



NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION

2024 Groundwater Quality Monitoring

Beverly Channel Monitoring Wells

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23 June 2025

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PROJECT 317085-55576-24000-WW-REP-00001: 2024 Groundwater Quality Monitoring - Beverly Channel Monitoring Wells

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1. Introduction

1.1 General

The Northeast Capital Industrial Association's (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). Beverly Channel groundwater monitoring has been conducted within the Study Area since 2005. The groundwater monitoring program's objective is to detect changes in Beverly Channel groundwater flow and quality from the established baseline conditions in the Study Area. The monitoring network in the NCIA Study Area consists of 13 groundwater monitoring wells completed in the Beverly Channel deposits and one groundwater monitoring well completed within the bedrock (Figure 2).

1.2 Previous Work

Previous work conducted within the Study Area was described by Stantec Consulting Ltd. ([Stantec] 2006a, 2006b, 2007, 2008, and 2009), WorleyParsons Canada Services Ltd. ([WorleyParsons] 2010, 2011, 2012, 2013, 2014, and 2015) and Advisian (2016, 2018, 2020, and 2022) and is summarized as follows.

- Depth to the groundwater surface in the Beverly Channel has historically ranged from approximately 15 to 35 metres below ground surface (mbgs). Annual groundwater level fluctuations have generally been 1 metre (m) or less.
- The lateral groundwater flow gradient within the Beverly Channel has historically ranged from approximately 0.0005 to 0.005 metres per metre (m/m). The groundwater flow velocity has been estimated to vary from approximately 16 to 160 metres per year (m/year) in different areas of the Beverly Channel.
- Historically, sulphate concentrations have exceeded the applied guideline at MW-07, while total dissolved solids (TDS), iron, and manganese concentrations 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-02 and MW-04 are higher than at other locations in the Beverly Channel. These chloride concentrations, nevertheless, are considered to be natural, reflecting interaction with groundwater in the underlying bedrock.

1.3 Scope of Work

The scope of the 2024 program, completed by Worley Canada Services Ltd. (operating as Worley Consulting), was to conduct a groundwater monitoring event and report on groundwater levels and quality at the existing NCIA Beverly Channel monitoring network. The biennial monitoring event occurred from June 26 to 27, 2024. The 2024 program included the following tasks:

- field measurements of depth to groundwater at all monitoring wells;
- field measurements of groundwater electrical conductivity (EC), pH, and temperature;

- groundwater sampling and sample submission for laboratory analysis; and
- preparation of a report summarizing the program methodology, results, and providing an analysis of the groundwater data.

The analytical schedule for the 2024 monitoring program is provided in Section 3.2.2. Stable isotope analysis for hydrogen (^2H ; deuterium) and oxygen (^{18}O) began in 2015 and has continued during subsequent monitoring events.

2. Physical Setting

2.1 Topography and Drainage

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

2.2 Regional Geology and Hydrogeology

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

Regional bedrock geology comprises Late Cretaceous-aged, marginal marine to non-marine, grey thick-bedded sandstone, grey and green mudstone, grey, clayey siltstone, coal beds, and rare intermittent ironstone beds of the Belly River Group; 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; Prior et al. 2013). The Bearpaw Formation has been eroded over most of the Study Area but seems to be present in the southwest part of the Study 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 sediments overlie the bedrock. The Beverly Channel is a major pre-glacial valley in the area that consists of a fining-upward sequence of buried sand and gravel deposits of the Empress Formation. 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 hydraulic 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 Group, the Beverly Channel sand and gravels, sand lenses in the till, and surficial sand and gravel deposits (Stein 1976). Aquifers within the Belly River Group exhibit TDS concentrations ranging from 1,000 to more than 6,000 milligrams per litre (mg/L; Stein 1976). Areas of high TDS concentrations 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 concentrations within the Channel can exceed 15 mg/L, and iron staining and iron bacteria are common (Stein 1976).

2.3 Regional Groundwater Use and Quality

A water well search of the Study Area was conducted in September 2024. The Alberta Water Well Information Database indicated that there were 1,360 water well records within the Study Area (0). Most of the wells were listed for domestic use but also included stock and municipal use (e.g., Village of Bruderheim). About 94% of the water well records had a depth between 1 and 80 m, with a median depth of 27.6 m. The existence and location of these water wells have not been field-verified. With the industrial development in the Heartland Area, many of the wells associated with the water well records are no longer in use and have been abandoned. There were 173 well records indicated as decommissioned.

Based on the water well search results conducted in 2024, groundwater analytical data were available for 439 of the 1,360 water well records. A subset of the available chemistry data summarizing the ranges and mean concentrations of select parameters compiled from available water well record chemistry data is provided in Table 2-1. The summary does not include groundwater chemistry data from any new water wells that have been identified since analysis of the data presented in Table 2-1.

Several water wells were identified as being completed within the Beverly Channel in the Study Area 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 these water wells.

Table 2-1: 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)	362-1,732	975	331-2,021	1,059
Sodium (mg/L)	54-417	200	8-825	274

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

3. Field Program

3.1 Monitoring Network

The monitoring network consists of 14 monitoring wells at 13 different locations within the Study Area (Figure 2), with one nested pair of monitoring wells (MW-02 and MW-02B) at one location in the Beverly Channel Aquifer and the bedrock below. Borehole logs are provided in Appendix 2.

3.2 Groundwater Monitoring and Sampling

Groundwater monitoring and sampling were conducted according to Worley Consulting's standard protocols. The following procedures were followed during monitoring and sampling of all monitoring wells.

- Prior to sampling, the static groundwater level was measured with an electric water level tape. The tape was cleaned by rinsing with distilled water after each reading.
- Wells were purged of standing water using a Waterra pump, a bailer, or a Geosub submersible pump. The water temperature, pH, and EC were monitored during purging. The wells were purged until these field-measured parameters stabilized.
- The pH meter was calibrated using pH 4, 7, and 10 buffer solutions, while the EC meter was calibrated with a standard potassium chloride (KCl) solution of 1,413 microsiemens per centimetre ($\mu\text{S}/\text{cm}$) at 25°C prior to analyzing for field parameters.
- After purging and field parameter measurements, groundwater samples were collected. Samples were collected in pre-cleaned bottles and vials provided by ALS Laboratory (ALS) in Edmonton, Alberta.
 - Samples for dissolved metals, dissolved ammonia, and dissolved organic carbon (DOC) analyses were field-filtered using a 45 micrometre (μm) inline filter.
 - Preservatives were added to DOC and dissolved metals sample bottles as directed by ALS.
 - Hydrocarbon parameter sample bottles were provided pre-charged with preservatives by ALS.
- Groundwater samples were placed in coolers with ice for transport to ALS.
- Standard chain-of-custody (COC) protocols were followed.

3.2.1 Quality Assurance/Quality Control Procedures

The quality assurance/quality control (QA/QC) procedures for the monitoring program were as follows:

- Thoroughly rinsing all equipment (e.g., water level tape and Geosub pump) with distilled water prior to monitoring and sampling a well.
- Collection of one duplicate sample for data validation purposes.
- Storing samples in coolers maintained at approximately 4°C.
- Documenting sample handling, transport, and delivery to the laboratory using appropriate COC procedures and documentation.

Groundwater samples were collected on June 26 and 27, 2024. All groundwater samples were analyzed by ALS, except for the stable isotopes, which ALS subcontracted to Isobrine Solutions Inc.

3.2.2 Analytical Schedule

The analytical schedule for each monitoring well included the following:

- major ions/routine potability parameters, including EC, pH, total alkalinity, chloride, sulphate, iron, manganese, TDS, calcium, magnesium, potassium, sodium, bicarbonate, carbonate, hydroxide, fluoride, ion balance, DOC, nitrate-as-nitrogen, nitrite-as-nitrogen, and total ammonia;
- dissolved metal and trace element parameters, including aluminium, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, titanium, uranium, vanadium, and zinc;
- petroleum hydrocarbon (PHC) parameters, including benzene, toluene, ethylbenzene, and xylenes (BTEX), PHC fraction (F)1 and F2; and
- deuterium and oxygen (^2H and ^{18}O) stable isotopes.

3.3 Assessment Criteria

Historically, groundwater from the Beverly Channel aquifer has been used for domestic, stock, and municipal uses (e.g., Village of Bruderheim). As such, the Health Canada (2022) Guidelines for Canadian Drinking Water Quality (GCDWQ) have been included in the summary tables for the analytical results. Their purpose is to provide a general reference for the groundwater quality in the Beverly Channel Aquifer, considering the historical use while also considering that the groundwater quality represents background conditions.

3.4 Data Analysis

3.4.1 Groundwater Monitoring Data

Upon completion of the field program, groundwater field measurements and analytical data were tabulated (Tables 1 through 6). Tables include a summary of historical parameters and minimum, maximum, and mean concentrations for each well. Select indicator parameter concentrations were then plotted and utilized for statistical and graphical analysis as described below.

3.4.1.1 Statistical and Graphical Analysis

A Mann-Kendall test is a non-parametric test for trend in a data set (Helsel and Hirsch 1992). The test evaluates whether parameter concentrations are monotonically rising or falling. Mann-Kendall analysis can be performed on a time series data set with at least 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 analyses were applied to chloride, sulphate, iron, manganese, sodium, fluoride, TDS, and DOC on the most recent eight data points. pH was visually analyzed for potential trends.

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

- The data were visually monotonic.
- The Mann-Kendall probability was greater than 95%, or the inferred confidence level was greater than 95% (p-value of the two-tailed test was less than or equal to 0.05), and 50% of the sample results were greater than the reporting detection limit.
- Sen's normalized slope (in absolute % change per year) was 10% or greater.
- Absolute slope (in mg/L/year) was greater than:
 - 2 mg/L/year for chloride, TDS, sulphate, and sodium;
 - 0.1 mg/L/year for fluoride, iron, and manganese; and
 - 0.5 mg/L/year for DOC.

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

3.4.1.2 High, Low, and Average Charts

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

4. Results

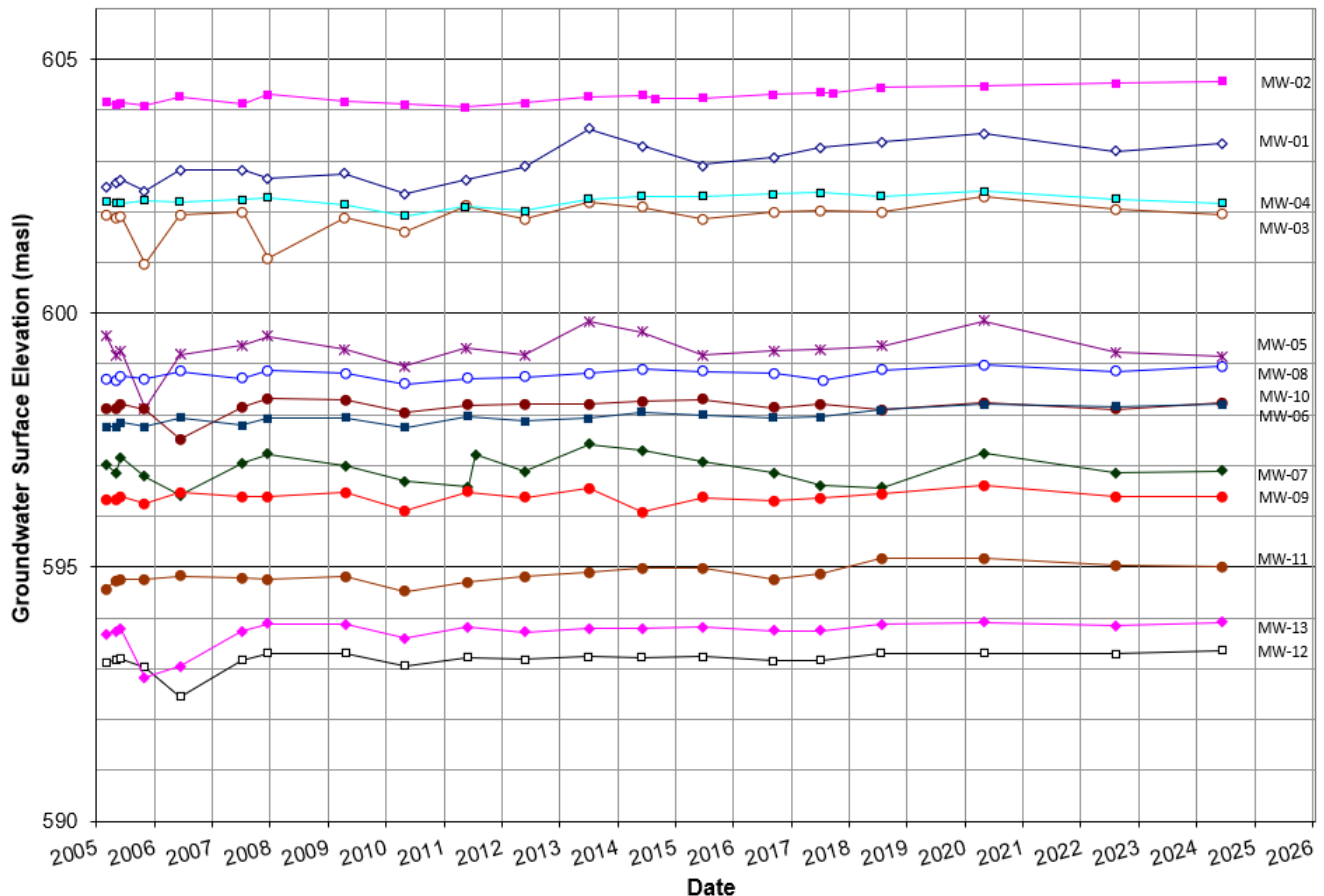
4.1 Groundwater Flow

4.1.1 Groundwater Surface Elevations

Groundwater level hydrographs are provided in Appendix 3 and summarized in Figure 4-1. Groundwater surface elevations within the Beverly Channel ranged from 593.35 to 604.57 metres above sea level (masl) in 2024 at MW-12 and MW-02, respectively. Groundwater surface elevations were consistent with historical values in the Beverly Channel, with gradual increasing trends seen at MW-01, MW-02, MW-10, and MW-11 (Appendix 3).

The groundwater surface elevation at the monitoring well completed in the bedrock at MW-02B was 607.65 masl during the 2024 monitoring event (Table 1). This was consistent with the elevations observed since 2017.

Figure 4-1: Current and Historical Groundwater Surface Elevations in Beverly Channel Monitoring Wells



4.1.2 Detailed Hydrographs

Water level dataloggers were installed in four of the NCIA Beverly Channel monitoring wells as part of the conditions of an NCIA partner company's term water diversion license. Water levels were recorded daily and provided a high-resolution depiction of the fluctuations in the groundwater surface elevations within the Beverly Channel. High resolution hydrographs of groundwater surface elevations at MW-04, MW-05, MW-06, and MW-07 are presented in Appendix 3.

4.1.3 Lateral Groundwater Flow

Lateral groundwater flow in the Beverly Channel was consistent with previous analyses and was generally to the northwest towards the North Saskatchewan River (Figure 3). The lateral hydraulic gradient ranged from approximately 0.0007 m/m near MW-06, -07, and -08 to 0.003 m/m in the south near MW-03 and MW-04. Based on the geometric mean hydraulic conductivity of 1.5×10^{-4} metres per second (m/s), the hydraulic gradient of 0.0007, and the assumed effective porosity of 0.25, the linear groundwater flow velocity in the middle/north was approximately 34 m/year. Based on the geometric mean hydraulic conductivity of 2.0×10^{-4} m/s, the hydraulic gradient of 0.003, and the assumed effective porosity of 0.25, the linear groundwater flow velocity in the south was approximately 66 m/year.

4.1.4 Vertical Groundwater Flow

The groundwater level in the bedrock (MW-02B; 607.65 masl) was higher than that in the Beverly Channel (MW-02; 604.57 masl), with a vertical hydraulic gradient of approximately 0.25 m/m in June 2024. This indicated the potential for upward flow (discharge) from the bedrock to the Beverly Channel.

4.2 Field-Measured Parameters

Field-measured parameters are presented in Table 2 and were mostly consistent with historical results. Groundwater temperatures at the Beverly Channel monitoring wells ranged from 7.0 to 9.4°C, EC values ranged from 734 to 2,670 $\mu\text{S}/\text{cm}$, and pH values ranged from 6.98 to 7.54 in 2024.

Field parameters measured in the bedrock at MW-02B during the 2024 sampling event were: temperature of 8.2°C, EC of 3,460 $\mu\text{S}/\text{cm}$, and pH of 8.12.

4.3 Groundwater Quality

Groundwater analytical results are presented in Tables 3 through 6. Original laboratory analytical reports are included in Appendix 4. Hydrochemical control charts are provided in Appendix 5. A statistical table with basic statistical and Mann-Kendall analyses for indicator parameters is included in Appendix 6.

4.3.1 Select Inorganic Data

Select inorganic parameter data are presented in Tables 3 and 4. Results from the 2024 sampling event are summarized as follows.

- Dissolved manganese concentrations were typically higher than the drinking water aesthetic objective (AO) of 0.02 mg/L.
- Dissolved iron concentrations continued to exceed the drinking water AO of 0.3 mg/L.
- TDS concentrations were within historical ranges at all monitoring wells in the NCIA Study Area. TDS concentrations continued to be less than the AO of 500 mg/L at MW-01 and MW-13, while they continued to be highest at MW-07 (2,110 mg/L).
- Dissolved sulphate concentrations were mostly consistent with the historical ranges in the NCIA Study Area and remained less than the 500 mg/L AO at all locations except MW-06 and MW-07. At MW-06, sulphate concentrations have ranged from 420 to 560 mg/L and at MW-07 from 622 to 1,270 mg/L.
- Sodium concentrations continued to be generally within historical ranges at all wells completed in the Beverly Channel Aquifer. Sodium concentrations are typically below the AO of 200 mg/L; however, at monitoring wells MW-07 and MW-09, sodium concentrations have ranged from 189 to 320 mg/L.
- Chloride concentrations continued to be within historical ranges at all but MW-01, MW-03, and MW-05. Chloride concentrations at MW-01 have increased from 3.02 mg/L in 2011 to 36.6 mg/L in 2024; from 44.2 mg/L in 2011 to 73.5 mg/L in 2024 at MW-03; and from 30.9 mg/L in 2011 to 61.0 mg/L in 2024 at MW-05. Typically, chloride concentrations have been less than about 70 mg/L at all Beverly Channel monitoring wells except MW-04, where they have ranged from 125 to 200 mg/L.

A comparison of the chemical composition of the waters at MW-02 and MW-02B during the 2024 sampling event is summarized as follows:

- The dissolved manganese concentrations at MW-02 and MW-02B were 0.326 and 0.057 mg/L, respectively. Dissolved manganese continued to exceed the Health Canada (2022) AO at MW-02 and MW-02B.
- The sodium concentration at MW-02 (118 mg/L) was less than the Health Canada (2022) AO (200 mg/L), while at MW-02B it was 717 mg/L, exceeding the AO.
- The chloride concentration at MW-02 was 82.4 mg/L in 2024, while the chloride concentration at MW-02B was 936 mg/L, exceeding the Health Canada (2022) AO of 250 mg/L.
- Sulphate concentrations were 158 mg/L at MW-02 and <1.5 mg/L at MW-02B.
- TDS concentrations at both MW-02 and MW-02B remained within historical ranges in 2024. The TDS concentration at MW-02 remained approximately half that observed at MW-02B (860 and 1,940 mg/L, respectively).

The fluctuating ion concentrations observed at MW-02 may be associated with interactions with groundwater with elevated ion concentrations from bedrock as characterized at MW-02B. The downward vertical hydraulic gradient between MW-02 and MW-02B, indicative of the potential for upward groundwater flow from bedrock to the Beverly Channel, supports this hypothesis.

4.3.2 Dissolved Metals and Trace Elements

Dissolved metals and trace element parameters are presented in Table 4. Dissolved metals and trace element concentrations were generally within the historical ranges and were below the Health Canada (2022) drinking water guidelines at all monitoring wells (where guidelines exist), except for dissolved manganese and iron (discussed in Section 4.3.1).

4.3.3 Petroleum Hydrocarbons (PHCs)

PHC results are presented in Table 5. PHC concentrations were below their corresponding reportable detection limits (RDLs) at all monitoring wells in 2024.

4.3.4 Trends and Statistical Analysis

Mann-Kendall/Sen's slope analyses are presented in Appendix 6. Results are summarized in Table 4-1.

Table 4-1: Summarized Results from Mann-Kendall/Sen's Slope Analysis and Visual Inspections

Monitoring Station	Parameter	Mann-Kendall (Statistically Significant) Trend	Visual Trend Only
MW-01	Chloride	↑	---
MW-02	Sulphate	---	↓
MW-03	Chloride	---	↑
MW-05	Chloride	---	↑

Note: ↑ indicates an increasing trend, ↓ indicates a decreasing trend, and --- indicates no statistically significant trend.
N/A = not applicable

4.4 Stable Isotopes

4.4.1 Background

Isotopes have become a common tool used in hydrological studies in the past half century. For groundwater studies, they are useful to quantify recharge and discharge processes, assess inter-aquifer flow processes, and determine possible sources and mechanisms of industrial pollution. The basic principle is that the stable isotopes of hydrogen and oxygen remain constant in infiltrated groundwater if there are no phase changes or fractionation (changes in relative abundance of isotopes) along the flow path. In this way, these stable isotopes become conservative tracers in the groundwater system (Clark and Fritz 1997).

The main purpose of the analysis of hydrogen and oxygen stable isotopes, which was initiated in 2015, was to generate a baseline data set for the Beverly Channel monitoring network. Stable isotopes may be used to help determine the origin(s) of groundwater at each of the monitoring locations in the Beverly Channel, the relative contribution of groundwater from bedrock, and whether industrial activities may be influencing groundwater quality in the Beverly Channel.

