048	0.002	0.0019	9
Cobalt	(mg/L)	0.0008	0.0033	0.0007	0.0009	0.0009	0.0007	0.00092	0.00062	0.00065	0.00062	0.0033	0.001	0.0008	9
Copper	(mg/L)	<0.0006	0.0007	<0.0006	<0.0006	<0.0002	0.0003	<0.0010	<0.0010	< 0.0010	0.0003	0.0007	0.001	0.0003	9
Lead	(mg/L)	0.0002	0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.00010	<0.00010	< 0.00010	0.0002	0.0002	0.000	0.0000	9
Mercury	(mg/L)	<0.0001	0.0001	<0.0001	<0.0001	0.00007	<0.000001	<0.00010	<0.000020	< 0.000020	0.00007	0.0001	0.000	0.0000	9
Molybdenum	(mg/L)	0.0023	0.0027	0.0021	0.0023	0.0028	0.0022	0.00219	0.00194	0.0018	0.0018	0.0028	0.002	0.0003	9
Nickel	(mg/L)	0.0009	0.0015	<0.0001	0.0022	0.0016	0.0012	0.0021	<0.0020	< 0.0020	0.0009	0.0022	0.002	0.0005	9
Selenium	(mg/L)	<0.0004	0.0005	<0.0004	<0.0004	<0.001	<0.0002	<0.00040	<0.00040	< 0.00040	0.0005	0.0005	0.001	N/A	9
Silver	(mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.00010	<0.00010	< 0.00010	N/A	N/A	N/A	N/A	9
Strontium	(mg/L)	0.57	0.542	0.553	0.58	0.5	---	---	---	---	0.5	0.58	0.549	0.0311	5
Thallium	(mg/L)	<0.0005	<0.0001	<0.00005	<0.00005	<0.0002	<0.0002	<0.000050	<0.000050	< 0.000050	N/A	N/A	N/A	N/A	9
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	0.0006	0.002	0.001	0.0006	9
Uranium	(mg/L)	0.0008	0.0009	0.0008	0.0008	0.0009	0.0007	0.00069	0.00073	0.00063	0.00063	0.0009	0.001	0.0001	9
Vanadium	(mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.001	<0.001	<0.00010	<0.00010	< 0.00010	0.0004	0.0004	0.000	N/A	9
Zinc	(mg/L)	0.005	<0.002	0.009	<0.002	<0.003	<0.003	<0.0020	<0.0020	< 0.0030	0.005	0.009	0.007	0.0028	9
Petroleum Hydrocarbon Parameters															
Benzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Toluene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00075	<0.00075	< 0.00075	N/A	N/A	N/A	N/A	9
Ethylbenzene	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0004	<0.00050	<0.00050	< 0.00050	N/A	N/A	N/A	N/A	9
Xylenes-total	(mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0008	<0.0008	<0.001	<0.001	< 0.00071	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9
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	N/A	N/A	N/A	N/A	9

NOTES:

1. *Electrical conductivity values standardized to 25°C (within the limitations of the equipment).*
2. *--- Denotes parameter not measured.*
3. *Highlighting indicates parameters exceeding Canadian Drinking Water AO Guidelines (Health Canada, 2010).*