The main processes that affect the oxygen and hydrogen isotopic composition of groundwater include evaporation and simple mixing at or below the surface (Sidle 1998). Relationships known as local meteoric water lines (LMWLs) have been defined to characterize isotope ratios for precipitation in certain geographical areas. Historical International Atomic Energy Agency (IAEA) data of isotope ratios have thus been used to define the Edmonton LMWL, which is mathematically expressed as follows (Lemay 2002):

$$\delta^2\text{H} = 7.66 \delta^{18}\text{O} - 1.00$$

The local meteoric water line provides a reference for the relative abundance of the stable isotopes and, thus, the possible origin of the water. For example, waters in ponds that experience evaporation would be expected to have an enrichment of the stable isotopes (as they are heavier) and plot below and to the right of the LMWL. Moreover, evaporated water will plot below the LMWL along a local evaporation line (LEL), which intersects the LMWL at the point representative of the isotopic composition of the original, un-evaporated water. For lakes in central Alberta, the LEL from regression of data sets from 2008 and 2009 was as follows (Gibson et al. 2016):

$$2008: \delta^2\text{H} = 5.42 \delta^{18}\text{O} - 46.16$$

$$2009: \delta^2\text{H} = 5.22 \delta^{18}\text{O} - 47.63$$

4.4.2 Results

Laboratory analytical results for stable isotopes oxygen-18 (^{18}O) and deuterium (^2H) from sampling in 2024 are presented in Table 6. The isotope ratios of oxygen in water ($\delta^{18}\text{O}_{\text{water}}$) for the Beverly Channel monitoring wells ranged from -19.0 (MW-03 and MW-13) to -16.3 ‰ (MW-05). The isotope ratios of deuterium in water ($\delta^2\text{H}_{\text{water}}$) ranged from -149‰ (MW-03, MW-09, and MW-13) to -133 ‰ (MW-05).

The delta (δ) values are reported as per mill (‰) differences relative to Vienna Standard Mean Ocean Water (VSMOW), the IAEA standard defining the isotopic composition of fresh water. The δ values were reported by the laboratory according to the following relationship:

$$\delta_{\text{sample}} = \left(\frac{R_x}{R_{\text{VSMOW}}} - 1 \right) * 1000$$

Where R_x and R_{VSMOW} are the ratios of the heavier to the lighter isotope in the sample and standard, respectively (Kendall and McDonnell 1998).

Figure 4-2 below shows a plot that includes the Edmonton LMWL, the IAEA data used to generate the Edmonton LMWL, the central Alberta lake LELs, and the isotope data from the Beverly Channel monitoring wells and the bedrock monitoring well. On Figure 4-2, the analytical data for the Beverly Channel monitoring wells and the bedrock monitoring well generally plot below and to the right of the Edmonton LMWL. Moreover, the data generally plot along the lake LELs, although there is some scatter in the LMWL data indicating that signatures along the lake LELs may not solely represent evaporative enrichment in surface water.

These results would appear to suggest that groundwater in the Beverly Channel has a varying influence from different sources. On the light end of the ^{18}O - ^2H ranges, the groundwater appears to be mostly influenced by direct surface infiltration (e.g., MW-03). On the heavier end of the ^{18}O - ^2H ranges, there may be a higher relative contribution of bedrock groundwater or a higher relative contribution of evaporated surface water, or both. Notably, each monitoring well has exhibited a relatively consistent groundwater signature over the available monitoring record, where stable isotopes for each monitoring well exhibit limited temporal variation relative to the spatial variation observed across the network.

Chloride concentrations may be used as a distinguishing parameter to determine which source may be of greater influence, as shown in Figure 4-3 below. For example, the isotope-chloride relationship may be indicating a higher relative contribution of bedrock groundwater at MW-04 and a higher relative contribution of surface water at MW-05, MW-11, and MW-12.

Figure 4-2: Comparison of Stable Isotope Results with the Edmonton LMWL

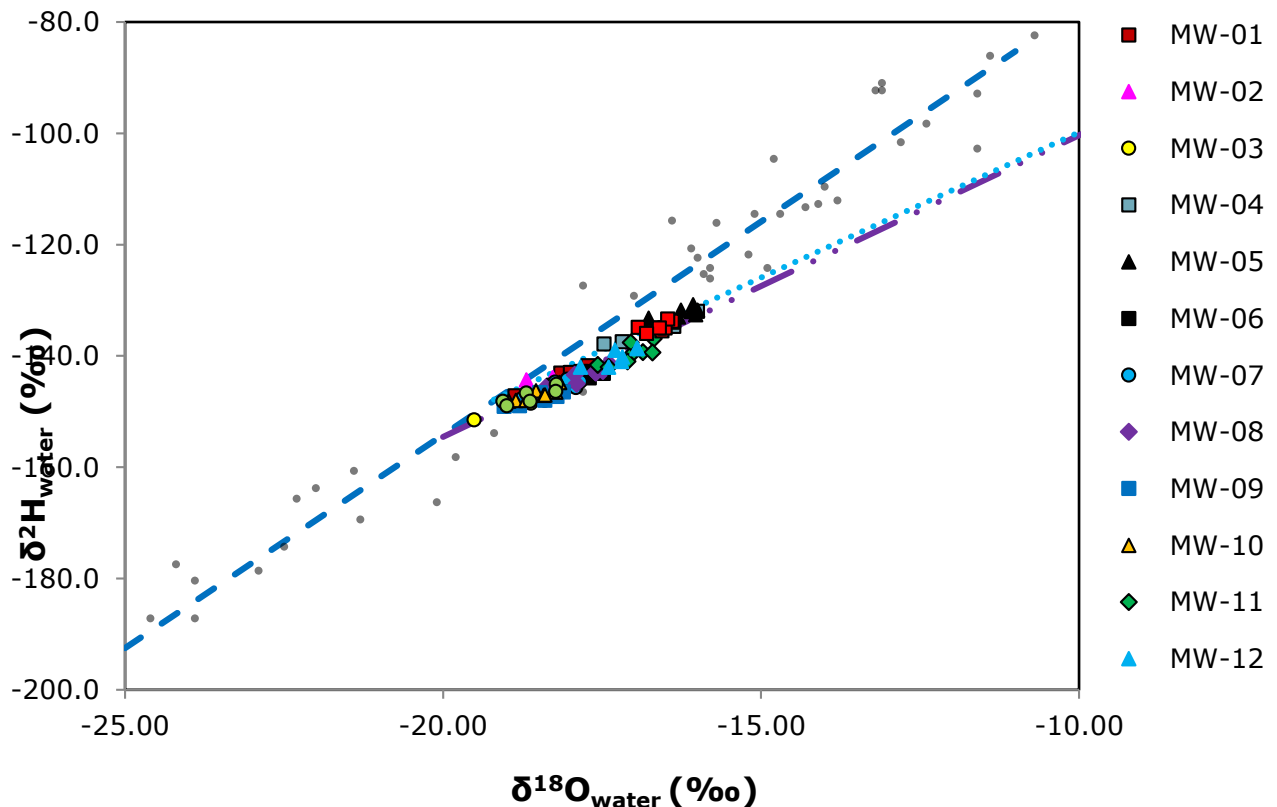
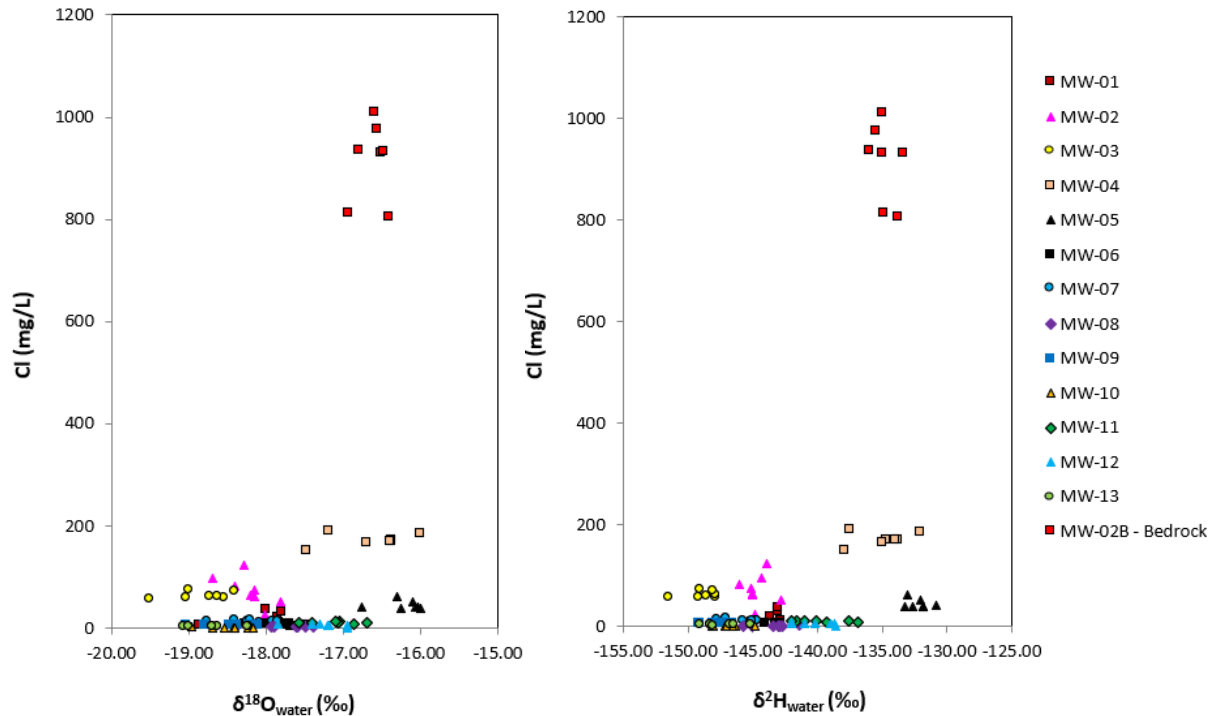


Figure 4-3: Comparison of Stable Isotope Results with Chloride Concentrations



4.4.3 Summary

When used in conjunction with other indicator parameters, stable isotopes can be used to detect changes from baseline groundwater quality. The established baseline dataset of stable isotopes, consisting of ^{18}O and ^2H , indicates that isotopic signatures vary between individual monitoring wells within the network. As such, baseline groundwater quality in the Beverly Channel exhibits a range of influences from different sources. Specifically, some locations have heavier isotopic signatures, indicative of influence from bedrock groundwater (e.g., MW-02) and/or evaporated surface water sources (e.g., MW-05). In contrast, other monitoring wells have lighter isotopic signatures, indicative of more direct influence by infiltrated meteoric water that has not undergone evaporation (e.g., MW-03). Stable isotope data do not presently indicate a departure from baseline groundwater quality.

4.5 QA/QC Results and Summary

After reviewing U.S. Environmental Protection Agency (USEPA) data validation guidelines for field duplicate criteria, Zeiner (1994) indicated that the relative percent difference (RPD) between sample and duplicate results should be less than 20 percent for aqueous samples. When the sample or sample duplicate values are less than five times the RDL, the absolute value of the difference of the results should be less than or equal to the RDL for aqueous samples (Zeiner 1994). A comparison of duplicate samples collected from MW-04 indicated that all results met the above criteria except for nitrate (as N; 20.2%).

American Public Health Association (APHA) et al. (2005) indicate an ion balance of $\pm 10\%$ is typically acceptable.

Values outside the commonly acceptable limits may arise for several reasons (e.g., analytical interference, unknown constituents, or reporting errors). Ion balance results were within this criterion (Table 3).

5. Discussion of Key Groundwater Quality Indicators

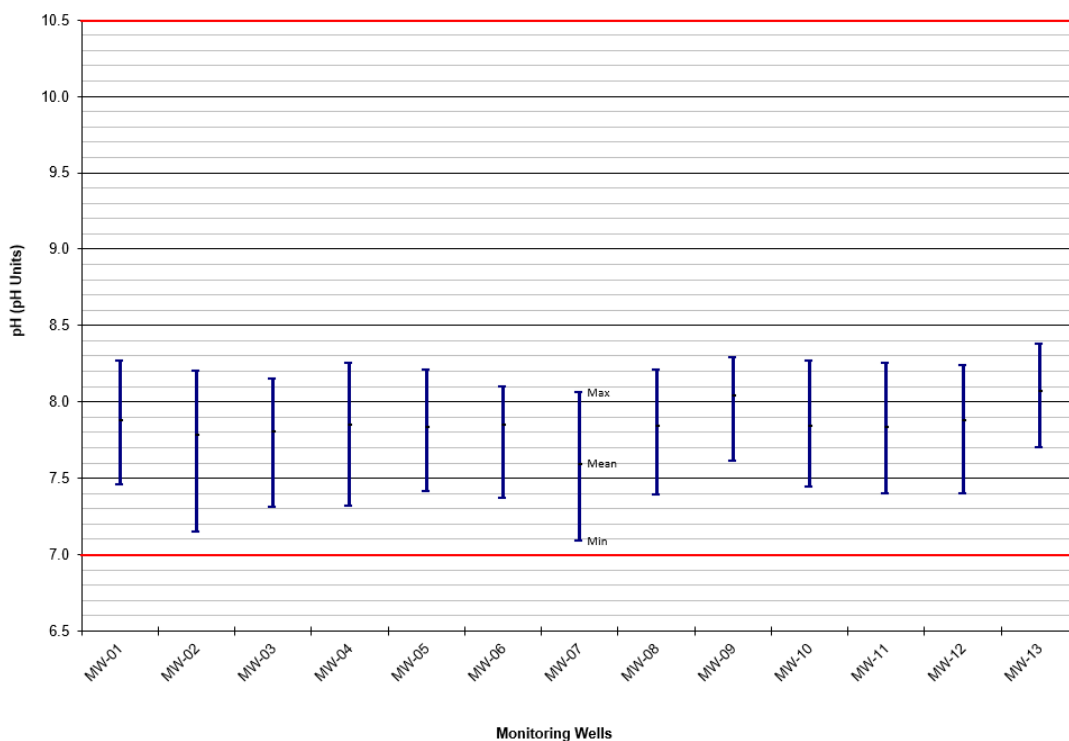
5.1 pH

Hem (1992) indicated that most groundwater has pH values ranging from approximately 6.0 to 8.5, while river water in areas not influenced by pollution reportedly has a pH range of 6.5 to 8.5.

The GCDWQ guideline suggests an acceptable pH range of 7.0 to 10.5 (Health Canada 2022), indicated by the red lines on Figure 5-1. As there are no specific health effects noted on which to base the limits for the pH of drinking water, this guideline is an 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 monitoring program began in 2005, laboratory-measured groundwater pH values have ranged from 7.09 to 8.28 (Figure 5-1) and were within the range of natural waters as defined by Hem (1992) and within the AO guideline range established by Health Canada (2022). Field-measured pH, which is generally more indicative of *in situ* conditions, has historically ranged from 6.87 to 7.77 at the Beverly Channel monitoring wells.

Figure 5-1: High, Low, and Average pH Values in Beverly Channel Monitoring Wells

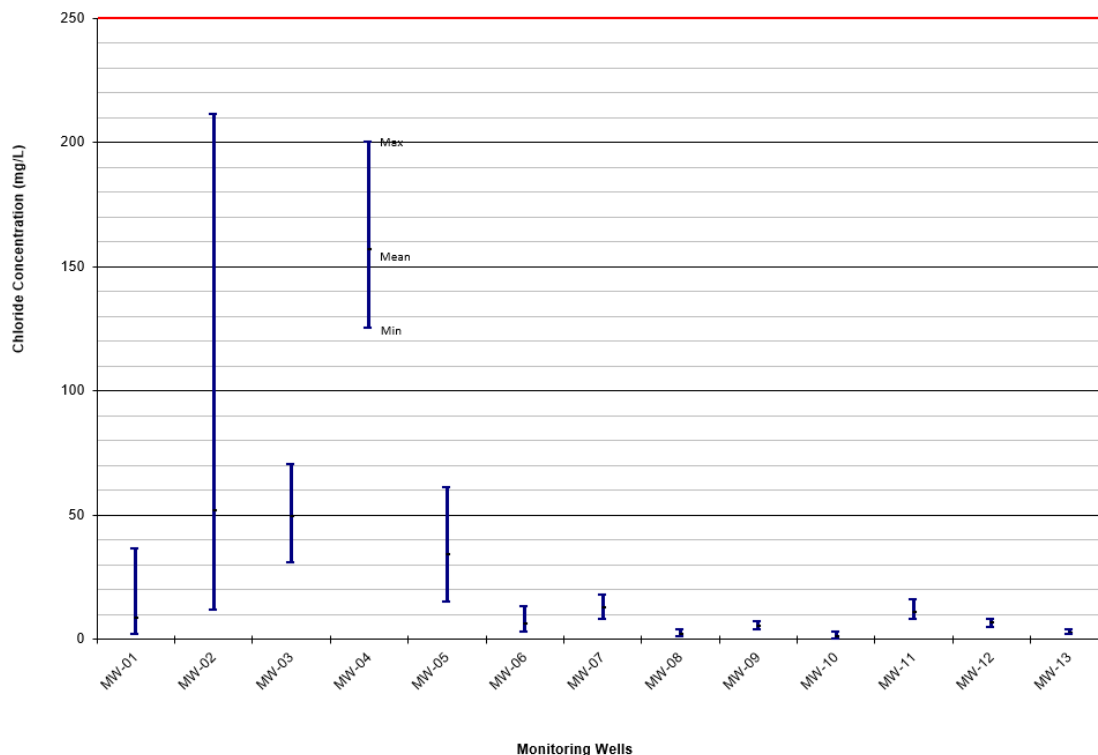


5.2 Chloride

Chloride is an inorganic, non-reactive ion 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) and is generally utilized as an indicator of groundwater contamination. Typical anthropogenic uses of chloride include control of ice and snow, effluents from chemical industries, oil well operations, sewage, irrigation drainage, and refuse leachates. Chloride concentrations in groundwater originating from Quaternary deposits are typically less than 50 mg/L in Sturgeon and Strathcona Counties (see Table 2-1; Hydrogeological Consultants Ltd. [HCL] 2001a and 2001b), while they have been observed to as high as ~900 mg/L in bedrock groundwater (Table 2-1; Hydrogeological Consultants Ltd. [HCL] 2001a and 2001b). As such, it is anticipated that chloride in Quaternary deposits, including the Beverly Channel, can be naturally elevated in regional discharge areas.

Health Canada (2022) suggests an AO guideline of less than or equal to 250 mg/L for chloride (indicated by the red line on Figure 5-2) to minimize undesirable taste. At higher concentrations, chloride may also cause corrosion in distribution systems (Health Canada 1979b).

Figure 5-2: High, Low, and Average Chloride Concentrations in Beverly Channel Monitoring Wells



Chloride concentrations in the Beverly Channel Aquifer are typically less than 70 mg/L and in several monitoring wells less than 10 mg/L. Elevated chloride concentrations between 125 and 200 mg/L have been observed at MW-04 and are considered natural, reflecting mixing of water quality with underlying bedrock (WorleyParsons 2010).

A statistically increasing chloride trend was observed at MW-01, while chloride concentrations were visually increasing at MW-03 and MW-05.

Increasing trends in chloride could be related to discharge from the bedrock to the Beverly Channel across the monitoring network (see also Section 4.1.4), although the current prevalence of discharge conditions across the monitoring network is uncertain.

5.3 Sulphate

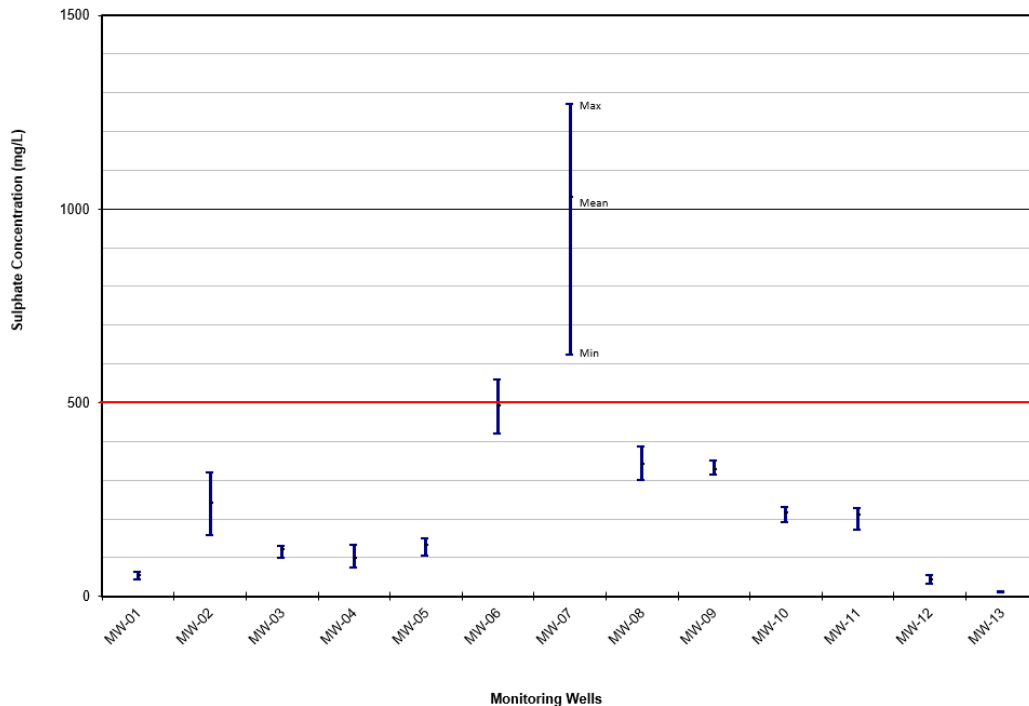
Sulphur sources that can be found in the natural environment include certain igneous rock minerals, evaporite sediment (e.g., gypsum), and geothermal water (Hem 1992). Anthropogenic sources of sulphate are mainly introduced by the combustion of fuels and the smelting of ores (Hem 1992). Industrial uses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

The Health Canada (2022) AO guideline for sulphate is less than or equal to 500 mg/L (indicated by the red line on Figure 5-3 below). This value is based on taste considerations, although there is the possibility of adverse physiological effects at higher concentrations.

In the NCIA Study Area, background sulphate concentrations are generally less than 100 mg/L in the surficial sand deposits, range from 100 to over 1,000 mg/L in shallow bedrock, and range from less than 1,000 to over 4,000 mg/L in till and clay deposits (BA Energy Inc. 2004; Komex International Ltd. [Komex] 2006; Petro-Canada Oil Sands Inc. [PCOSI] 2006; Shell 2005, 2007; TOTAL E&P Canada Inc. [TOTAL] 2007). Monitoring well MW-07 has sulphate concentrations in the range of about 600 to 1,300 mg/L, which is similar to concentrations observed in the shallow bedrock.

There were no statistically significant sulphate concentrations detected in 2024. Sulphate concentrations at MW-02 have been visually decreasing since 2017.

Figure 5-3: High, Low, and Average Sulphate Concentrations in Beverly Channel Monitoring Wells



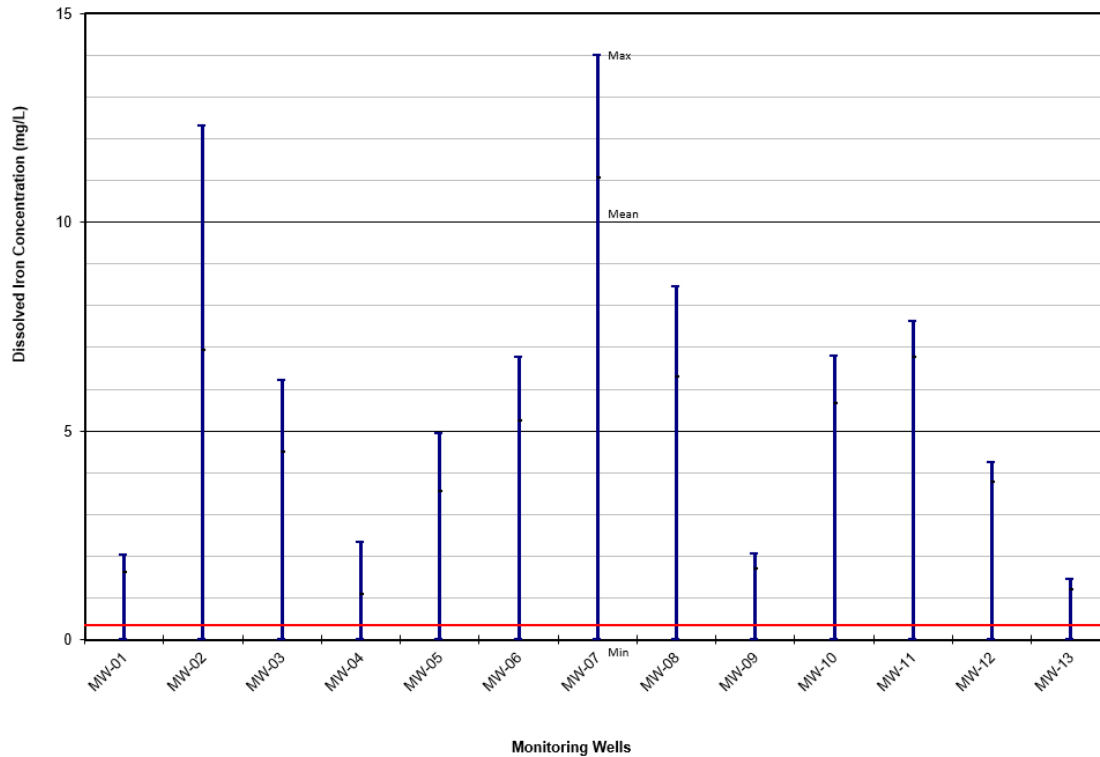
5.4 Dissolved Iron

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

The Health Canada (2022) AO guideline for iron in drinking water is less than or equal to 0.3 mg/L (indicated by the red line on Figure 5-4 below). This objective is aimed to minimize objectionable taste and appearance, as well as inefficiency in distribution systems that can result from the precipitation of insoluble hydroxides and the development of slime produced by iron-oxidizing bacteria.

Within the Beverly Channel, elevated dissolved iron concentrations are generally expected. Stein (1976) indicated that dissolved iron concentrations exceeding 15 mg/L were not uncommon. HCL (2001a) reported dissolved iron concentrations exceeding 7 mg/L for a Beverly Channel water supply well for the Village of Bruderheim. Dissolved iron concentrations in the Beverly Channel monitoring wells range from non-detectable values to about 14 mg/L (Figure 5-4).

Figure 5-4: High, Low, and Average Iron Concentrations in Beverly Channel Monitoring Wells



5.5 Dissolved Manganese

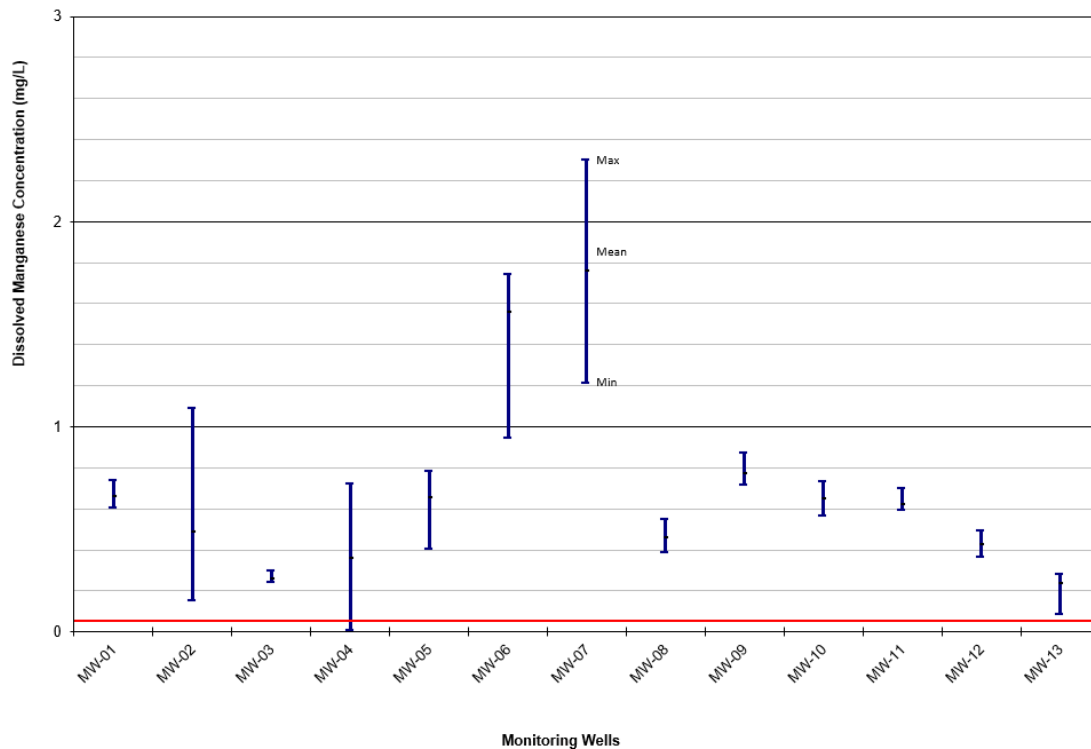
Manganese is most often present as a component of dioxide, carbonate, or silicate minerals (Health Canada 1979c), and many igneous and metamorphic minerals contain manganese as a minor constituent (Hem 1992). Like iron, the presence of dissolved manganese in water is dependent on both redox and pH conditions,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

Health Canada (2022) suggests an AO guideline of less than or equal to 0.02 mg/L for total manganese (indicated by the red line on Figure 5-5 below) to minimize staining, undesirable tastes in beverages, and the accumulation of microbial growths in distribution systems (black precipitates; Health Canada 1979c). Health Canada (2020) also implemented a MAC of 0.12 mg/L for total manganese because too much manganese in drinking water can be a health risk to infants. Higher concentrations of manganese are expected to be more prevalent in groundwater than surface water due to the higher likelihood of reducing conditions in the subsurface (Health Canada 1979c).

The manganese concentrations in the Beverly Channel were within the combined range of surface water/groundwater manganese concentrations 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.

On average, the lowest concentrations of manganese were measured at monitoring wells MW-03 and MW-13; the highest concentrations occurred at MW-02 and MW-07. All concentrations typically exceed the AO and the MAC.

Figure 5-5: High, Low, and Average Manganese Concentrations in Beverly Channel Monitoring Wells



5.6 Total Dissolved Solids

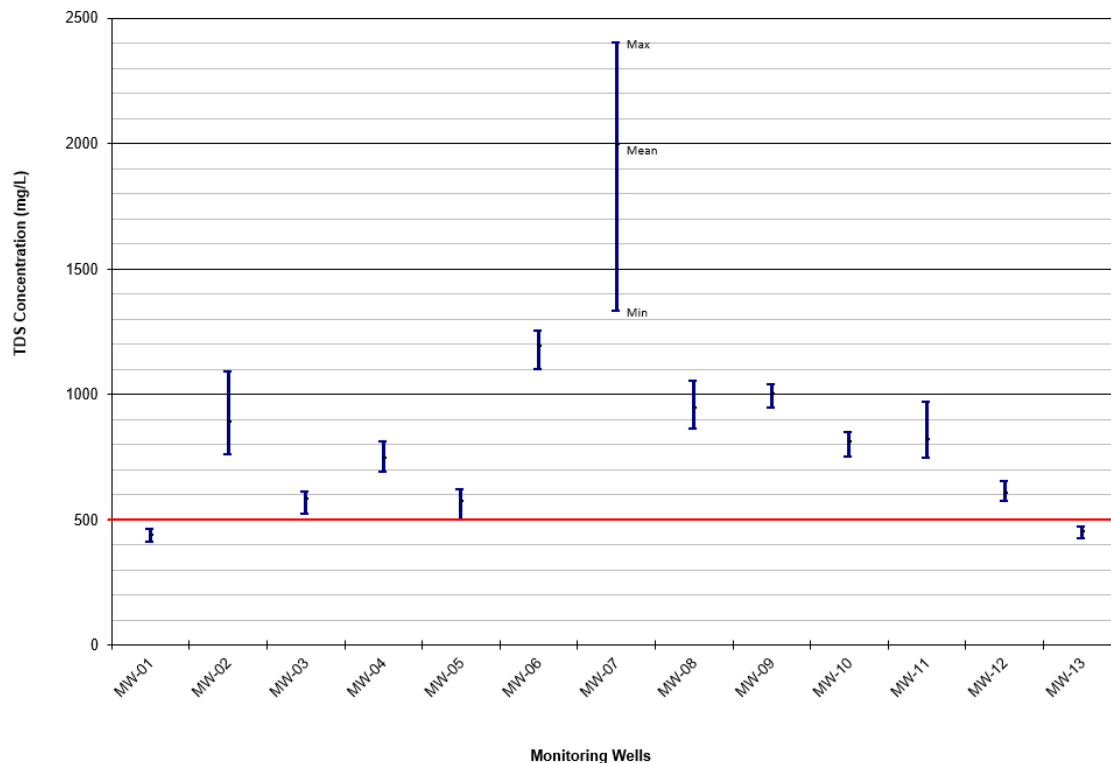
TDS are dissolved constituents that comprise inorganic salts, primarily the major cations and anions used for groundwater characterization, nitrate (when introduced by agricultural use), and small amounts of organic matter (Health Canada 1978b). Sources of TDS include natural mineral sources, sewage,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

Health Canada (2022) suggests an AO of less than or equal to 500 mg/L for TDS (indicated by the red line on Figure 5-6) to minimize hardness, unpalatability, mineral deposition, and corrosion (Health Canada 1978b). Recent data on health effects associated with the ingestion of TDS in drinking water is limited, and the data that are available are unclear; however, some individual components of TDS (e.g., chloride, sodium, and nitrate) can affect human health (Health Canada 1978b; as updated 1991).

TDS concentrations within the Beverly Channel monitoring well network ranged from 410 to 2,400 mg/L, with only two monitoring wells with a TDS of less than 500 mg/L (MW-01 and MW-13).

This was generally consistent with TDS values exceeding 1,000 mg/L reported by HCL (2001a and 2001b) for the Beverly Channel. The higher TDS concentration at MW-07 may be related to local groundwater discharge from bedrock. The TDS concentration in the bedrock at MW-02B was 1,940 mg/L in 2024, consistent with the generally reported range of 1,000 to 2,000 mg/L (Stein 1976) in the area.

Figure 5-6: High, Low, and Average TDS Concentrations in Beverly Channel Monitoring Wells



5.7 Sodium

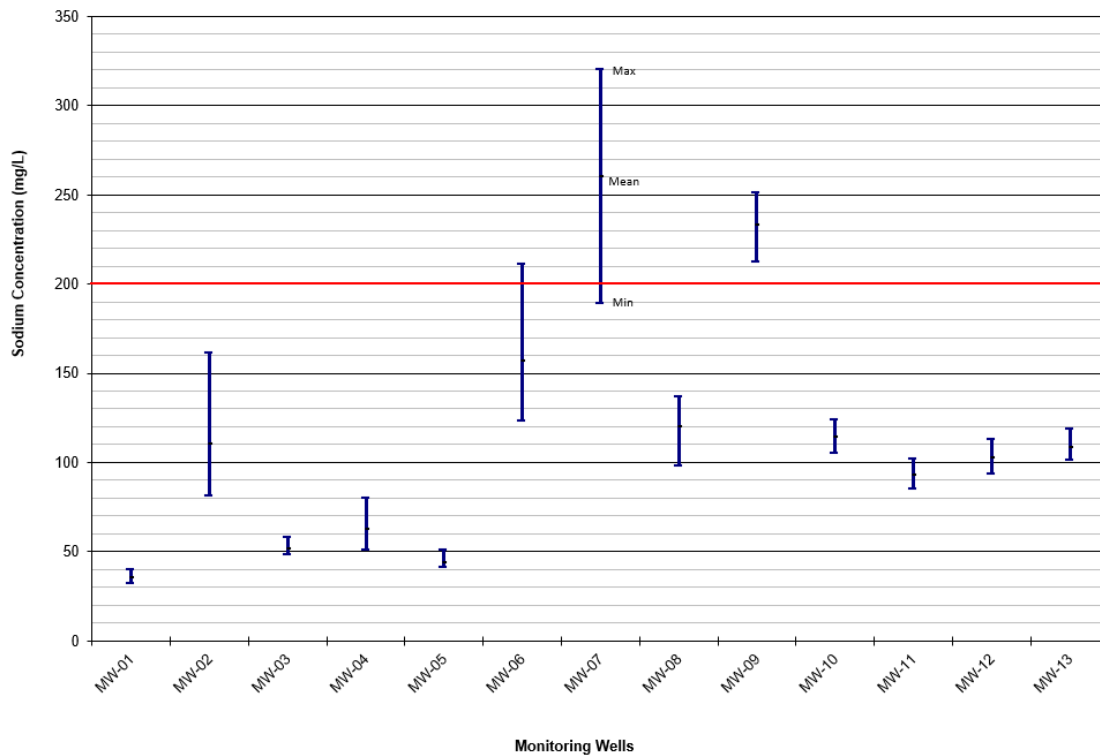
Sodium may be present in feldspar minerals, which can release sodium into water through weathering. Sodium may be present as readily soluble salts, such as those left behind in the uplift of the land surface or decline of sea level (Hem 1992). Anthropogenic sources of sodium include the use of salt for 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 1979d).

Health Canada (2022) suggests an AO of less than or equal to 200 mg/L for sodium (indicated by the red line in Figure 5-7 below). The human body has effective mechanisms to control sodium levels; therefore, 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 1979d).

Sodium concentrations within the Beverly Channel have ranged from approximately 33 to 320 mg/L (Figure 5-7). Monitoring wells MW-06 and MW-07 had elevated sodium concentrations compared to other monitoring wells. The elevated concentrations could be due to the proximity of the monitoring well in relation to the bedrock, where sodium concentrations are generally higher.

Figure 5-7: High, Low, and Average Sodium Concentrations in Beverly Channel Monitoring Wells



6. Summary and Recommendations

Bi-annual groundwater quality monitoring of the Beverly Channel Aquifer was completed for the NCIA in June 2024. Results are summarized as follows:

- Lateral groundwater flow was generally to the northwest. The hydraulic gradient ranged from 0.0007 to 0.003 m/m, and the linear groundwater flow velocity ranged from about 34 to 66 m/year in 2024.
- Groundwater met the Health Canada (2022) AO guideline of 7 to 10.5 for pH at all monitoring wells as measured by laboratory analysis.
- Chloride concentrations were generally below 70 mg/L and within historical ranges. Elevated chloride concentrations reported at MW-04 were considered natural and potentially illustrated the influence of well screen proximity to bedrock (WorleyParsons 2010). This interpretation was supported by isotopic values at this location. A statistically increasing chloride trend was observed at MW-01. Visually, chloride concentrations were increasing at MW-03 and MW-05.
- There were no statistically significant trends in sulphate concentrations detected in 2024. Sulphate concentrations at MW-02 have been visually decreasing since 2017.
- The elevated sulphate concentration at MW-07 was considered to be naturally occurring. Other parameters, including dissolved iron, manganese, TDS, and sodium, are also generally higher at MW-07 than at other wells in the monitoring network. These elevated concentrations at MW-07 are likely natural and could be caused by interactions with bedrock groundwater.
- Dissolved iron, manganese, TDS, and sodium appear to be naturally elevated in the Beverly Channel within the NCIA Study Area. While elevated, their concentrations remain well within naturally occurring ranges for groundwater within Sturgeon and Strathcona County (Stein 1976; HCL 2001a, 2001b).
- No PHCs were detected above the RDL during the 2024 sampling event.
- Analysis of oxygen (^{18}O) and deuterium (^2H) stable isotope results suggests that groundwater in the Beverly Channel has a varying influence from different sources. On the light end of the ^{18}O - ^2H ranges, the groundwater appears to be mostly influenced by direct surface infiltration (e.g., MW-03). On the heavier end of the ^{18}O - ^2H ranges, there may be a higher relative contribution of bedrock groundwater or a higher relative contribution of evaporated surface water, or both.
- The vertical hydraulic gradient between the bedrock and Beverly Channel Aquifer was calculated at the nested pair (MW-02 and MW-02B). Results from the 2024 sampling event indicated a potential for upward flow from the bedrock toward the overlying Beverly Channel Aquifer under a vertical gradient of 0.25 m/m. Fluctuating and increasing (i.e., chloride) concentrations at MW-02 are indicative of mixed bedrock and Beverly Channel groundwater quality.

Recommendations are as follows:

- Bi-annual groundwater monitoring should continue, with the next sampling event to be completed in 2026.
- The analytical schedule should be the same as completed in 2024 and should therefore include the following:
 - major ions/routine potability parameters, including EC, pH, total alkalinity, chloride, sulphate, iron, manganese, TDS, calcium, magnesium, potassium, sodium, bicarbonate, carbonate, hydroxide, fluoride, ion balance, DOC, nitrate-as-nitrogen, nitrite-as-nitrogen, and total ammonia;
 - dissolved metal and trace element parameters, including aluminium, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, titanium, uranium, vanadium, and zinc;
 - PHC parameters, including BTEX, PHC F1, and F2; and
 - deuterium and oxygen (^2H and ^{18}O) stable isotopes.

7. Closure

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

Report Prepared by:



Rylee Machula, B.Sc., P.Geo.
Hydrogeologist

Senior Review by:



2025-06-23
ID# 152162

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The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	

Trevor Butterfield, M.Sc., P.Geo.
Principal Hydrogeologist

Water
Worley Consulting Americas

8. References

- Advisian 2016. 2016 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. 307076-01608-200. December 2016.
- Advisian 2018. 2017 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. 307076-01608-300. February 2018.
- Advisian 2020. 2020 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. 307076-01608-600. November 2020.
- Advisian 2022. 2022 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. 317085-44533-22100. December 2022.
- APHA (American Public Health Association), AWWA (American Water Works Association), and WEF (Water Environment Federation), 2005. Standard Methods for the Examination of Water and Wastewater, 21st ed. American Public Health Association, Washington, D.C.
- BA Energy Inc., 2004. BA Energy Heartland Upgrader, Project Application and Environmental Impact Assessment. May 2004.
- Clark, I.D., and Fritz, P., 1997. Environmental Isotopes in Hydrogeology. Lewis Publishers, New York.
- Gibson, J.J., Birks, S.J., Yi, Y., 2016. Stable Isotope Mass Balance of Lakes: A Contemporary Perspective. Quaternary Science Reviews 131 316-328.
- Gilbert, R.O., 1987. Statistical Methods for Environmental Pollution Monitoring. John Wiley & Sons Inc. Canada.
- Health Canada 1978a. Iron. Guidelines for Canadian Drinking Water Quality: Supporting Documentation. December 1978, updated November 1987.
- Health Canada 1978b. Total Dissolved Solids (TDS). Guidelines for Canadian Drinking Water Quality: Supporting Documentation. September 1978, updated January 1991.
- Health Canada 1979a. pH. Guidelines for Canadian Drinking Water Quality: Supporting Documentation. May 1979, reprinted 1995.
- Health Canada 1979b. Chloride. Technical document – Chemical/Physical Parameters. April 1979, updated November 1987.
- Health Canada 1979c. Manganese. Guidelines for Canadian Drinking Water Quality: Supporting Documentation. May 1979, updated November 1987.
- Health Canada 1979d. Sodium. Guidelines for Canadian Drinking Water Quality: Supporting Documentation. May 1979, updated December 1992.

- Health Canada 1987. Sulphate. Guidelines for Canadian Drinking Water Quality: Supporting Documentation. November 1987, updated September 1994.
- Health Canada 2022. Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment. September 2022.
- Helsel, D.R., and Hirsch, R.M., 1992. Statistical Methods in Water Resources. Elsevier Science Publishing Company Inc. New York, New York.
- Hem, J.D., 1992. Study and Interpretation of the Chemical Characteristics of Natural Water, 3rd Edition. United States Geological Survey Water Supply Paper 2254.
- HCL (Hydrogeological Consultants Ltd.) 2001a. Strathcona County, Regional Groundwater Assessment. April 2001.
- HCL (Hydrogeological Consultants Ltd.) 2001b. Sturgeon County, Regional Groundwater Assessment. September 2001.
- Kendall, C. and McDonnell, J.J. (eds.) 1998. Isotope Tracers in Catchment Hydrology. Elsevier Science B.V., Amsterdam. pp. 51-86.
- Komex (Komex International Ltd.) 2006. Hydrogeological Assessment, Proposed Upgrader. Report prepared for North West Upgrading Inc. January 2006.
- Lemay, T.G., 2002. Geochemical and isotope data for formation water from selected wells, Cretaceous to Quaternary succession, Athabasca Oil Sands (in situ) Area, Alberta; Alberta Energy and Utilities Board, EUB/AGS Geo-Note 2002-02.
- PCOSI (Petro-Canada Oil Sands Inc.) 2006. Application for Approval of the Sturgeon Upgrader. Submitted to Alberta Energy and Utilities Board and Alberta Environment. December 2006. Section 11: Groundwater.
- Prior, G.J., Hathway, B., Glombick, P.M., Pană, D.I., Banks, C.J., Hay, D.C., Schneider, C.L., Grobe, M., Elgr, R. and Weiss, J.A., 2013: Bedrock geology of Alberta; Alberta Energy Regulator, AER/AGS Map 600, scale 1:1 000 000.
- Shell (Shell Canada Limited) 2005. Application for Approval of the Scotford Upgrader Expansion Project. Submitted to Alberta Energy and Utilities Board and Alberta Environment. April 2005. Section 11: Groundwater.
- Shell (Shell Canada Limited) 2007. Application for Approval of the Shell Scotford Upgrader 2 Project. Submitted to Alberta Energy and Utilities Board and Alberta Environment. July 2007. Section 11: Groundwater.
- Sidle, W., 1998. Environmental isotopes for resolution of hydrology problems. Environmental Monitoring and Assessment, 52, 389–410.

- Stantec (Stantec Consulting Ltd.) 2006a. Regional Groundwater Quality Study of the Beverly Channel in the Fort Saskatchewan Area – Phase II. Prepared for Northeast Capital Industrial Association (NCIA). October 2006. File 1102-17094. Website accessed March 15, 2010: http://www.ncia.ab.ca/documents/NCIA%20Phase%20II%20Report%20_Final_.pdf.
- Stantec (Stantec Consulting Ltd.) 2006b. Spring, 2006 Groundwater Monitoring Field Program. Prepared for Northeast Capital Industrial Association (NCIA). November 16, 2006. File 110217444. Website: <http://www.ncia.ab.ca/documents/Spring2006GroundwaterUpdateRAWDATA.pdf>. Accessed March 15, 2010.
- Stantec (Stantec Consulting Ltd.) 2007. Spring, 2007 Groundwater Monitoring Field Program. Prepared for Northeast Capital Industrial Association (NCIA). December 11, 2007. File 110217663. Website: <http://www.ncia.ab.ca/documents/Spring2007GroundwaterUpdateRAWDATA.pdf>. Accessed March 15, 2010.
- Stantec (Stantec Consulting Ltd.) 2008. Fall, 2007 Groundwater Monitoring Field Program. Prepared for Northeast Capital Industrial Association (NCIA). May 9, 2008. File 110217729. Website: <http://www.ncia.ab.ca/documents/PartBFall2007GroundwaterUpdateReportRAWDATA.pdf>. Accessed March 15, 2010.
- Stantec (Stantec Consulting Ltd.) 2009. Spring, 2009 Groundwater Monitoring Field Program. Prepared for Northeast Capital Industrial Association (NCIA). June 1, 2009. File 1102-17990. Website: <http://www.ncia.ab.ca/documents/Spring2009GroundwaterUpdateRAWDATA.pdf>. Accessed March 15, 2010.
- Stein, R., 1976. Hydrogeology of the Edmonton Area (Northeast Segment), Alberta. Alberta Research Council Report 76-1. 21 p.
- TOTAL (TOTAL E&P Canada Inc.) 2007. Integrated Application for Approval of the TOTAL Upgrader. Submitted to Alberta Energy and Utilities Board and Alberta Environment. December 2007. Section 7: Groundwater.
- WorleyParsons (WorleyParsons Canada Services Ltd.) 2010. 2010 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. E00100101. August 2010.
- WorleyParsons (WorleyParsons Canada Services Ltd.) 2011. 2011 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. E00100102. September 2011.
- WorleyParsons (WorleyParsons Canada Services Ltd.) 2012. 2012 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. 307075-01129. October 2012.
- WorleyParsons (WorleyParsons Canada Services Ltd.) 2013. 2013 Groundwater Quality Monitoring – Beverly Channel Monitoring Wells. Project No. 307076-06086. September 2013.

WorleyParsons (WorleyParsons Canada Services Ltd.) 2014. 2014 Groundwater Quality Monitoring
– Beverly Channel Monitoring Wells. Project No. 307076-06086. September 2014.

WorleyParsons (WorleyParsons Canada Services Ltd.) 2015. 2015 Groundwater Quality Monitoring
– Beverly Channel Monitoring Wells. Project No. 307076-01608-100. December 2015.

Zeiner, S.T., 1994. Realistic Criteria for the Evaluation of Field Duplicate Field Results.
Proceedings of Superfund XV, November 29-December 1, 1994. Sheraton Washington Hotel,
Washington, D.C.

Tables

Monitoring Well Installation Details: Datum/Groundwater Surface Elevations and Hydraulic Conductivities

PROJECT No.: 317085-55576-24000																				
Monitoring Station	Status	Easting (m)	Northing (m)	Ground Elevation (masl)	Datum Elevation (masl)	Surveyed Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbtoc)	Depth to Groundwater (mbgs)	Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbtoc)	Hydraulic Conductivity (m/s)	Lithology	Comments
Monitoring Wells																				
MW-01	Active	350335.040	5951040.450	617.52	618.04	0.52	19.80	597.72	15.50 - 19.80	602.02 - 597.72	14.30 - 19.80	603.22 - 597.72	07-Mar-2005	15.55	15.03	602.49	N/M	6.80E-05	Sand and Gravel	
													04-May-2005	15.48	14.96	602.56	N/M			
													06-Jun-2005	15.42	14.90	602.62	N/M			
													17-Nov-2005	15.64	15.12	602.40	N/M			
													15-Jun-2006	15.23	14.71	602.81	N/M			
													12-Jul-2007	15.23	14.71	602.81	N/M			
													19-Dec-2007	15.38	14.86	602.66	N/M			
													21-Apr-2009	15.29	14.77	602.75	N/M			
													05-May-2010	15.70	15.18	602.34	N/M			
													25-May-2011	15.40	14.88	602.64	N/M			
													29-May-2012	15.15	14.63	602.89	20.14			
													10-Jul-2013	14.41	13.89	603.63	19.56			
													16-Jun-2014	14.76	14.24	603.28	19.30			
													29-Jun-2015	15.12	14.60	602.92	19.27			
													19-Sep-2016	14.96	14.44	603.08	20.14			
													13-Jul-2017	14.77	14.25	603.27	20.43			
													01-Aug-2018	14.66	14.14	603.38	20.33			
													12-May-2020	14.51	13.99	603.53	20.35			
													22-Aug-2022	14.85	14.33	603.19	20.30			
													26-Jun-2024	14.70	14.18	603.34	20.39			
MW-02	Active	352457.800	5950583.370	630.71	631.31	0.60	33.80	596.91	27.60 - 33.80	603.11 - 596.91	26.20 - 33.80	604.51 - 596.91	07-Mar-2005	27.14	26.54	604.17	N/M	1.80E-04	Sand and Gravel	
													04-May-2005	27.22	26.62	604.09	N/M			
													06-Jun-2005	27.17	26.57	604.14	N/M			
													17-Nov-2005	27.23	26.63	604.08	N/M			
													15-Jun-2006	27.05	26.45	604.26	N/M			
													13-Jul-2007	27.18	26.58	604.13	N/M			
													19-Dec-2007	26.99	26.39	604.32	N/M			
													21-Apr-2009	27.13	26.53	604.18	N/M			
													05-May-2010	27.20	26.60	604.11	N/M			
													25-May-2011	27.26	26.66	604.05	N/M			
													29-May-2012	27.16	26.56	604.15	27.16			
													10-Jul-2013	27.05	26.45	604.26	34.30			
													16-Jun-2014	27.03	26.43	604.28	34.17			
													28-Aug-2014	27.09	26.49	604.22	34.18			
													25-Jun-2015	27.08	26.48	604.23	34.17			
													19-Sep-2016	26.99	26.39	604.32	34.21			
													13-Jul-2017	26.96	26.36	604.35	34.50			
													25-Sep-2017	26.94	26.34	604.37	N/M			
													02-Aug-2018	26.86	26.26	604.45	34.22			
													12-May-2020	26.84	26.24	604.47	34.26			
22-Aug-2022	26.79	26.19	604.52	34.25																
26-Jun-2024	26.74	26.14	604.57	34.30																
MW-02B	Active	352461.377	5950583.597	630.67	631.38	0.71	41.60	589.07	40.10 - 41.60	590.57 - 589.07	38.70 - 42.70	591.97 - 587.97	20-Sep-2016	28.50	27.79	602.88	40.35		Shale	
													13-Jul-2017	23.87	23.16	607.51	41.90			
													25-Sep-2017	24.16	23.45	607.22	N/M			
													02-Aug-2018	23.63	22.92	607.75	41.80			
													12-May-2020	23.40	22.69	607.98	41.73			
													22-Aug-2022	23.29	22.58	608.09	41.85			
													26-Jun-2024	23.73	23.02	607.65	42.07			
MW-03	Active	353030.210	5952940.900	623.79	624.43	0.64	29.60	594.19	25.00 - 29.60	598.79 - 594.19	23.50 - 29.60	600.29 - 594.19	08-Mar-2005	22.50	21.86	601.93	N/M	2.20E-04	Sand and Gravel	
													04-May-2005	22.55	21.91	601.88	N/M			
													06-Jun-2005	22.53	21.89	601.90	N/M			
													17-Nov-2005	23.47	22.83	600.96	N/M			
													15-Jun-2006	22.50	21.86	601.93	N/M			
													12-Jul-2007	22.45	21.81	601.98	N/M			
													19-Dec-2007	23.36	22.72	601.07	N/M			
													21-Apr-2009	22.54	21.90	601.89	N/M			
													06-May-2010	22.82	22.18	601.61	N/M			
													25-May-2011	22.32	21.68	602.11	N/M			
													29-May-2012	22.57	21.93	601.86	30.12			

Monitoring Well Installation Details: Datum/Groundwater Surface Elevations and Hydraulic Conductivities

PROJECT No.: 317085-55576-24000																				
Monitoring Station	Status	Easting (m)	Northing (m)	Ground Elevation (masl)	Datum Elevation (masl)	Surveyed Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbtoc)	Depth to Groundwater (mbgs)	Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbtoc)	Hydraulic Conductivity (m/s)	Lithology	Comments
MW-03 (cont'd)													10-Jul-2013	22.24	21.60	602.19	30.21			
16-Jun-2014													22.34	21.70	602.09	30.08				
29-Jun-2015													22.57	21.93	601.86	30.08				
19-Sep-2016													22.45	21.81	601.98	30.12				
13-Jul-2017													22.40	21.76	602.03	30.11				
31-Jul-2018													22.44	21.80	601.99	30.09				
12-May-2020													22.12	21.48	602.31	30.12				
22-Aug-2022													22.39	21.75	602.04	30.05				
26-Jun-2024													22.48	21.84	601.95	29.92				
MW-04													Active	354823.410	5953959.760	620.25	620.79			
													04-May-2005	18.61	18.07	602.18	N/M			
													06-Jun-2005	18.62	18.08	602.17	N/M			
													17-Nov-2005	18.57	18.03	602.22	N/M			
													14-Jun-2006	18.59	18.05	602.20	N/M			
													13-Jul-2007	18.55	18.01	602.24	N/M			
													19-Dec-2007	18.52	17.98	602.27	N/M			
													21-Apr-2009	18.66	18.12	602.13	N/M			
													06-May-2010	18.87	18.33	601.92	N/M			
													07-Jun-2011	18.70	18.16	602.09	N/M			
													30-May-2012	18.78	18.24	602.01	26.93			
													09-Jul-2013	18.54	18.00	602.25	27.80			
													13-Jun-2014	18.48	17.94	602.31	26.75			
													29-Jun-2015	18.48	17.94	602.31	26.72			
													19-Sep-2016	18.44	17.90	602.35	26.90			
													13-Jul-2017	18.41	17.87	602.38	27.48			
													31-Jul-2018	18.49	17.95	602.30	26.69			
													16-Jan-2019	18.46	17.92	602.33	N/M			
													24-Apr-2019	18.55	18.01	602.24	N/M			
													31-Jul-2019	18.46	17.92	602.33	N/M			
													17-Oct-2019	13.33	12.79	607.46	N/M			
													23-Jan-2020	18.30	17.76	602.49	N/M			
													12-May-2020	18.39	17.85	602.40	26.38			
													11-Nov-2020	18.48	17.94	602.31	N/M			
													29-Jan-2021	18.38	17.84	602.41	N/M			
													30-Apr-2021	18.45	17.91	602.34	N/M			
													05-Nov-2021	18.48	17.94	602.31	N/M			
													17-Jan-2022	18.37	17.83	602.42	N/M			
													06-May-2022	18.44	17.90	602.35	N/M			
													22-Aug-2022	18.54	18.00	602.25	26.86			
													09-Feb-2023	18.58	18.04	602.21	N/M			
													26-Jun-2024	18.63	18.09	602.16	26.78			
MW-05	Active	354293.740	5954889.460	624.28	624.89	0.61	31.40	592.88	26.80 - 31.40	597.48 - 592.88	28.40 - 31.40	595.88 - 592.88	08-Mar-2005	25.32	24.71	599.57	N/M		Gravel	
													04-May-2005	25.71	25.10	599.18	N/M			
													06-Jun-2005	25.62	25.01	599.27	N/M			
													17-Nov-2005	26.77	26.16	598.12	N/M			
													14-Jun-2006	25.70	25.09	599.19	N/M			
													13-Jul-2007	25.52	24.91	599.37	N/M			
													19-Dec-2007	25.34	24.73	599.55	N/M			
													21-Apr-2009	25.61	25.00	599.28	N/M			
													29-Apr-2010	25.92	25.31	598.97	N/M			
													25-May-2011	25.58	24.97	599.31	N/M			
													29-May-2012	25.71	25.10	599.18	30.83			
													08-Jul-2013	25.06	24.45	599.83	30.88			
													13-Jun-2014	25.26	24.65	599.63	30.66			
													25-Jun-2015	25.72	25.11	599.17	30.67			
													19-Sep-2016	25.62	25.01	599.27	30.86			
													13-Jul-2017	25.61	25.00	599.28	30.66			
													31-Jul-2018	25.54	24.93	599.35	30.30			
													16-Jan-2019	25.31	24.70	599.58	N/M			
													24-Apr-2019	25.73	25.12	599.16	N/M			
													31-Jul-2019	25.42	24.81	599.47	N/M			

Monitoring Well Installation Details: Datum/Groundwater Surface Elevations and Hydraulic Conductivities

PROJECT No.: 317085-55576-24000																					
Monitoring Station	Status	Easting (m)	Northing (m)	Ground Elevation (masl)	Datum Elevation (masl)	Surveyed Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbtoc)	Depth to Groundwater (mbgs)	Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbtoc)	Hydraulic Conductivity (m/s)	Lithology	Comments	
MW-05 (cont'd)	Active	361559.340	5958812.220	629.61	630.28	0.67	39.00	590.61	34.40 - 39.00	595.21 - 590.61	32.90 - 39.00	596.71 - 590.61	17-Oct-2019	25.71	25.10	599.18	N/M	1.50E-04	Sand and Gravel		
													23-Jan-2020	24.59	23.98	600.30	N/M				
													12-May-2020	25.05	24.44	599.84	29.18				
													11-Nov-2020	25.85	25.24	599.04	N/M				
													29-Jan-2021	25.31	24.70	599.58	N/M				
													30-Apr-2021	25.70	25.09	599.19	N/M				
													04-Nov-2021	25.82	25.21	599.07	N/M				
													17-Jan-2022	25.17	24.56	599.72	N/M				
													06-May-2022	25.66	25.05	599.23	N/M				
													22-Aug-2022	25.67	25.06	599.22	30.19				
													09-Feb-2023	25.53	24.92	599.36	N/M				
													26-Jun-2024	25.74	25.13	599.15	30.20				
MW-06	Active	361559.340	5958812.220	629.61	630.28	0.67	39.00	590.61	34.40 - 39.00	595.21 - 590.61	32.90 - 39.00	596.71 - 590.61	08-Mar-2005	32.17	31.50	598.11	N/M	1.50E-04	Sand and Gravel		
													04-May-2005	32.16	31.49	598.12	N/M				
													06-Jun-2005	32.07	31.40	598.21	N/M				
													17-Nov-2005	32.17	31.50	598.11	N/M				
													16-Jun-2006	32.76	32.09	597.52	N/M				
													12-Jul-2007	32.13	31.46	598.15	N/M				
													19-Dec-2007	31.97	31.30	598.31	N/M				
													22-Apr-2009	31.99	31.32	598.29	N/M				
													05-May-2010	32.24	31.57	598.04	N/M				
													07-Jun-2011	32.10	31.43	598.18	N/M				
													29-May-2012	32.08	31.41	598.20	39.24				
													08-Jul-2013	32.06	31.39	598.22	39.70				
													12-Jun-2014	32.01	31.34	598.27	39.17				
													25-Jun-2015	31.98	31.31	598.30	39.20				
													20-Sep-2016	32.14	31.47	598.14	39.08				
													13-Jul-2017	32.08	31.41	598.20	39.06				
													31-Jul-2018	32.18	31.51	598.10	38.95				
													16-Jan-2019	32.12	31.45	598.16	N/M				
													24-Apr-2019	32.15	31.48	598.13	N/M				
													31-Jul-2019	31.18	30.51	599.10	N/M				
													17-Oct-2019	31.94	31.27	598.34	N/M				
													23-Jan-2020	32.12	31.45	598.16	N/M				
													13-May-2020	32.04	31.37	598.24	38.97				
													11-Nov-2020	32.16	31.49	598.12	N/M				
													29-Jan-2021	32.08	31.41	598.20	N/M				
													30-Apr-2021	32.04	31.37	598.24	N/M				
													05-Nov-2021	32.04	31.37	598.24	N/M				
													17-Jan-2022	32.02	31.35	598.26	N/M				
													06-May-2022	N/M	N/M	N/A	N/M				WL tape malfunction
													22-Aug-2022	32.17	31.50	598.11	38.97				
													09-Feb-2023	32.18	31.51	598.10	N/M				
													26-Jun-2024	32.05	31.38	598.23	38.89				
MW-07	Active	359089.700	5959604.240	630.41	631.01	0.60	43.90	586.51	37.80 - 43.90	592.61 - 586.51	36.30 - 43.90	594.11 - 586.51	09-Mar-2005	33.98	33.38	597.03	N/M		Sand and Gravel		
													04-May-2005	34.14	33.54	596.87	N/M				
													06-Jun-2005	33.85	33.25	597.16	N/M				
													17-Nov-2005	34.23	33.63	596.78	N/M				
													16-Jun-2006	34.60	34.00	596.41	N/M				
													12-Jul-2007	33.97	33.37	597.04	N/M				
													19-Dec-2007	33.78	33.18	597.23	N/M				
													22-Apr-2009	34.00	33.40	597.01	N/M				
													05-May-2010	34.32	33.72	596.69	N/M				
													08-Jun-2011	34.43	33.83	596.58	N/M				
													28-Jul-2011	33.80	33.20	597.21	N/M				
													30-May-2012	34.12	33.52	596.89	44.66				
													11-Jul-2013	33.59	32.99	597.42	42.00				

Monitoring Well Installation Details: Datum/Groundwater Surface Elevations and Hydraulic Conductivities

PROJECT No.: 317085-55576-24000																				
Monitoring Station	Status	Easting (m)	Northing (m)	Ground Elevation (masl)	Datum Elevation (masl)	Surveyed Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbtoc)	Depth to Groundwater (mbgs)	Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbtoc)	Hydraulic Conductivity (m/s)	Lithology	Comments
MW-07 (cont'd)	Active	363133.770	5961204.950	625.87	626.44	0.57	33.50	592.37	30.50 - 33.50	595.37 - 592.37	28.70 - 33.50	597.17 - 592.37	31-Jul-2018	34.44	33.84	596.57	44.56	9.50E-04	Gravel	
													16-Jan-2019	34.41	33.81	596.60	N/M			
													24-Apr-2019	34.54	33.94	596.47	N/M			
													31-Jul-2019	34.03	33.43	596.98	N/M			
													17-Oct-2019	34.33	33.73	596.68	N/M			
													23-Jan-2020	33.38	32.78	597.63	N/M			
													13-May-2020	33.77	33.17	597.24	44.60			
													11-Nov-2020	34.37	33.77	596.64	N/M			
													29-Jan-2021	34.06	33.46	596.95	N/M			
													30-Apr-2021	34.33	33.73	596.68	N/M			
													05-Nov-2021	34.43	33.83	596.58	N/M			
													17-Jan-2022	33.88	33.28	597.13	N/M			
													06-May-2022	34.26	33.66	596.75	N/M			
													23-Aug-2022	34.16	33.56	596.85	44.60			
													09-Feb-2023	34.08	33.48	596.93	N/M			
													27-Jun-2024	34.11	33.51	596.90	44.80			
MW-08	Active	363133.770	5961204.950	625.87	626.44	0.57	33.50	592.37	30.50 - 33.50	595.37 - 592.37	28.70 - 33.50	597.17 - 592.37	09-Mar-2005	27.74	27.17	598.70	N/M	9.50E-04	Gravel	
													04-May-2005	27.77	27.20	598.67	N/M			
													06-Jun-2005	27.68	27.11	598.76	N/M			
													15-Nov-2005	27.74	27.17	598.70	N/M			
													16-Jun-2006	27.58	27.01	598.86	N/M			
													11-Jul-2007	27.72	27.15	598.72	N/M			
													19-Dec-2007	27.57	27.00	598.87	N/M			
													22-Apr-2009	27.63	27.06	598.81	N/M			
													05-May-2010	27.83	27.26	598.61	N/M			
													07-Jun-2011	27.72	27.15	598.72	N/M			
													30-May-2012	27.69	27.12	598.75	34.07			
													09-Jul-2013	27.63	27.06	598.81	31.17			
													12-Jun-2014	27.55	26.98	598.89	34.00			
													24-Jun-2015	27.58	27.01	598.86	34.24			
													20-Sep-2016	27.63	27.06	598.81	34.02			
													02-Aug-2017	27.77	27.20	598.67	34.00			
													01-Aug-2018	27.56	26.99	598.88	33.94			
													13-May-2020	27.46	26.89	598.98	33.99			
													05-Nov-2021	34.43	33.86	592.01	N/M			
													23-Aug-2022	27.58	27.01	598.86	33.93			
	27-Jun-2024	27.47	26.90	598.97	34.02															
MW-09	Active	361003.460	5962032.280	624.06	624.73	0.67	36.60	587.46	32.00 - 36.60	592.06 - 587.46	30.50 - 36.60	593.56 - 587.46	09-Mar-2005	28.41	27.74	596.32	N/M	4.10E-04	Gravel, Sand and Gravel	
													04-May-2005	28.41	27.74	596.32	N/M			
													06-Jun-2005	28.33	27.66	596.40	N/M			
													17-Nov-2005	28.48	27.81	596.25	N/M			
													16-Jun-2006	28.27	27.60	596.46	N/M			
													11-Jul-2007	28.35	27.68	596.38	N/M			
													18-Dec-2007	28.34	27.67	596.39	N/M			
													22-Apr-2009	28.27	27.60	596.46	N/M			
													06-May-2010	28.61	27.94	596.12	N/M			
													02-Jun-2011	28.25	27.58	596.48	N/M			
													29-May-2012	28.37	27.70	596.36	37.06			
													10-Jul-2013	28.17	27.50	596.56	37.25			
													13-Jun-2014	28.64	27.97	596.09	36.70			
													25-Jun-2015	28.36	27.69	596.37	37.07			
													20-Sep-2016	28.43	27.76	596.30	36.77			
													14-Jul-2017	28.38	27.71	596.35	37.08			
													01-Aug-2018	28.28	27.61	596.45	37.03			
													13-May-2020	28.12	27.45	596.61	37.05			
													23-Aug-2022	28.34	27.67	596.39	37.06			
													26-Jun-2024	28.34	27.67	596.39	37.07			

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Monitoring Well Installation Details: Datum/Groundwater Surface Elevations and Hydraulic Conductivities

PROJECT No.: 317085-55576-24000																				
Monitoring Station	Status	Easting (m)	Northing (m)	Ground Elevation (masl)	Datum Elevation (masl)	Surveyed Stickup (m)	Total Depth of Piezometer (mbgs)	Bottom of Piezometer Elevation (masl)	Depth Interval of Screen (mbgs)	Elevation Interval of Screen (masl)	Depth Interval of Sand (mbgs)	Elevation Interval of Sand (masl)	Date (dd-mmm-yyyy)	Depth to Groundwater (mbtoc)	Depth to Groundwater (mbgs)	Groundwater Surface Elevation (masl)	Depth to Bottom of Well (mbtoc)	Hydraulic Conductivity (m/s)	Lithology	Comments
MW-13	Active	365292.720	5968147.120	625.65	626.28	0.63	40.50	585.15	37.50 - 40.50	588.15 - 585.15	36.00 - 40.50	589.65 - 585.15	10-Mar-2005	32.60	31.97	593.68	N/M		Gravel	
													04-May-2005	32.54	31.91	593.74	N/M			
													06-Jun-2005	32.50	31.87	593.78	N/M			
													16-Nov-2005	33.45	32.82	592.83	N/M			
													16-Jun-2006	33.24	32.61	593.04	N/M			
													11-Jul-2007	32.54	31.91	593.74	N/M			
													18-Dec-2007	32.39	31.76	593.89	N/M			
													22-Apr-2009	32.41	31.78	593.87	N/M			
													06-May-2010	32.68	32.05	593.60	N/M			
													02-Jun-2011	32.46	31.83	593.82	N/M			
													30-May-2012	32.56	31.93	593.72	41.07			
													10-Jul-2013	32.49	31.86	593.79	41.14			
													12-Jun-2014	32.49	31.86	593.79	41.00			
													24-Jun-2015	32.45	31.82	593.83	41.23			
													20-Sep-2016	32.53	31.90	593.75	40.98			
													14-Jul-2017	32.53	31.90	593.75	41.53			
													01-Aug-2018	32.40	31.77	593.88	40.80			
													14-May-2020	32.37	31.74	593.91	40.95			
													23-Aug-2022	32.40	31.77	593.88	40.85			
													26-Jun-2024	32.36	31.73	593.92	41.00			

NOTES: 1. Data may be entered to the nearest mm, but are reported above to the nearest cm.
 Apparent rounding errors may occasionally occur in calculated fields (e.g. Groundwater Surface Elevation).
2. All coordinates are provided in the UTM Zone 12N referenced to North American Datum of 1983 coordinate system.
3. N/M - Denotes not measured.
4. N/A - Denotes not available.
5. masl - Denotes metres above sea level.
6. mbgs - Denotes metres below ground surface.
7. mbtoc - Denotes metres below top of PVC casing.

Groundwater Analytical Results: Field Measurements
PROJECT No.: 317085-55576-24000

PROJECT No.: 317085-55576-24000					
Monitoring Station	Date (dd-mmm-yyyy)	Electrical Conductivity (uS/cm)	pH (pH Units)	Temperature (°C)	Sample Comment
Monitoring Wells					
MW-01	05-May-2010	749	6.95	5.6	
	25-May-2011	741	7.11	7.7	
	29-May-2012	749	6.88	7.6	
	10-Jul-2013	720	7.21	6.8	Clear
	16-Jun-2014	765	7.38	7.0	Clear
	29-Jun-2015	708	7.37	7.8	Colourless
	19-Sep-2016	716	7.17	8.6	Clear
	13-Jul-2017	824	7.21	7.9	Brown/Silty
	01-Aug-2018	805	7.04	6.4	Clear
	12-May-2020	772	7.61	3.8	Clear, new foot valve
	22-Aug-2022	781	7.98	7.5	Clear
	26-Jun-2024	772	7.24	8.4	Clear
MW-02	05-May-2010	1306	7.04	4.8	
	25-May-2011	1397	7.02	8.3	
	29-May-2012	1023	7.49	7.3	
	29-Jul-2013	1161	7.10	10.9	Cloudy brown
	16-Jun-2014	1298	7.19	6.7	Clear, orange
	28-Aug-2014	1355	7.12	7.0	Clear
	25-Jun-2015	1238	7.05	7.6	Light brown
	19-Sep-2016	1217	6.96	8.7	Clear
	13-Jul-2017	1412	6.92	7.6	Clear
	29-Sep-2017	1403	7.26	12.4	
	02-Aug-2018	1406	6.87	6.2	Clear
	12-May-2020	1429	7.36	3.5	Clear
	22-Aug-2022	1410	7.43	7.7	Clear
	26-Jun-2024	1297	7.11	7.3	Clear
	MW-02B	20-Sep-2016	2770	7.84	8.0
13-Jul-2017		4230	7.93	8.8	Brown Silty
29-Sep-2017		3740	8.27	7.9	
02-Aug-2018		2250	7.83	7.2	cloudy,changed foot valve
12-May-2020		2580	8.25	3.5	Clear, new foot valve
22-Aug-2022		3660	8.30	7.8	Gray, cloudy, silty
26-Jun-2024		3460	8.12	8.2	Cloudy, brown, new bailer
MW-03	06-May-2010	974	7.14	6.6	
	25-May-2011	976	7.08	8.9	
	29-May-2012	958	7.72	8.3	Clear
	10-Jul-2013	966	7.14	8.4	
	16-Jun-2014	1003	7.35	8.2	Cloudy brown
	29-Jun-2015	947	7.25	8.5	Clear
	19-Sep-2016	935	7.04	9.7	Colourless (clear)
	13-Jul-2017	1071	7.16	8.6	Clear
	31-Jul-2018	963	7.05	7.7	Cloudy
	12-May-2020	1010	7.47	4.3	brown/cloudy
	22-Aug-2022	1048	8.47	9.7	Clear, new foot valve
	26-Jun-2024	1020	7.13	9.3	Cloudy, brown
					Clear
MW-04	06-May-2010	1213	7.14	8.2	
	07-Jun-2011	1230	7.12	8.1	
	30-May-2012	1420	7.14	7.8	Clear
	09-Jul-2013	1216	7.10	8.3	
	13-Jun-2014	1289	7.27	8.0	Clear
	29-Jun-2015	1186	7.20	9.3	Clear, yellow
	19-Sep-2016	1331	7.09	8.7	Clear
	13-Jul-2017	1412	7.04	7.7	Clear
	31-Jul-2018	1262	7.11	6.7	Clear

Groundwater Analytical Results: Field Measurements
PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	Electrical Conductivity (uS/cm)	pH (pH Units)	Temperature (°C)	Sample Comment
MW-04 (cont'd)	12-May-2020	1366	7.45	4.1	Slightly orange, brown flecks, new foot valve
	22-Aug-2022	1419	8.55	8.8	Clear
	26-Jun-2024	1367	7.10	8.0	Clear
MW-05	29-Apr-2010	985	7.08	7.6	
	25-May-2011	1070	7.06	8.3	
	29-May-2012	982	7.28	9.7	
	08-Jul-2013	987	7.34	7.1	Silty
	13-Jun-2014	1004	7.41	7.6	Light grey
	25-Jun-2015	935	7.35	8.0	Light brown
	19-Sep-2016	958	7.16	8.1	Clear
	13-Jul-2017	1103	7.04	7.7	Brown/Silty
	31-Jul-2018	953	7.23	6.5	Clear, changed foot valve
	12-May-2020	986	7.60	3.3	Clear, new foot valve
	22-Aug-2022	1024	8.19	6.8	Slightly cloudy
	26-Jun-2024	1000	7.17	9.4	Clear
MW-06	06-May-2010	1773	7.21	5.7	
	07-Jun-2011	1762	7.22	11.1	
	29-May-2012	1699	7.29	7.6	
	08-Jul-2013	1683	7.23	8.6	Clear
	12-Jun-2014	1755	7.33	8.6	Clear
	25-Jun-2015	1637	7.36	10.8	Clear
	20-Sep-2016	1562	7.12	7.9	Brown and silty
	13-Jul-2017	1564	7.19	7.4	Brown/Silty
	31-Jul-2018	1470	7.17	6.3	Clear
	13-May-2020	1674	7.40	4.3	Clear. Lid broken
	22-Aug-2022	1764	8.71	7.1	Slightly cloudy
	26-Jun-2024	1642	7.25	8.1	Clear
MW-07	05-May-2010	2640	6.91	7.2	
	08-Jun-2011	1750	7.73	6.6	
	28-Jul-2011	2680	7.11	7.2	
	30-May-2012	2540	7.04	8.1	
	11-Jul-2013	2610	6.98	7.5	Clear
	13-Jun-2014	2910	7.12	9.1	Clear
	25-Jun-2015	2570	7.06	8.8	Clear
	20-Sep-2016	2370	6.95	10.0	Clear
	14-Jul-2017	3520	6.92	7.5	Clear
	31-Jul-2018	1970	6.91	6.8	Clear
	13-May-2020	2010	7.26	4.3	Clear
	23-Aug-2022	3020	---	8.6	Clear
	27-Jun-2024	2670	6.98	7.3	Clear
MW-08	05-May-2010	1359	7.09	5.4	
	07-Jun-2011	1378	7.41	9.0	Slight silt
	30-May-2012	1363	7.31	7.3	
	09-Jul-2013	1198	7.34	6.9	Clear / Silty
	12-Jun-2014	1387	7.41	7.3	Murky brown
	24-Jun-2015	1327	7.30	7.6	Colourless
	20-Sep-2016	1268	7.31	7.5	Clear
	02-Aug-2017	1525	7.26	6.7	Minor Silt
	01-Aug-2018	1465	7.02	6.4	Clear
	13-May-2020	1510	7.47	3.2	Clear
	23-Aug-2022	1536	7.00	33.9	Clear
	27-Jun-2024	1426	7.22	7.3	Clear

Groundwater Analytical Results: Field Measurements
PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)				Sample Comment
		Electrical Conductivity (uS/cm)	pH (pH Units)	Temperature (°C)	
MW-09	06-May-2010	1538	7.35	6.8	
	02-Jun-2011	1548	7.49	9.1	Very silty
	29-May-2012	1507	7.43	7.7	
	10-Jul-2013	1463	7.43	8.9	Cloudy brown
	13-Jun-2014	1537	7.67	7.1	Light brown
	25-Jun-2015	1427	7.59	7.7	Light grey
	20-Sep-2016	1396	7.46	7.9	Cloudy
	14-Jul-2017	1647	7.52	7.2	Cloudy
	01-Aug-2018	1516	7.40	6.5	Clear
	13-May-2020	1545	7.65	4.2	Clear
	23-Aug-2022	1549	8.20	8.2	Clear
	26-Jun-2024	1442	7.47	8.1	Clear, added foot valve
MW-10	05-May-2010	1287	7.11	6.6	
	25-May-2011	1192	7.36	9.1	Clear
	30-May-2012	1267	7.29	7.4	
	09-Jul-2013	1247	7.24	7.0	Clear
	12-Jun-2014	1292	7.42	7.8	Clear
	24-Jun-2015	1242	7.36	7.9	Colourless
	20-Sep-2016	1162	7.21	8.1	Clear
	14-Jul-2017	1355	7.20	7.1	Clear
	01-Aug-2018	1235	7.19	7.1	Clear
	13-May-2020	1264	7.46	3.8	Clear
	26-Aug-2022	1250	7.30	11.2	Clear
	27-Jun-2024	1169	7.24	8.9	Clear
MW-11	05-May-2010	1303	7.06	7.2	
	03-Jun-2011	1341	7.42	6.9	
	30-May-2012	1282	7.19	9.8	
	10-Jul-2013	1258	7.18	7.4	Silty grey
	12-Jun-2014	1322	7.38	7.3	Cloudy brown
	24-Jun-2015	1241	7.26	7.3	light grey
	20-Sep-2016	1156	7.04	8.2	Clear
	14-Jul-2017	1448	7.11	7.2	Clear
	01-Aug-2018	1430	7.08	6.2	Clear
	13-May-2020	1331	7.39	3.8	Clear
	23-Aug-2022	1328	---	7.8	Clear
	27-Jun-2024	1242	7.22	7.2	Clear
MW-12	06-May-2010	1032	7.32	5.1	
	02-Jun-2011	983	6.95	8.7	Clear
	29-May-2012	1024	7.37	7.3	
	10-Jul-2013	998	7.34	6.1	Murky brown
	12-Jun-2014	1020	7.42	7.6	Cloudy brown
	24-Jun-2015	992	7.30	6.6	Colourless
	20-Sep-2016	941	7.18	7.6	Brown and silty
	14-Jul-2017	1135	7.19	6.6	Cloudy, Minor Silt
	01-Aug-2018	1025	7.25	7.4	brown/cloudy
	14-May-2020	1043	7.27	2.1	Clear
	23-Aug-2022	1012	---	5.8	Clear
	26-Jun-2024	978	7.28	7.1	Clear

Groundwater Analytical Results: Field Measurements
PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)				Sample Comment
		Electrical Conductivity (uS/cm)	pH (pH Units)	Temperature (°C)	
MW-13	06-May-2010	776	7.53	7.0	
	02-Jun-2011	841	7.06	8.5	Clear
	30-May-2012	733	7.69	6.9	
	10-Jul-2013	759	7.60	10.1	Cloudy brown
	12-Jun-2014	775	7.77	7.2	Cloudy brown
	24-Jun-2015	734	7.69	7.0	Colourless
	20-Sep-2016	741	7.45	7.4	Brown and silty
	14-Jul-2017	934	7.60	7.0	Brown/Silty
	01-Aug-2018	809	7.39	6.2	brown/cloudy
	14-May-2020	784	7.60	2.0	Clear
	23-Aug-2022	756	---	6.6	Slightly cloudy
	26-Jun-2024	734	7.54	7.0	Clear

NOTES:

1. --- in detail data row(s) denotes parameter not analyzed.

Groundwater Analytical Results: Indicator Analysis Parameters

PROJECT No.: 317085-55576-24000		Anions					Cations						General							Inorganic Nitrogen Compounds						Ion Balance				Miscellaneous		
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate	Carbonate	Chloride	Sulphate	Hydroxide	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium	Fluoride	Alkalinity (Total; as CaCO ₃)	Alkalinity (PP; as CaCO ₃)	Electrical Conductivity	Hardness (Total; as CaCO ₃)	pH	Total Dissolved Solids	Total Dissolved Solids (Calculated)	Ammonia (Total; as N)	Nitrate	Nitrate (as N)	Nitrite	Nitrite (as N)	Nitrite-plus-Nitrate (as N)	Cation Sum	Anion Sum	Ion Balance	Ion Balance	Dissolved Organic Carbon	
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(uS/cm)	(mg/L)	(pH Units)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(meq/L)	(meq/L)	(%)	(Balance)	(mg/L)		
Canadian Drinking Water Quality Guidelines 2022 - AO		---	---	250	500	---	---	0.3	---	0.02	---	200	---	---	---	---	---	(7 - 10.5)	500	500	---	---	---	---	---	---	---	---	---	---	---	
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	---	---	---	---	None required	---	---	0.12	---	---	1.5	---	---	---	---	---	---	---	---	None required	45	10	3	1	---	---	---	---	---	
Monitoring Wells																																
MW-01	07-Mar-2005	444	< 5	4	57.4	< 5	94.6	1.02	24.8	0.605	3.1	40	0.19	364	---	762	338	7.7	---	442	0.39	---	< 0.1	---	< 0.05	< 0.1	---	---	100	---	3	
	17-Nov-2005	451	< 5	4	61.1	< 5	94.8	1.67	26.9	0.662	2.3	36	0.13	370	---	760	347	7.9	---	447	0.212	---	< 0.1	---	< 0.05	< 0.1	---	---	97.6	---	3	
	15-Jun-2006	448	< 5	4	56.8	< 5	99.7	1.81	27.3	0.7	2.9	37	0.14	367	---	748	361	8	---	448	0.274	---	< 0.1	---	< 0.05	< 0.1	---	---	103	---	3	
	12-Jul-2007	445	< 5	3	54.6	< 5	95.1	1.84	26.1	0.664	2.3	33	0.13	365	---	718	345	7.8	---	433	0.185	---	< 0.1	---	< 0.05	< 0.1	---	---	98.6	---	3	
	19-Dec-2007	470	< 1	2	60	< 1	87	< 0.06	23	0.67	2.2	34	0.2	390	---	770	310	7.8	---	442	0.26	---	< 0.2	---	< 0.06	< 0.2	---	---	0.87	---	2	
	21-Apr-2009	450	< 0.5	5	44	< 0.5	84	< 0.06	24	0.66	2.4	36	0.14	370	---	770	310	7.67	---	410	0.22	---	0.003	---	< 0.003	0.003	---	---	93	---	2.3	
	05-May-2010	453	< 5.0	3.46	62.0	< 5.0	98.6	2.02	28.4	0.730	---	38.1	0.150	371	---	762	363	8.06	---	456	0.221	---	< 0.050	---	< 0.050	< 0.071	---	---	102	---	3.0	
	25-May-2011	446	< 5.0	3.02	57.1	< 5.0	91.1	1.53	25.4	0.675	2.68	33.3	0.109	366	---	768	332	8.04	---	432	0.271	---	< 0.050	---	< 0.050	< 0.071	---	---	94.9	---	3.4	
	29-May-2012	450	< 5.0	3.13	56.2	< 5.0	93.0	1.57	23.7	0.694	2.70	35.0	0.106	369	---	769	330	8.00	---	435	0.228	---	< 0.050	---	< 0.050	< 0.071	---	---	94.7	---	3.1	
	10-Jul-2013	438	< 5.0	3.49	52.3	< 5.0	96.5	1.82	26.2	0.729	2.71	36.0	0.124	359	---	727	349	7.94	445	433	---	---	< 0.050	---	< 0.050	< 0.071	---	---	103	---	3.5	
	16-Jun-2014	408	< 5.0	4.58	59.8	< 5.0	87.2	1.92	26.4	0.737	2.80	32.7	0.119	334	---	677	326	7.94	470	414	---	---	< 0.050	---	< 0.020	< 0.054	---	---	99.4	---	4.5	
	29-Jun-2015	450	< 0.50	4.7	57	< 0.50	97	1.9	27	0.71	2.6	37	0.15	370	< 0.50	760	350	7.46	460	450	---	0.069	0.016	< 0.033	< 0.010	< 0.020	8.9	8.8	---	1.0	2.5	
	19-Sep-2016	434	< 5.0	5.46	54.6	< 5.0	92.8	1.76	26.0	0.699	2.63	32.5	0.114	356	---	744	339	7.87	449	428	---	---	< 0.020	---	< 0.010	< 0.022	---	---	98.1	---	4.3	
	13-Jul-2017	453	< 5.0	6.27	52.2	< 5.0	91.5	1.93	27.0	0.714	2.66	36.2	0.121	372	---	709	340	7.76	489	459	---	---	< 0.020	---	< 0.010	< 0.022	---	---	91.6	---	2.4	
	01-Aug-2018	430	< 5.0	9.64	54.0	< 5.0	89.8	1.94	27.4	0.690	2.61	35.3	0.133	353	---	727	337	8.05	---	431	---	---	< 0.020	---	< 0.010	< 0.022	---	---	98.7	---	2.63	
	12-May-2020	437	< 5.0	19.5	49.0	< 5.0	63.1	2.20	26.7	0.215	2.70	36.9	0.178	359	---	700	268	7.39	---	413	---	---	< 0.020	---	< 0.010	< 0.022	---	---	80.3	---	2.4	
	22-Aug-2022	412	< 1.0	29.7	47.8	< 1.0	92.0	1.89	26.3	0.676	2.72	35.2	0.108	338	---	738	---	8.27	---	462	---	---	0.047	---	< 0.010	< 0.05	---	---	98.2	---	2.74	
	26-Jun-2024	411	< 1.0	36.6	48.3	< 1.0	89.6	1.93	26.1	0.686	2.67	34.6	0.145	337	---	744	---	8.15	431	465	0.248	---	< 0.020	---	< 0.010	< 0.0224	---	---	94.5	---	2.70	
MW-02	07-Mar-2005	514	< 5	13	227	< 5	113	0.275	34.5	0.236	6.8	111	0.21	422	---	1210	424	7.7	---	759	1.75	---	0.1	---	< 0.05	0.1	---	---	101	---	8	
	17-Nov-2005	575	< 5	38	270	< 5	125	0.085	51.3	0.671	7.2	120	0.11	471	---	1400	523	7.9	---	894	1.34	---	< 0.1	---	< 0.05	< 0.1	---	---	98.4	---	6	
	15-Jun-2006	629	< 5	23	274	< 5	162	3.19	55.4	1.09	5.5	95	0.09	516	---	1420	633	7.9	---	925	1.17	---	< 0.1	---	< 0.05	< 0.1	---	---	102	---	5	
	13-Jul-2007	630	< 5	12	263	< 5	154	8.72	54.4	0.841	4.3	83	0.09	516	---	1360	609	7.9	---	880	0.756	---	< 0.1	---	< 0.05	< 0.1	---	---	98.7	---	6	
	19-Dec-2007	660	< 1	13	290	< 1	140	< 0.06	46	0.7	4.5	83	0.1	540	---	1400	530	7.4	---	895	0.1	---	< 0.2	---	< 0.06	< 0.2	---	---	0.84	---	5	
	21-Apr-2009	610	< 0.5	18	230	< 0.5	130	1.5	44	0.53	4.4	81	0.08	500	---	1400	500	7.36	---	810	0.56	---	0.005	---	< 0.003	0.005	---	---	89	---	4.1	
	05-May-2010	597	< 5.0	11.6	268	< 5.0	147	9.35	54.0	0.505	---	87.2	0.094	489	---	1290	589	7.97	---	866	0.539	---	< 0.050	---	< 0.050	< 0.071	---	---	100	---	5.4	
	25-May-2011	628	< 5.0	22.3	318	< 5.0	141	9.25	51.3	0.434	4.25	97.9	< 0.050	515	---	1500	563	7.90	---	944	0.728	---	< 0.050	---	< 0.050	< 0.071	---	---	89.1	---	11.3	
	30-May-2012	605	< 5.0	29.6	231	< 5.0	135	8.07	44.8	0.431	5.18	82.9	0.061	496	---	1350	522	7.80	---	826	0.538	---	< 0.050	---	< 0.050	< 0.071	---	---	91.0	---	4.9	
	10-Jul-2013	588	< 5.0	24.2	194	< 5.0	172	12.3	56.4	0.554	5.25	161	0.080	482	---	1220	662	7.69	805	902	---	---	< 0.050	---	< 0.050	< 0.071	---	---	142	---	5.4	
	16-Jun-2014	563	< 5.0	211	282	< 5.0	144	10.8	52.0	0.446	4.75	122	0.080	461	---	1850	574	8.02	1180	1090	---	---	< 0.050	---	< 0.020	< 0.054	---	---	80.2	---	4.5	
	28-Aug-2014	590	< 5.0	41.9	211	< 5.0	139	8.49	48.5	0.488	4.66</																					

Groundwater Analytical Results: Indicator Analysis Parameters

PROJECT No.: 317085-55576-24000		Anions					Cations						General							Inorganic Nitrogen Compounds						Ion Balance				Miscellaneous			
Monitoring Station	Date (dd-mm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulphate (mg/L)	Hydroxide (mg/L)	Calcium (mg/L)	Iron (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Fluoride (mg/L)	Alkalinity (Total; as CaCO ₃) (mg/L)	Alkalinity (PP; as CaCO ₃) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO ₃) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (mg/L)	Nitrate (as N) (mg/L)	Nitrite (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Cation Sum (meq/L)	Anion Sum (meq/L)	Ion Balance (%)	Ion Balance (Balance)	Dissolved Organic Carbon (mg/L)		
Canadian Drinking Water Quality Guidelines 2022 - AO		---	---	250	500	---	---	0.3	---	0.02	---	200	---	---	---	---	---	(7 - 10.5)	500	500	---	---	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	---	---	---	---	None required	---	---	0.12	---	---	1.5	---	---	---	---	---	---	---	---	None required	45	10	3	1	---	---	---	---	---	---	---
MW-03 (cont'd)	02-Jun-2011	433	< 5.0	44.2	120	< 5.0	115	5.55	40.1	0.277	3.20	52.7	0.105	355	---	1000	452	7.98	---	588	0.302	---	< 0.050	---	< 0.050	< 0.071	---	---	105	---	3.3		
	29-May-2012	434	< 5.0	45.9	115	< 5.0	102	4.83	31.8	0.246	3.05	48.8	0.080	355	---	988	386	7.83	---	560	0.327	---	< 0.050	---	< 0.050	< 0.071	---	---	91.7	---	3.4		
	10-Jul-2013	427	< 5.0	48.3	119	< 5.0	109	5.36	38.3	0.274	3.20	57.9	0.105	350	---	963	430	7.81	---	608 586	---	---	< 0.050	---	< 0.050	< 0.071	---	---	103	---	3.0		
	16-Jun-2014	395	< 5.0	55.9	129	< 5.0	100	5.13	36.9	0.263	3.23	48.4	0.073	324	---	933	402	7.96	---	612 568	---	---	< 0.050	---	< 0.020	< 0.054	---	---	95.1	---	5.9		
	29-Jun-2015	430	< 0.50	56	130	< 0.50	110	5.4	39	0.27	3.1	51	0.13	350	< 0.50	1000	440	7.31	---	610 610	---	< 0.044	< 0.010	< 0.033	< 0.010	< 0.020	11	11	---	1.0	3.5		
	19-Sep-2016	423	< 5.0	57.7	123	< 5.0	121	5.22	38.5	0.269	3.14	50.1	0.079	347	---	1000	461	7.71	---	630 602	---	---	< 0.020	---	< 0.010	< 0.022	---	---	103	---	5.1		
	13-Jul-2017	419	< 5.0	57.6	121	< 5.0	108	5.50	40.1	0.282	3.12	52.6	0.088	344	---	958	435	7.65	---	629 612	---	---	< 0.020	---	< 0.010	< 0.022	---	---	95.1	---	3.8		
	13-Jul-2017	418	< 5.0	57.9	122	< 5.0	111	5.20	37.2	0.260	2.91	49.8	0.082	343	---	958	430	7.78	---	631 609	---	---	< 0.020	---	< 0.010	< 0.022	---	---	93.3	---	3.5		
	31-Jul-2018	405	< 5.0	60.8	128	< 5.0	97.0	6.22	41.9	0.297	3.41	56.1	0.102	332	---	941	415	8.07	---	587	---	---	< 0.020	---	< 0.010	< 0.022	---	---	98.1	---	3.27		
	12-May-2020	422	< 5.0	62.3	125	< 5.0	106	7.15	34.8	0.259	3.17	48.6	0.132	346	---	969	408	7.37	---	588	---	---	0.056	---	< 0.010	0.056	---	---	91.7	---	3.2		
	22-Aug-2022	420	< 1.0	70.4	117	< 1.0	80.9	1.43	24.7	0.162	3.06	44.5	0.088	344	---	991	---	8.15	---	576	---	---	0.044	---	< 0.010	< 0.05	---	---	72.0	---	3.60		
	26-Jun-2024	446	< 1.0	73.5	124	< 1.0	112	5.55	39.3	0.286	3.31	51.3	0.105	366	---	1020	---	8.12	---	622 656	0.380	---	< 0.020	---	< 0.010	< 0.0224	---	---	95.0	---	3.07		
MW-04	08-Mar-2005	458	< 5	137	81.4	< 5	142	0.173	37.7	0.152	9.9	57	0.15	375	---	1200	510	7.5	---	694	< 0.05	---	0.8	---	< 0.05	0.8	---	---	98.5	---	1		
	17-Nov-2005	449	< 5	157	87	< 5	147	0.104	40	0.053	9.5	59	0.12	368	---	1280	532	7.8	---	726	0.013	---	1.2	---	< 0.05	1.2	---	---	98.2	---	5		
	17-Nov-2005	452	< 5	157	89	< 5	147	0.105	40.4	0.053	9.7	60	0.12	371	---	1290	533	7.9	---	731	0.01	---	1.2	---	< 0.05	1.2	---	---	98.1	---	4		
	14-Jun-2006	455	< 5	155	86.2	< 5	147	0.005	42.7	0.13	10.2	57	0.13	373	---	1280	543	7.7	---	724	0.007	---	0.5	---	< 0.05	0.5	---	---	99.4	---	4		
(Duplicate)	13-Jul-2007	449	< 5	190	84.5	< 5	154	< 0.005	43.6	0.009	10.4	68	0.14	368	---	1360	564	7.9	---	774	0.008	---	0.5	---	< 0.05	0.5	---	---	99.9	---	3		
	19-Dec-2007	460	< 1	200	82	< 1	140	< 0.06	35	0.016	10	71	0.1	380	---	1400	500	7.7	---	763	0.01	---	0.6	---	< 0.06	0.6	---	---	0.9	---	3		
	21-Apr-2009	450	< 0.5	150	74	< 0.5	140	< 0.06	37	0.03	9.4	63	0.14	370	---	1200	500	7.62	---	690	< 0.05	---	0.4	---	< 0.003	0.4	---	---	99	---	2.8		
	06-May-2010	470	< 5.0	131	92.1	< 5.0	152	0.078	44.0	0.258	---	63.4	0.129	385	---	1220	561	8.01	---	724	< 0.050	---	0.090	---	< 0.050	0.090	---	---	107	---	3.0		
	07-Jun-2011	482	< 5.0	125	88.9	< 5.0	140	0.028	41.3	0.114	8.78	50.7	0.119	395	---	1280	520	7.95	---	693	< 0.050	---	0.264	---	< 0.050	0.264	---	---	96.3	---	3.0		
	30-May-2012	500	< 5.0	126	88.2	< 5.0	141	1.47	38.1	0.722	8.93	50.9	0.089	409	---	1280	509	7.88	---	699	< 0.050	---	< 0.050	---	< 0.050	< 0.071	---	---	92.8	---	3.2		
	30-May-2012	499	< 5.0	126	88.6	< 5.0	161	1.73	44.8	0.861	11.4	58.9	0.094	409	---	1280	587	7.94	---	736	< 0.050	---	< 0.050	---	< 0.050	< 0.071	---	---	107	---	3.3		
	09-Jul-2013	493	< 5.0	129	87.8	< 5.0	154	1.70	44.0	0.561	10.8	55.8	0.082	404	---	1230	566	7.76	---	761 724	---	---	< 0.050	---	< 0.050	< 0.071	---	---	103	---	3.3		
	13-Jun-2014	426	< 5.0	146	92.8	< 5.0	143	1.39	40.8	0.494	9.68	52.9	0.093	350	---	1190	525	8.10	---	808 695	---	---	< 0.050	---	< 0.020	< 0.054	---	---	100	---	3.0		
	29-Jun-2015	480	< 0.50	150	100	< 0.50	150	1.9	44	0.54	9.5	59	0.13	390	< 0.50	1300	550	7.32	---	780 750	---	0.13	0.030	< 0.033	< 0.010	0.030	14	14	---	0.98	3.5		
	19-Sep-2016	430	< 5.0	190	125	< 5.0	165	2.33	47.9	0.621	9.96	59.5	0.090	353	---	1410	609	7.76	---	833 809	---	---	< 0.020	---	< 0.010	< 0.022	---	---	100	---	3.6		
	13-Jul-2017	425	< 5.0	171	130	< 5.0	154	2.24	47.7	0.616	9.52	62.6	0.102	348	---	1290	581	7.78	---	877 797	---	---	< 0.020	---	< 0.010	< 0.022	---	---	98.1	---	3.7		
(Duplicate)	31-Jul-2018	407	< 5.0	169	133	< 5.0	156	2.19	45.9	0.548	9.49	65.5	0.113	334	---	1280	579	8.25	---	779	---	---	< 0.020	---	< 0.010	< 0.022	---	---	103	---	3.40		
	12-May-2020	42																															

Groundwater Analytical Results: Indicator Analysis Parameters

PROJECT No.: 317085-55576-24000		Anions					Cations							General							Inorganic Nitrogen Compounds						Ion Balance				Miscellaneous
Monitoring Station	Date	Bicarbonate	Carbonate	Chloride	Sulphate	Hydroxide	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium	Fluoride	Alkalinity (Total; as CaCO ₃)	Alkalinity (PP; as CaCO ₃)	Electrical Conductivity	Hardness (Total; as CaCO ₃)	pH	Total Dissolved Solids	Total Dissolved Solids (Calculated)	Ammonia (Total; as N)	Nitrate	Nitrate (as N)	Nitrite	Nitrite (as N)	Nitrite-plus-Nitrate (as N)	Cation Sum	Anion Sum	Ion Balance	Ion Balance	Dissolved Organic Carbon
	(dd-mmm-yyyy)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(uS/cm)	(mg/L)	(pH Units)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(meq/L)	(meq/L)	(%)	(Balance)	(mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	---	250	500	---	---	0.3	---	0.02	---	200	---	---	---	---	---	(7 - 10.5)	500	500	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	---	---	---	---	None required	---	---	0.12	---	---	1.5	---	---	---	---	---	---	---	---	None required	45	10	3	1	---	---	---	---	---
MW-06	08-Mar-2005	560	< 5	4	451	< 5	171	2.92	58.9	1.32	6.1	138	0.18	459	---	1580	670	7.5	---	1100	1.46	---	< 0.1	---	< 0.05	< 0.1	---	---	105	---	5
	17-Nov-2005	641	< 5	13	471	< 5	148	2.96	52	0.943	5	211	0.15	526	---	1780	584	8	---	1220	1.95	---	< 0.1	---	< 0.05	< 0.1	---	---	101	---	8
	16-Jun-2006	633	< 5	10	482	< 5	168	3.58	57.7	1.01	5.5	190	0.14	519	---	1700	657	7.7	---	1220	2.38	---	< 0.1	---	< 0.05	< 0.1	---	---	104	---	7
	12-Jul-2007	637	< 5	10	478	< 5	157	4.5	55.3	1.28	4.8	182	0.17	522	---	1760	620	7.9	---	1200	1.92	---	< 0.1	---	< 0.05	< 0.1	---	---	99.4	---	7
	19-Dec-2007	630	< 1	3	560	< 1	160	< 0.06	54	1.5	5	140	0.2	510	---	1700	620	7.7	---	1230	1.9	---	< 0.2	---	< 0.06	< 0.2	---	---	0.85	---	6
	22-Apr-2009	590	< 0.5	6	420	< 0.5	180	5.7	62	1.7	5.5	150	0.14	490	---	1700	710	7.47	---	1100	1.7	---	0.004	---	< 0.003	0.004	---	---	110	---	5.1
	06-May-2010	626	< 5.0	8.45	520	< 5.0	156	5.38	57.1	1.39	---	194	0.173	513	---	1770	625	8.06	---	1250	1.88	---	< 0.050	---	< 0.050	< 0.071	---	---	98.8	---	6.7
	07-Jun-2011	603	< 5.0	3.45	501	< 5.0	164	5.55	60.4	1.64	5.02	123	0.129	494	---	1760	658	7.96	---	1150	1.57	---	< 0.050	---	< 0.050	< 0.071	---	---	91.3	---	8.0
	29-May-2012	602	< 5.0	2.95	494	< 5.0	167	6.02	56.5	1.70	5.80	139	0.128	493	---	1730	650	7.81	---	1160	1.55	---	< 0.050	---	< 0.050	< 0.071	---	---	94.7	---	6.8
	08-Jul-2013	611	< 5.0	4.57	499	< 5.0	168	5.84	55.2	1.72	5.17	135	0.128	501	---	1720	647	7.81	1240	1170	---	---	< 0.050	---	< 0.050	< 0.071	---	---	92.2	---	6.4
	12-Jun-2014	528	< 5.0	6.67	519	< 5.0	163	5.93	57.6	1.62	5.56	152	0.119	433	---	1630	644	8.10	1260	1160	---	---	< 0.050	---	< 0.020	< 0.054	---	---	99.9	---	5.8
	25-Jun-2015	620	< 0.50	6.4	490 #1	< 0.50	160	6.1	60	1.5	5.8	180	0.15	510	< 0.50	1700	650	7.37	1200	1200	---	< 0.044	< 0.010	< 0.033	< 0.010	< 0.020	21	20	---	1.0	6.5
	20-Sep-2016	599	< 5.0	5.6	490	< 5.0	167	5.88	61.0	1.63	5.53	143	0.086	491	---	1720	668	7.84	1180	1170	---	---	< 0.040	---	< 0.020	< 0.045	---	---	97.7	---	9.0
	13-Jul-2017	598	< 5.0	4.81	494	< 5.0	157	5.83	58.9	1.63	5.12	143	0.136	490	---	1620	635	7.79	1240	1180	---	---	< 0.020	---	< 0.010	< 0.022	---	---	91.7	---	7.7
	31-Jul-2018	564	< 5.0	4.41	528	< 5.0	172	6.76	67.2	1.74	5.62	153	0.170	462	---	1590	706	8.09	---	1210	---	---	< 0.020	---	< 0.010	< 0.022	---	---	103	---	6.90
	13-May-2020	599	< 5.0	2.80	505	< 5.0	221	8.59	61.5	2.51	5.61	135	0.148	491	---	1630	805	7.79	---	1230	---	---	< 0.020	---	< 0.010	< 0.022	---	---	108	---	6.1
	22-Aug-2022	624	< 1.0	6.19	481	< 1.0	165	5.96	58.8	1.60	5.71	161	0.120	512	---	1690	---	8.20	---	1220	---	---	0.029	---	< 0.010	< 0.05	---	---	100	---	7.02
	22-Aug-2022	616	< 1.0	5.92	468	< 1.0	162	6.10	59.8	1.60	5.58	153	0.119	505	---	1640	---	8.05	---	1190	---	---	0.032	---	< 0.010	< 0.05	---	---	100	---	7.11
	26-Jun-2024	648	< 1.0	7.18	498	< 1.0	158	5.83	58.2	1.63	5.52	154	0.136	532	---	1650	---	8.07	1130	1240	1.78	---	< 0.100	---	< 0.050	< 0.112	---	---	93.9	---	7.48
	MW-07	09-Mar-2005	664	< 5	13	1130	< 5	287	10.4	100	1.88	6.6	287	0.11	544	---	2680	1130	7.5	---	2150	2.24	---	0.1	---	< 0.05	0.1	---	---	102	---
17-Nov-2005		666	< 5	16	1010	< 5	270	10.9	94.8	1.83	5.5	268	0.08	546	---	2670	1060	7.7	---	1990	2.03	---	< 0.1	---	< 0.05	< 0.1	---	---	102	---	6
16-Jun-2006		661	< 5	15	1010	< 5	284	< 0.005	96.4	1.86	6.2	269	0.07	542	---	2530	1110	7.5	---	2010	2.28	---	0.1	---	< 0.05	0.1	---	---	105	---	6
12-Jul-2007		641	< 5	12	940	< 5	257	10.9	89.8	1.78	4.6	248	0.09	526	---	2290	1010	7.6	---	1870	2.03	---	< 0.1	---	< 0.05	< 0.1	---	---	103	---	6
19-Dec-2007		660	< 1	9	1000	< 1	220	< 0.06	72	1.6	5.1	230	0.1	540	---	2500	850	7.5	---	1890	0.26	---	< 0.2	---	< 0.06	< 0.2	---	---	0.84	---	6
22-Apr-2009		730	< 0.5	18	1200	< 0.5	330	14	110	2.3	6.6	320	0.08	600	---	3000	1300	7.19	---	2400	2.5	---	0.004	---	< 0.003	0.004	---	---	110	---	6.6
05-May-2010		657	< 5.0	13.2	1040	< 5.0	262	12.5	93.5	1.90	---	274	0.135	538	---	2600	1040	7.90	---	2010	2.33	---	< 0.050	---	< 0.050	< 0.071	---	---	100	---	5.8
08-Jun-2011		537	< 5.0	8.07	622	< 5.0	178	8.26	68.8	1.21	4.38	189	0.116	440	---	1900	728	7.69	---	1330	1.83	---	< 0.050	---	< 0.050	< 0.071	---	---	104	---	11.5
28-Jul-2011		659	< 5.0	11.8	1020	< 5.0	256	11.7	87.9	1.84	5.55	245	0.128	540	---	2670	1000	7.98	---	1950	2.39	---	< 0.050	---	< 0.050	< 0.071	---	---	95.2	---	6.3
30-May-2012		648	< 5.0	12.6	949	< 5.0	247	11.3	80.4	1.79	6.96	245	0.093	531	---	2570	948	7.71	---	1860	2.22	---	< 0.050	---	< 0.050	< 0.071	---	---	96.9	---	6.0
11-Jul-2013																															

Groundwater Analytical Results: Indicator Analysis Parameters

PROJECT No.: 317085-55576-24000		Anions					Cations							General							Inorganic Nitrogen Compounds						Ion Balance				Miscellaneous	
Monitoring Station	Date	Bicarbonate	Carbonate	Chloride	Sulphate	Hydroxide	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium	Fluoride	Alkalinity (Total; as CaCO ₃)	Alkalinity (PP; as CaCO ₃)	Electrical Conductivity	Hardness (Total; as CaCO ₃)	pH	Total Dissolved Solids	Total Dissolved Solids (Calculated)	Ammonia (Total; as N)	Nitrate	Nitrate (as N)	Nitrite	Nitrite (as N)	Nitrite-plus-Nitrate (as N)	Cation Sum	Anion Sum	Ion Balance	Ion Balance	Dissolved Organic Carbon	
(dd-mmm-yyyy)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(uS/cm)	(mg/L)	(pH Units)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(meq/L)	(meq/L)	(%)	(Balance)	(mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	---	250	500	---	---	0.3	---	0.02	---	200	---	---	---	---	---	(7 - 10.5)	500	500	---	---	---	---	---	---	---	---	---	---	---	
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	---	---	---	---	None required	---	---	0.12	---	---	1.5	---	---	---	---	---	---	---	---	None required	45	10	3	1	---	---	---	---	---	
MW-08 (cont'd)	01-Aug-2018	529	< 5.0	1.59	387	< 5.0	151	8.45	45.9	0.495	6.14	135	0.130	433	---	1360	566	8.18	---	987	---	---	< 0.020	---	< 0.010	< 0.022	---	---	103	---	6.15	
	13-May-2020	608	< 5.0	1.78	372	< 5.0	180	10.4	43.4	0.551	6.28	131	0.100	498	---	1440	628	8.00	---	1030	---	---	< 0.020	---	< 0.010	< 0.022	---	---	104	---	5.8	
	23-Aug-2022	606	< 1.0	1.45	362	< 1.0	170	7.94	43.4	0.487	6.21	129	0.094	497	---	1460	---	8.21	---	1050	---	---	< 0.020	---	< 0.010	< 0.05	---	---	103	---	6.33	
	27-Jun-2024	627	< 1.0	1.38	364	< 1.0	155	8.00	44.2	0.512	6.32	132	0.119	514	---	1430	---	8.12	---	982	1050	2.16	---	< 0.020	---	< 0.010	< 0.0224	---	---	98.9	---	6.13
MW-09 (Duplicate)	09-Mar-2005	626	< 5	5	313	< 5	71.6	1.11	26	0.714	4.2	226	0.29	513	---	1520	286	7.9	---	954	1.81	---	0.1	---	< 0.05	0.1	---	---	93.2	---	5	
	09-Mar-2005	628	< 5	5	340	< 5	79.1	1.07	27.9	0.705	4.7	243	0.29	515	---	1520	312	7.9	---	1010	1.79	---	0.1	---	< 0.05	0.1	---	---	97.4	---	5	
	17-Nov-2005	640	< 5	7	312	< 5	92.6	1.4	27.3	0.752	3.9	227	0.22	524	---	1550	344	8.1	---	984	1.85	---	< 0.1	---	< 0.05	< 0.1	---	---	98	---	6	
	16-Jun-2006	644	< 5	7	316	< 5	98.1	1.44	27.7	0.797	3.9	231	0.23	528	---	1520	359	7.9	---	1000	2.09	---	< 0.1	---	< 0.05	< 0.1	---	---	99.9	---	8	
(Duplicate)	11-Jul-2007	656	< 5	6	322	< 5	94.9	1.74	27.6	0.785	3.3	231	0.21	538	---	1530	351	8.1	---	1010	1.8	---	< 0.1	---	< 0.05	< 0.1	---	---	97.9	---	7	
	18-Dec-2007	670	< 1	4	350	< 1	83	< 0.06	22	0.77	3.5	230	0.2	550	---	1500	300	8	---	1020	0.23	---	< 0.2	---	< 0.06	< 0.2	---	---	0.86	---	9	
	22-Apr-2009	630	< 0.5	6	330	< 0.5	97	1.9	27	0.86	4.1	240	0.22	520	---	1500	350	7.73	---	1000	1.9	---	0.005	---	< 0.003	0.005	---	---	100	---	5.5	
	06-May-2010	639	< 5.0	5.57	342	< 5.0	93.1	2.04	27.8	0.828	---	240	0.251	524	---	1540	347	8.17	---	1030	2.02	---	< 0.050	---	< 0.050	< 0.071	---	---	98.4	---	5.6	
(Duplicate)	06-May-2010	641	< 5.0	5.63	345	< 5.0	93.1	2.03	27.6	0.832	---	246	0.243	526	---	1540	346	8.17	---	1040	2.00	---	< 0.050	---	< 0.050	< 0.071	---	---	99.2	---	5.5	
	02-Jun-2011	646	< 5.0	5.84	325	< 5.0	87.4	1.46	25.2	0.754	4.09	212	< 0.050	530	---	1580	322	8.17	---	978	2.05	---	< 0.050	---	< 0.050	< 0.071	---	---	90.0	---	8.0	
	02-Jun-2011	646	< 5.0	5.64	325	< 5.0	89.5	1.29	26.0	0.773	4.16	220	< 0.050	530	---	1570	331	8.22	---	988	2.09	---	< 0.050	---	< 0.050	< 0.071	---	---	93.0	---	7.1	
	29-May-2012	643	< 5.0	4.82	319	< 5.0	88.3	1.89	23.7	0.784	4.22	226	0.184	527	---	1550	318	8.04	---	982	2.02	---	< 0.050	---	< 0.050	< 0.071	---	---	94.1	---	6.0	
(Duplicate)	10-Jul-2013	644	< 5.0	5.29	327	< 5.0	96.2	1.94	26.8	0.842	4.06	251	0.203	527	---	1530	351	7.89	---	1030	---	---	< 0.050	---	< 0.050	< 0.071	---	---	103	---	5.9	
	13-Jun-2014	525	< 5.0	5.39	341	< 5.0	87.8	1.85	25.6	0.868	4.23	222	0.199	430	---	1390	325	8.12	---	1030	944	---	---	< 0.050	---	< 0.020	< 0.054	---	---	102	---	5.8
	25-Jun-2015	620	< 0.50	5.6	320 ^{#1}	< 0.50	93	2.0	28	0.80	4.2	250	0.24	500	< 0.50	1500	350	7.61	---	1000	1000	---	0.14	0.031	< 0.033	< 0.010	0.031	18	17	---	1.1	5.4
	20-Sep-2016	598	< 5.0	5.0	318	< 5.0	97.0	1.93	27.5	0.822	4.08	231	0.157	490	---	1530	355	8.07	---	1030	977	---	---	< 0.040	---	< 0.020	< 0.045	---	---	104	---	7.2
(Duplicate)	20-Sep-2016	626	< 5.0	4.9	319	< 5.0	97.4	1.88	27.3	0.795	4.04	223	0.158	513	---	1530	356	8.10	---	1040	984	---	---	< 0.040	---	< 0.020	< 0.045	---	---	99.2	---	7.1
	14-Jul-2017	650	< 5.0	5.18	325	< 5.0	90.0	1.96	27.1	0.872	3.92	240	0.216	533	---	1440	336	8.04	---	1030	1030	---	---	< 0.020	---	< 0.010	< 0.022	---	---	95.6	---	6.9
	01-Aug-2018	556	< 5.0	5.20	347	< 5.0	93.1	2.01	28.2	0.813	4.04	242	0.250	456	---	1420	349	8.28	---	993	---	---	< 0.020	---	< 0.010	< 0.022	---	---	107	---	6.57	
	13-May-2020	639	< 5.0	5.20	329	< 5.0	47.9	2.05	24.7	0.189	4.09	232	0.273	524	---	1430	221	7.62	---	958	---	---	< 0.020	---	< 0.010	< 0.022	---	---	83.6	---	5.7	
(Duplicate)	23-Aug-2022	604	5.9	5.48	322	< 1.0	89.1	1.87	26.5	0.782	4.16	230	0.202	505	---	1510	---	8.34	---	1010	---	---	< 0.020	---	< 0.010	< 0.05	---	---	98.8	---	6.45	
	23-Aug-2022	646	< 1.0	5.36	318	< 1.0	89.3	1.87	26.8	0.811	4.20	228	0.187	530	---	1460	---	8.29	---	1020	---	---	0.026	---	< 0.010	< 0.05	---	---	96.6	---	6.69	
	26-Jun-2024	670	< 1.0	5.46	323	< 1.0	86.6	1.91	26.0	0.807	4.12	230	0.233	549	---	1470	---	8.25	---	956	1040	2.15	---	0.023	---	< 0.010	0.0230	---	---	93.8	---	6.58
	MW-10	09-Mar-2005	628	< 5	< 1	221	< 5	131	5.29	36.1	0.639	5.3	117	0.18	514	---	1270	476	7.7	---	819	1.68	---	0.1	---	< 0.05	0.1	---	---	99.7	---	5
16-Nov-2005		634	<																													

Groundwater Analytical Results: Indicator Analysis Parameters

PROJECT No.: 317085-55576-24000		Anions					Cations							General							Inorganic Nitrogen Compounds						Ion Balance				Miscellaneous		
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate (mg/L)	Carbonate (mg/L)	Chloride (mg/L)	Sulphate (mg/L)	Hydroxide (mg/L)	Calcium (mg/L)	Iron (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Fluoride (mg/L)	Alkalinity (Total; as CaCO ₃) (mg/L)	Alkalinity (PP; as CaCO ₃) (mg/L)	Electrical Conductivity (uS/cm)	Hardness (Total; as CaCO ₃) (mg/L)	pH (pH Units)	Total Dissolved Solids (mg/L)	Total Dissolved Solids (Calculated) (mg/L)	Ammonia (Total; as N) (mg/L)	Nitrate (mg/L)	Nitrate (as N) (mg/L)	Nitrite (mg/L)	Nitrite (as N) (mg/L)	Nitrite-plus-Nitrate (as N) (mg/L)	Cation Sum (meq/L)	Anion Sum (meq/L)	Ion Balance (%)	Ion Balance (Balance)	Dissolved Organic Carbon (mg/L)		
Canadian Drinking Water Quality Guidelines 2022 - AO		---	---	250	500	---	---	0.3	---	0.02	---	200	---	---	---	---	---	(7 - 10.5)	500	500	---	---	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	---	---	---	---	None required	---	---	0.12	---	---	1.5	---	---	---	---	---	---	---	---	None required	45	10	3	1	---	---	---	---	---	---	---
MW-11 (cont'd)	22-Apr-2009	640	< 0.5	10	170	< 0.5	150	7	45	0.67	4.9	91	0.11	530	---	1300	560	7.51	---	800	1.5	---	0.003	---	< 0.003	0.003	---	---	110	---	5.5		
	05-May-2010	650	< 5.0	15.2	212	< 5.0	144	7.61	45.9	0.663	---	98.1	0.132	533	---	1290	549	8.04	---	840	1.48	---	< 0.050	---	< 0.050	< 0.071	---	---	99.1	---	6.0		
	02-Jun-2011	653	< 5.0	9.69	203	< 5.0	148	6.99	46.4	0.687	5.36	96.0	< 0.050	536	---	1320	561	8.00	---	830	1.55	---	< 0.050	---	< 0.050	< 0.071	---	---	102	---	6.8		
	30-May-2012	648	< 5.0	8.71	202	< 5.0	134	6.82	38.7	0.605	5.34	87.9	0.067	531	---	1300	494	7.90	---	795	1.51	---	< 0.050	---	< 0.050	< 0.071	---	---	91.8	---	6.6		
	10-Jul-2013	640	< 5.0	8.92	213	< 5.0	147	7.52	44.7	0.697	5.09	102	0.105	525	---	1270	551	7.93	---	828	---	---	< 0.050	---	< 0.050	< 0.071	---	---	103	---	6.2		
	12-Jun-2014	473	< 5.0	14.1	227	< 5.0	136	7.07	41.5	0.672	5.32	89.0	0.074	388	---	1090	510	7.99	---	856	---	---	< 0.050	---	< 0.020	< 0.054	---	---	110	---	5.6		
	24-Jun-2015	640	< 0.50	11	210 #1	< 0.50	140	7.4	45	0.62	5.0	97	0.11	520	< 0.50	1300	540	7.42	---	850	---	< 0.044	< 0.010	< 0.033	< 0.010	< 0.020	16	15	---	1.0	6.3		
	20-Sep-2016	595	< 5.0	11.4	221	< 5.0	148	6.91	44.3	0.609	4.97	90.7	0.087	488	---	1270	552	7.87	---	845	---	---	< 0.020	---	< 0.010	< 0.022	---	---	103	---	7.5		
	14-Jul-2017	650	< 5.0	8.40	215	< 5.0	138	6.84	43.7	0.618	4.59	92.8	0.087	533	---	1220	525	7.77	---	839	---	---	< 0.020	---	< 0.010	< 0.022	---	---	91.6	---	7.3		
	01-Aug-2018	593	< 5.0	9.38	228	< 5.0	148	7.33	45.1	0.626	4.77	96.4	0.126	486	---	1210	555	8.25	---	823	---	---	< 0.020	---	< 0.010	< 0.022	---	---	105	---	6.77		
	01-Aug-2018	615	< 5.0	9.67	229	< 5.0	132	7.23	44.8	0.627	4.82	96.0	0.126	504	---	1230	514	7.98	---	819	---	---	< 0.020	---	< 0.010	< 0.022	---	---	96.3	---	6.54		
	13-May-2020	639	< 5.0	9.86	220	< 5.0	104	8.12	41.0	0.313	4.88	93.2	0.137	524	---	1230	429	7.37	---	787	---	---	< 0.020	---	< 0.010	< 0.022	---	---	83.1	---	5.7		
	23-Aug-2022	649	< 1.0	11.3	214	< 1.0	136	6.88	42.0	0.598	4.93	96.6	0.108	532	---	1270	---	8.19	---	861	---	---	< 0.020	---	< 0.010	< 0.05	---	---	96.1	---	6.70		
	27-Jun-2024	667	< 1.0	11.2	218	< 1.0	138	6.59	39.8	0.591	4.76	91.6	0.112	547	---	1230	---	8.13	---	798	1.77	---	< 0.020	---	< 0.010	< 0.0224	---	---	92.4	---	6.59		
MW-12	10-Mar-2005	636	< 5	6	45.9	< 5	95.7	2.78	27.9	0.365	5	106	0.13	521	---	1000	354	7.9	---	600	1.39	---	0.1	---	< 0.05	0.1	---	---	102	---	6		
	16-Nov-2005	712	< 5	8	52.5	< 5	94.9	3.37	28.5	0.402	5.2	111	0.07	584	---	1020	354	7.4	---	651	1.2	---	< 0.1	---	< 0.05	< 0.1	---	---	92.7	---	7		
	16-Jun-2006	669	< 5	7	44.2	< 5	100	3.76	29.1	0.436	5.1	106	0.07	549	---	904	370	7.8	---	621	1.34	---	< 0.1	---	< 0.05	< 0.1	---	---	100	---	7		
	11-Jul-2007	670	< 5	7	42.4	< 5	95.4	3.77	29.2	0.422	4.2	101	0.08	550	---	1020	358	8	---	609	1.16	---	< 0.1	---	< 0.05	< 0.1	---	---	97.4	---	7		
	18-Dec-2007	700	< 1	5	43	< 1	82	< 0.06	23	0.4	4.3	99	< 0.1	570	---	1000	300	7.8	---	601	0.29	---	< 0.2	---	< 0.06	< 0.2	---	---	0.84	---	7		
	22-Apr-2009	650	< 0.5	8	32	< 0.5	98	4.1	29	0.45	4.9	110	0.09	540	---	1000	360	7.66	---	610	1.3	---	0.005	---	< 0.003	0.005	---	---	110	---	6.4		
	06-May-2010	667	< 5.0	7.05	46.8	< 5.0	96.4	4.24	30.2	0.456	---	109	0.114	547	---	1030	365	8.13	---	623	1.32	---	< 0.050	---	< 0.050	< 0.071	---	---	100	---	10.5		
	02-Jun-2011	662	< 5.0	6.40	44.6	< 5.0	98.1	3.34	30.9	0.450	4.86	95.4	0.071	543	---	1050	372	8.14	---	606	1.31	---	0.054	---	< 0.050	< 0.071	---	---	97.9	---	13.5		
	30-May-2012	660	< 5.0	6.25	43.3	< 5.0	89.8	4.14	25.6	0.435	5.23	95.7	0.076	541	---	1030	330	8.03	---	591	1.32	---	< 0.050	---	< 0.050	< 0.071	---	---	91.5	---	6.6		
	10-Jul-2013	649	< 5.0	6.89	44.4	< 5.0	101	3.99	28.9	0.457	5.00	113	0.083	532	---	1000	371	7.89	---	628	---	---	< 0.050	---	< 0.050	< 0.071	---	---	106	---	6.9		
	12-Jun-2014	598	< 5.0	7.20	47.4	< 5.0	93.8	3.88	27.7	0.462	5.14	97.6	0.064	490	---	915	348	8.02	---	619	---	---	< 0.050	---	< 0.020	< 0.054	---	---	103	---	8.3		
	24-Jun-2015	660	< 0.50	7.7	45	< 0.50	93	4.0	29	0.42	5.0	110	0.084	540	< 0.50	1000	350	7.63	---	620	---	0.047	0.011	< 0.033	< 0.010	< 0.020	12	12	---	1.0	6.8		
	20-Sep-2016	646	< 5.0	6.53	43.5	< 5.0	94.9	4.21	28.4	0.442	4.76	98.2	0.063	530	---	1000	354	7.93	---	615	---	---	< 0.020	---	< 0.010	< 0.022	---	---	98.2	---	7.4		
	14-Jul-2017	---	---	---	---	---	94.1	4.18	27.9	0.437	4.53	98.9	---	---	---	---	---	---	---	---	614	---	---	---	---	---	---	---	---	---	---	---	6.1
02-Aug-2017	639	< 5.0	6.42	43.4	< 5.0	86.0	---	26.9	---	4.61	95.7	0.114	524	---	1010	326	7.43	---	597	---	---	< 0.020	---	< 0.010	< 0.022	---	---	89.4	---	---			
01-Aug-2018	648	< 5.0	5.75	38.9	< 5.0	81.2	4.17	31.3	0.493	5.66	111	0.103																					



Table 3

Groundwater Analytical Results: Indicator Analysis Parameters

PROJECT No.: 317085-55576-24000		Anions					Cations							General						Inorganic Nitrogen Compounds						Ion Balance				Miscellaneous		
Monitoring Station	Date (dd-mmm-yyyy)	Bicarbonate	Carbonate	Chloride	Sulphate	Hydroxide	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium	Fluoride	Alkalinity (Total; as CaCO ₃)	Alkalinity (PP; as CaCO ₃)	Electrical Conductivity	Hardness (Total; as CaCO ₃)	pH	Total Dissolved Solids	Total Dissolved Solids (Calculated)	Ammonia (Total; as N)	Nitrate	Nitrate (as N)	Nitrite	Nitrite (as N)	Nitrite-plus-Nitrate (as N)	Cation Sum	Anion Sum	Ion Balance	Ion Balance	Dissolved Organic Carbon	
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(uS/cm)	(mg/L)	(pH Units)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(meq/L)	(meq/L)	(%)	(Balance)	(mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	---	250	500	---	---	0.3	---	0.02	---	200	---	---	---	---	---	(7 - 10.5)	500	500	---	---	---	---	---	---	---	---	---	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	---	---	---	---	None required	---	---	0.12	---	---	1.5	---	---	---	---	---	---	---	None required	45	10	3	1	---	---	---	---	---	---	---
Relative Percent Difference (RPD) Report																																
MW-04 (Duplicate)	26-Jun-2024	443	< 1.0	168	121	< 1.0	136	0.910	40.9	0.267	10.4	78.2	0.116	363	---	1290	---	8.13	781	792	< 0.0050	---	0.263	---	< 0.010	0.263	---	---	95.2	---	3.77	
	26-Jun-2024	442	< 1.0	165	120	< 1.0	137	0.897	39.6	0.266	10.1	75.9	0.110	362	---	1290	---	8.20	765	785	< 0.0050	---	0.322	---	< 0.010	0.322	---	---	95.1	---	3.72	
	RPD(%)	0.2%	---	1.8%	0.8%	---	0.7%	1.4%	3.2%	0.4%	2.9%	3.0%	5.3%	0.3%	---	0.0%	---	0.9%	2.1%	0.9%	---	---	20.2%	---	---	20.2%	---	---	0.1%	---	1.3%	

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 non-detect parameters above applied guideline/criteria.
4. Highlighting indicates parameters at applied guideline/criteria.
5. Denotes values exceeding
(Health Canada. 2022. Guidelines for Canadian Drinking Water Quality. Summary Table. Aesthetic Objective. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. September 2022.)
Sulphate:
Based on taste. High levels (above 500 mg/L) can cause physiological effects such as diarrhoea or dehydration.
pH:
For maximizing treatment effectiveness, controlling corrosion, and reducing leaching from distribution system and plumbing components. Not specifically an AO.
6. Denotes values exceeding
(Health Canada. 2022. Guidelines for Canadian Drinking Water Quality. Summary Table. Maximum Acceptable Concentration. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. September 2022.)
Calcium:
Guideline value not necessary. Calcium contributes to hardness.
Ammonia (Total, as N):
Guideline value not necessary. No adverse effects at levels found in drinking water. To help prevent nitrification, limit excess free ammonia entering the distribution system to below 0.1 mg/L and preferably below 0.05 mg/L as N.
7. Superscript ^{#1} - Detection limits raised due to dilution to bring analyte within the calibrated range.

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 317085-55576-24000

PROJECT No.: 317085-55576-24000																																
Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (Total) (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Strontium (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	
Canadian Drinking Water Quality Guidelines 2022 - AO		N/A	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	0.006	0.01	2	---	---	5	0.007	0.05	---	2	---	0.005	---	0.12	0.001	---	---	---	0.05	---	---	---	7	---	---	---	---	0.02	---	---
Monitoring Wells																																
MW-01	07-Mar-2005	0.02	0.0008	0.0008	0.199	< 0.0005	< 0.00005	0.053	< 0.0001	0.0009	0.0017	< 0.0006	1.02	0.0004	---	0.605	< 0.0001	0.0007	0.0004	---	< 0.0004	---	< 0.0002	0.579	---	< 0.0005	< 0.0002	0.0013	0.0026	0.0003	0.004	
	17-Nov-2005	0.01	0.0005	0.0009	0.143	< 0.0005	< 0.0001	0.046	< 0.0001	< 0.0004	0.0015	0.0007	1.67	< 0.0001	---	0.662	< 0.0001	0.0013	0.0012	---	< 0.0004	---	< 0.0002	0.551	---	< 0.0001	< 0.0002	0.0012	0.0023	0.0001	< 0.002	
	15-Jun-2006	< 0.01	0.0006	0.0009	0.134	< 0.0005	< 0.00005	0.045	< 0.0001	0.0027	0.0008	< 0.0006	1.81	< 0.0001	---	0.7	< 0.0001	0.0004	< 0.0001	---	< 0.0004	---	< 0.0002	0.554	---	< 0.00005	< 0.0002	0.001	0.0022	< 0.0001	0.005	
	12-Jul-2007	< 0.01	0.0004	0.0009	0.127	< 0.0005	< 0.00005	0.054	< 0.0001	0.0011	0.0009	< 0.0006	1.84	< 0.0001	---	0.664	< 0.0001	0.0009	0.003	---	0.0005	---	< 0.0002	0.558	---	< 0.00005	< 0.0002	0.0008	0.0022	< 0.0001	< 0.002	
	19-Dec-2007	< 0.001	< 0.0002	< 0.001	0.11	< 0.001	---	0.05	< 0.0002	< 0.001	0.0009	< 0.0002	< 0.06	< 0.0002	---	0.67	< 0.00005	0.0008	0.0027	---	< 0.001	---	< 0.0001	0.53	---	< 0.0002	< 0.001	0.001	0.0024	< 0.001	< 0.003	
	21-Apr-2009	< 0.001	< 0.0002	0.0008	---	< 0.001	---	---	< 0.000005	< 0.001	0.0008	0.0005	< 0.06	< 0.0002	---	0.66	0.000001	0.0004	0.0009	---	< 0.0002	---	< 0.0001	---	---	< 0.0002	< 0.001	< 0.001	0.0021	< 0.001	< 0.003	
	05-May-2010	< 0.0050	< 0.00040	0.00095	0.132	< 0.00050	---	0.053	< 0.00010	< 0.0050	0.00088	< 0.0010	2.02	< 0.00010	---	0.730	< 0.00010	0.00046	0.0025	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	0.00081	0.00209	< 0.00010	< 0.0020	
	25-May-2011	0.0051	< 0.00040	0.00093	0.147	< 0.00050	---	< 0.050	< 0.00010	< 0.0050	0.00084	0.0017	1.53	< 0.00010	---	0.675	< 0.000020	0.00039	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00205	0.00016	0.0074	
	29-May-2012	< 0.0050	< 0.00040	0.00088	0.120	< 0.00050	---	< 0.050	< 0.00010	< 0.0050	0.00068	< 0.0010	1.57	< 0.00010	---	0.694	< 0.000020	0.000423	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00194	< 0.00010	0.0034	
	10-Jul-2013	< 0.0050	< 0.00040	0.00098	0.147	< 0.00050	---	< 0.050	< 0.00010	< 0.0050	0.00075	< 0.0010	1.82	< 0.00010	---	0.729	< 0.000020	0.000360	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00223	< 0.00010	< 0.0030	
	16-Jun-2014	< 0.0050	< 0.00040	0.00092	0.144	< 0.00050	---	< 0.050	< 0.00010	< 0.0050	0.00072	< 0.0010	1.92	< 0.00010	---	0.737	< 0.0000050	0.000281	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00212	< 0.00010	< 0.0030	
	29-Jun-2015	0.0038	< 0.00060	0.00079	0.13	< 0.0010	---	0.051	< 0.000020	< 0.0010	0.00076	0.00046	1.9	< 0.00020	0.027	0.71	---	0.00038	0.00091	< 0.10	< 0.00020	7.1	< 0.00010	0.55	---	< 0.00020	< 0.0010	< 0.0010	0.0021	< 0.0010	< 0.0030	
	19-Sep-2016	< 0.0010	< 0.00010	0.00095	0.137	< 0.00010	---	0.054	< 0.000050	< 0.00010	0.00073	< 0.00020	1.76	< 0.000050	---	0.699	< 0.0000050	0.000264	0.00100	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00199	< 0.00050	0.0013	
	13-Jul-2017	< 0.0010	< 0.00010	0.00088	0.131	< 0.00010	---	0.050	< 0.000050	< 0.00010	0.00069	< 0.00020	1.93	< 0.000050	---	0.714	< 0.0000050	0.000177	0.00084	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00209	< 0.00050	< 0.0010	
	01-Aug-2018	< 0.0050	< 0.00050	0.00094	0.127	---	---	0.088	< 0.000025	< 0.00050	---	< 0.0010	1.94	< 0.00025	---	0.690	< 0.0000050	---	< 0.0025	---	< 0.00025	---	< 0.000050	---	---	---	---	---	0.00176	---	< 0.0050	
	12-May-2020	< 0.0010	< 0.00010	0.00091	0.117	< 0.00010	---	0.046	< 0.000050	< 0.00010	0.00030	< 0.00020	2.20	< 0.000050	---	0.215	< 0.0000050	0.000579	0.00073	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00183	< 0.00050	0.0016	
	22-Aug-2022	< 0.0010	< 0.00010	0.00090	0.133	< 0.000020	< 0.000050	0.049	< 0.000050	< 0.00050	0.00071	< 0.00020	1.89	< 0.000050	0.0263	0.676	---	0.000744	0.00097	< 0.050	< 0.000050	7.23	< 0.000010	0.538	< 0.00020	< 0.000010	< 0.00010	< 0.00030	0.00134	< 0.00050	< 0.0010	
	26-Jun-2024	< 0.0010	< 0.00010	0.00094	0.121	< 0.000020	---	0.057	< 0.000050	< 0.00050	0.00068	0.00039	1.93	< 0.000050	---	0.686	< 0.0000050	0.000312	0.00055	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00154	< 0.00050	0.0015	
	MW-02	07-Mar-2005	0.02	0.001	0.0025	0.204	< 0.0005	< 0.00005	0.12	< 0.0001	0.0013	0.0008	0.0015	0.275	0.0004	---	0.236	0.0001	0.0046	< 0.0001	---	0.0008	---	< 0.0002	1.03	---	< 0.0005	< 0.0002	0.0012	0.0032	0.0017	0.004
		17-Nov-2005	0.03	0.0006	0.0014	0.152	< 0.0005	< 0.0001	0.189	< 0.0001	< 0.0004	0.0031	0.0021	0.085	< 0.0001	---	0.671	< 0.0001	0.0148	0.0644	---	0.0006	---	< 0.0002	1.54	---	0.00006	< 0.0002	0.0015	0.0053	0.0005	< 0.002
15-Jun-2006		< 0.01	0.0007	0.0024	0.107	< 0.0005	0.00005	0.152	< 0.0001	0.004	0.0031	0.0011	3.19	< 0.0001	---	1.09	< 0.0001	0.0009	0.0012	---	0.0005	---	< 0.0002	1.46	---	< 0.00005	< 0.0002	0.0012	0.0023	< 0.0001	0.1012	
13-Jul-2007		< 0.01	0.0005	0.0036	0.0749	< 0.0005	< 0.00005	0.136	< 0.0001	< 0.0004	0.0032	0.0007	8.72	< 0.0001	---	0.841	< 0.0001	0.0008	0.0055	---	< 0.0004											

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 317085-55576-24000

PROJECT No.: 317085-55576-24000																																	
Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (Total) (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Strontium (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)		
Canadian Drinking Water Quality Guidelines 2022 - AO		N/A	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	0.006	0.01	2	---	---	5	0.007	0.05	---	2	---	0.005	---	0.12	0.001	---	---	---	---	0.05	---	---	---	7	---	---	---	---	0.02	---	---
MW-03 (cont'd)	29-Jun-2015	0.0031	< 0.00060	0.0014	0.043	< 0.0010	---	0.12	< 0.000020	< 0.0010	0.00074	0.00036	5.4	< 0.00020	0.042	0.27	---	0.00073	0.00083	< 0.10	< 0.00020	8.4	< 0.00010	0.88	---	< 0.00020	< 0.0010	< 0.0010	0.00059	< 0.0010	0.0097		
	19-Sep-2016	< 0.0010	< 0.00010	0.00154	0.0426	< 0.00010	---	0.122	< 0.0000050	< 0.00010	0.00069	< 0.00020	5.22	< 0.000050	---	0.269	< 0.0000050	0.000443	0.00098	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000561	< 0.00050	< 0.0010		
	13-Jul-2017	< 0.0010	< 0.00010	0.00148	0.0431	< 0.00010	---	0.105	< 0.0000050	< 0.00010	0.00071	< 0.00020	5.50	0.000094	---	0.282	< 0.0000050	0.000371	0.00096	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000619	< 0.00050	< 0.0010		
	13-Jul-2017	< 0.0010	< 0.00010	0.00138	0.0437	< 0.00010	---	0.111	< 0.0000050	< 0.00010	0.00066	< 0.00020	5.20	0.000090	---	0.260	< 0.0000050	0.000407	0.00088	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000597	< 0.00050	< 0.0010		
	31-Jul-2018	0.327	< 0.00010	0.00197	0.0523	---	---	0.098	0.0000156	0.00088	---	0.00126	6.22	0.000295	---	0.297	< 0.0000050	---	0.00232	---	< 0.000050	---	< 0.000010	---	---	---	---	---	0.000478	---	0.0029		
	12-May-2020	< 0.0010	< 0.00010	0.00178	0.0496	< 0.00010	---	0.108	0.0000134	< 0.00010	0.00071	0.00111	7.15	< 0.000050	---	0.259	< 0.0000050	0.000975	0.00176	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000585	< 0.00050	0.0072		
	22-Aug-2022	0.0026	0.00024	0.00088	0.0413	< 0.000020	< 0.000050	0.090	0.0000110	< 0.00050	0.00051	0.00057	1.43	< 0.000050	0.0301	0.162	---	0.00330	0.00200	< 0.050	0.000070	8.64	< 0.000010	0.636	< 0.00020	< 0.000010	0.00019	< 0.00030	0.000368	0.00055	0.0044		
MW-04	26-Jun-2024	0.0272	< 0.00010	0.00158	0.0416	< 0.000020	---	0.132	< 0.0000050	0.00059	0.00074	0.00061	5.55	< 0.000050	---	0.286	< 0.0000050	0.000652	0.00085	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	0.00068	0.000549	< 0.00050	0.0014		
	08-Mar-2005	< 0.01	0.0009	0.0011	0.0737	< 0.0005	< 0.00005	0.101	< 0.0001	0.0018	0.0007	0.0008	0.173	0.0002	---	0.152	< 0.0001	0.0005	< 0.0001	---	0.0006	---	< 0.0002	0.561	---	< 0.0005	< 0.0002	0.0007	0.0029	< 0.0001	0.004		
(Duplicate)	17-Nov-2005	< 0.01	0.0007	0.0006	0.0809	< 0.0005	0.00007	0.093	< 0.0001	0.0007	0.0049	0.0012	0.104	< 0.0001	---	0.053	0.0002	0.003	0.014	---	0.0009	---	< 0.0002	0.616	---	< 0.0001	< 0.0002	0.0004	0.0025	< 0.0001	0.029		
	17-Nov-2005	0.01	0.0006	0.0007	0.0817	< 0.0005	0.00005	0.097	< 0.0001	0.0009	0.0051	0.0012	0.105	< 0.0001	---	0.053	0.0001	0.0028	0.0132	---	0.0009	---	< 0.0002	0.609	---	< 0.0001	< 0.0002	0.0004	0.0026	< 0.0001	0.032		
(Duplicate)	14-Jun-2006	< 0.01	0.0008	0.0006	0.764	< 0.0005	< 0.00005	0.092	< 0.0001	0.0017	< 0.0001	0.0009	0.005	< 0.0001	---	0.13	< 0.0001	0.0005	0.0007	---	0.001	---	< 0.0002	0.585	---	< 0.00005	< 0.0002	0.0003	0.0028	0.0022	0.005		
	13-Jul-2007	< 0.01	< 0.0004	0.0008	0.085	< 0.0005	< 0.00005	0.1	< 0.0001	0.0047	0.0001	< 0.0006	< 0.005	< 0.0001	---	0.009	0.0002	0.0005	0.0042	---	0.0006	---	< 0.0002	0.59	---	0.00024	< 0.0002	0.0004	0.0027	0.0009	0.005		
	19-Dec-2007	< 0.001	< 0.0002	< 0.001	0.08	< 0.001	---	0.09	< 0.0002	0.001	< 0.0003	0.0006	< 0.06	0.0002	---	0.016	< 0.00005	0.0006	0.0052	---	< 0.001	---	< 0.0001	0.61	---	< 0.0002	< 0.001	0.002	0.0023	< 0.001	< 0.003		
	21-Apr-2009	< 0.001	< 0.0002	< 0.0002	---	< 0.001	---	---	0.000024	< 0.001	< 0.0003	0.0009	< 0.06	< 0.0002	---	0.03	< 0.00003	0.0004	0.0021	---	< 0.0002	---	< 0.0001	---	---	< 0.0002	< 0.001	< 0.001	0.0029	< 0.001	< 0.003		
	06-May-2010	< 0.0050	< 0.00040	0.00117	0.0843	< 0.00050	---	0.098	< 0.00010	< 0.0050	0.00054	< 0.0010	0.078	< 0.00010	---	0.258	< 0.00010	0.00038	0.0047	---	0.00106	---	< 0.00010	---	---	< 0.000050	---	0.00046	0.00284	0.00072	< 0.0020		
	07-Jun-2011	< 0.0050	< 0.00040	< 0.00040	0.0832	< 0.00050	---	0.090	< 0.00010	< 0.0050	0.00015	< 0.0010	0.028	< 0.00010	---	0.114	< 0.000020	0.00038	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00333	< 0.00010	< 0.0020		
	30-May-2012	0.0135	< 0.00040	0.00054	0.0954	< 0.00050	---	0.086	< 0.00010	< 0.0050	0.00088	< 0.0010	1.47	< 0.00010	---	0.722	< 0.000020	0.000398	0.0024	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00396	< 0.00010	< 0.0030		
	30-May-2012	0.0112	< 0.00040	0.00059	0.0967	< 0.00050	---	0.087	< 0.00010	< 0.0050	0.00088	< 0.0010	1.73	< 0.00010	---	0.861	< 0.000020	0.000326	0.0022	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	0.00041	0.00404	< 0.00010	< 0.0030		
	09-Jul-2013	< 0.0050	< 0.00040	0.00065	0.103	< 0.00050	---	0.091	< 0.00010	< 0.0050	0.00058	< 0.0010	1.70	< 0.00010	---	0.561	< 0.000020	0.000359	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00392	< 0.00010	< 0.0030		
	13-Jun-2014	< 0.0050	< 0.00040	0.00053	0.109	< 0.00050	---	0.069	< 0.00010	< 0.0050	0.00035	< 0.0010	1.39	< 0.00010	---	0.494	< 0.0000050	0.000297	< 0.0020	---	< 0.00040	---	< 0.00										

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (Total) (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Strontium (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		N/A	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	0.006	0.01	2	---	---	5	0.007	0.05	---	2	---	0.005	---	0.12	0.001	---	---	---	0.05	---	---	---	7	---	---	---	0.02	---	---
MW-06 (cont'd)	12-Jun-2014	< 0.0050	< 0.00040	0.00505	0.0315	< 0.00050	---	0.112	< 0.00010	< 0.0050	0.00030	< 0.0010	5.93	< 0.00010	---	1.62	< 0.0000050	0.00084	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00060	0.00169	< 0.00020	< 0.0030
	25-Jun-2015	< 0.0030	< 0.00060	0.0045	0.033	< 0.0010	---	0.15	< 0.000020	< 0.0010	< 0.00030	< 0.00020	6.1	< 0.00020	0.11	1.5	---	0.0010	< 0.00050	0.18	< 0.00020	7.6	< 0.00010	1.4	---	< 0.00020	< 0.0010	< 0.0010	0.0016	< 0.0010	< 0.0030
	20-Sep-2016	< 0.0020	< 0.00020	0.00556	0.0303	< 0.00020	---	0.147	< 0.000010	< 0.00020	0.00025	< 0.00040	5.88	< 0.00010	---	1.63	< 0.0000050	0.00089	< 0.0010	---	< 0.00010	---	< 0.000020	---	---	< 0.000020	---	< 0.00060	0.00179	< 0.0010	< 0.0020
	13-Jul-2017	0.0124	< 0.00020	0.00532	0.0276	< 0.00020	---	0.132	< 0.000010	< 0.00020	0.00027	< 0.00040	5.83	< 0.00010	---	1.63	< 0.0000050	0.00090	< 0.0010	---	< 0.00010	---	< 0.000020	---	---	< 0.000020	---	< 0.00060	0.00174	< 0.0010	< 0.0020
	31-Jul-2018	0.131	< 0.00050	0.00607	0.0322	---	---	0.148	< 0.000025	< 0.00050	---	< 0.0010	6.76	< 0.00025	---	1.74	< 0.0000050	---	< 0.0025	---	< 0.00025	---	< 0.000050	---	---	---	---	0.00166	---	< 0.0050	
	13-May-2020	< 0.0010	< 0.00010	0.00715	0.0341	< 0.00010	---	0.145	< 0.000050	< 0.00010	0.00059	0.00034	8.59	< 0.000050	---	2.51	< 0.0000050	0.000921	0.00075	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00205	< 0.00050	0.0048
(Duplicate)	22-Aug-2022	< 0.0010	< 0.00010	0.00618	0.0290	< 0.000020	< 0.000050	0.156	< 0.000050	< 0.00050	0.00023	< 0.00020	5.96	< 0.000050	0.112	1.60	---	0.000786	< 0.00050	0.149	< 0.000050	7.94	< 0.000010	1.30	< 0.00020	< 0.000010	< 0.00010	< 0.00030	0.00150	< 0.00050	< 0.0010
	22-Aug-2022	< 0.0010	< 0.00010	0.00600	0.0286	0.00775	< 0.000050	0.150	< 0.000050	< 0.00050	0.00026	< 0.00020	6.10	< 0.000050	0.108	1.60	---	0.000836	< 0.00050	0.161	< 0.000050	7.94	< 0.000010	1.32	< 0.00020	< 0.000010	< 0.00010	< 0.00030	0.00167	< 0.00050	< 0.0010
	26-Jun-2024	0.0037	< 0.00010	0.00634	0.0263	< 0.000020	---	0.174	< 0.000050	< 0.00050	0.00022	< 0.00020	5.83	< 0.000050	---	1.63	< 0.0000050	0.000727	< 0.00050	---	0.000051	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00163	< 0.00050	< 0.0010
MW-07	09-Mar-2005	< 0.01	0.0008	0.0017	0.0733	< 0.0005	< 0.00005	0.366	< 0.0001	0.0017	0.0026	0.0024	10.4	0.0004	---	1.88	< 0.0001	0.001	< 0.0001	---	0.0008	---	< 0.0002	2.49	---	< 0.0005	< 0.0002	0.0012	0.0018	< 0.0001	0.006
	17-Nov-2005	< 0.01	0.0007	0.0019	0.053	< 0.0005	0.00005	0.311	< 0.0001	< 0.0004	0.002	0.0018	10.9	< 0.0001	---	1.83	< 0.0001	0.001	< 0.0001	---	< 0.0004	---	< 0.0002	2.45	---	< 0.0001	< 0.0002	0.0009	0.0017	< 0.0001	< 0.002
	16-Jun-2006	< 0.01	0.0007	0.0022	0.0543	< 0.0005	< 0.00005	0.312	< 0.0001	0.0018	0.0012	0.0023	< 0.005	< 0.0001	---	1.86	< 0.0001	0.0008	< 0.0001	---	0.0007	---	< 0.0002	2.58	---	< 0.00005	< 0.0002	0.001	0.0017	< 0.0001	0.006
	12-Jul-2007	< 0.01	0.0005	0.0027	0.0596	< 0.0005	< 0.00005	0.289	< 0.0001	0.0011	0.0014	0.0015	10.9	< 0.0001	---	1.78	< 0.0001	0.0012	0.0056	---	0.0008	---	< 0.0002	2.49	---	< 0.00005	< 0.0002	0.0011	0.0016	< 0.0001	0.002
	19-Dec-2007	< 0.001	< 0.0002	0.001	0.04	< 0.001	---	0.26	< 0.0002	0.004	0.0013	0.0016	< 0.06	0.0003	---	1.6	< 0.00005	0.0011	0.0059	---	< 0.001	---	< 0.0001	2.2	---	< 0.0002	< 0.001	0.002	0.0014	0.002	0.003
	22-Apr-2009	< 0.001	< 0.0002	0.0021	---	< 0.001	---	---	0.000016	< 0.001	0.0013	0.0007	14	< 0.0002	---	2.3	< 0.000001	0.0004	0.0024	---	< 0.0002	---	< 0.0001	---	---	< 0.00002	< 0.001	0.0016	< 0.001	< 0.003	
	05-May-2010	< 0.0050	< 0.00040	0.00361	0.0490	< 0.00050	---	0.279	< 0.00010	< 0.0050	0.00128	0.0014	12.5	< 0.00010	---	1.90	< 0.00010	0.00097	0.0056	---	0.00127	---	< 0.00010	---	---	< 0.000050	---	0.00109	0.00156	< 0.00010	0.0057
	08-Jun-2011	< 0.0050	< 0.00040	0.00570	0.0954	< 0.00050	---	0.215	< 0.00010	< 0.0050	0.00116	< 0.0010	8.26	< 0.00010	---	1.21	< 0.000020	0.00151	0.0021	---	< 0.00040	---	< 0.00010	---	---	0.000071	---	0.00030	0.00138	< 0.00010	0.0050
	28-Jul-2011	< 0.0050	< 0.00040	0.00333	0.0483	---	---	0.262	< 0.00010	< 0.0050	---	< 0.0010	11.7	< 0.00010	---	1.84	< 0.000020	---	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	---	---	---	0.00152	---	< 0.0030
	30-May-2012	0.0116	< 0.00040	0.00376	0.0544	< 0.00050	---	0.240	< 0.00010	< 0.0050	0.00104	< 0.0010	11.3	< 0.00010	---	1.79	< 0.000020	0.000974	0.0026	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00143	< 0.00010	< 0.0030
	11-Jul-2013	< 0.0050	< 0.00050	0.00382	0.0466	< 0.0025	---	0.276	< 0.00010	< 0.0050	0.00097	< 0.0010	12.1	< 0.00025	---	1.87	< 0.000020	0.00088	< 0.0020	---	< 0.00050	---	< 0.00010	---	---	< 0.00025	---	< 0.0015	0.00140	< 0.00050	< 0.0050
	13-Jun-2014	< 0.0050	< 0.00050	0.00319	0.0298	< 0.00050	---	0.226	< 0.00010	< 0.0050	0.00105	< 0.0010	13.8	< 0.00025	---	2.26	< 0.0000050	0.00067	< 0.0020	---	< 0.00050	---	< 0.00010	---	---	< 0.000050	---	< 0.0015	0.00170	< 0.00050	< 0.0050
	25-Jun-2015	< 0.0030	< 0.00060	0.0038	0.047	< 0.0010	---	0.29	< 0.000020	< 0.0010	0.0010	< 0.00020	13	< 0.00020	0.16	1.9	---	0.0010	0.0011	< 0.10	< 0.00020	8.0	< 0.00010	2.6	---	< 0.00020	< 0.0010	< 0.0010	0.0016	< 0.0010	< 0.0030
	20-Sep-2016	< 0.0050	< 0.00050	0.00383	0.0416	< 0.00050	---	0.300	< 0.000025	< 0.00050	0.00088	< 0.0010	12.9	< 0.00025	---	2.01	< 0.0000050	0.00078	< 0.0025	---	< 0.00025	---	< 0.000050	---	---	< 0.000050	---	< 0.0015	0.00159	< 0.0025	< 0.0050
	14-Jul-2017	< 0.0020	< 0.00020	0.00442	0.0503	< 0.00020	---	0.264	< 0.000010	< 0.00020	0.00086	< 0.00040	11.2	< 0.00010	---	1.80	< 0.0000050	0.00109	< 0.0010	---	< 0.00010	---	< 0.000020	---	---	< 0.000020	---	< 0.00060	0.00147	< 0.0010	< 0.0020
	31-Jul-2018	< 0.0050	< 0.00050	0.00505	0.0518	---	---	0.282	< 0.000025	< 0.00050	---	< 0.0010	12.3	< 0.00025	---	1.88	< 0.0000050	---	< 0.0025	---	< 0.000050	---	< 0.000050	---	---	---	---	---	0.00138	---	< 0.0050
(Duplicate)	13-May-2020	< 0.0010	< 0.00010	0.00441	0.0383	< 0.00010	---	0.283	< 0.0000050	< 0.00010	0.00057	0.00028	14.0	< 0.000050	---	0.517	< 0.0000050	0.000958	0.00108	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00155	< 0.00050	0.0028
	13-May-2020	0.0053	< 0.00010	0.00513	0.0425	< 0.00010	---	0.270	< 0.0000050	< 0.00010	0.00072	0.00037	16.4	0.000050	---	0.886	< 0.0000050	0.00102	0.00120	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	0.00041	0.00153	< 0.00050	0.0031
	23-Aug-2022	0.0030	< 0.00020	0.00275	0.0214	< 0.000040	< 0.000100	0.324	< 0.0000100	< 0.00100	0.00102	< 0.00040	13.2	< 0.000100	0.182	2.07	---	0.000475	0.00452	< 0.100	< 0.000100	8.24	< 0.000020	2.81	< 0.00040	< 0.000020	< 0.000020	< 0.00060	0.00162	< 0.00100	0.0065
	27-Jun-2024	< 0.0020	< 0.00020	0.00391	0.0415	< 0.000040	---	0.344	< 0.0000100	< 0.00100	0.00105	0.00093	12.5	< 0.000100	---	1.94	< 0.0000050	0.000748	< 0.00100	---	< 0.000020	---	< 0.000010	---	---	< 0.000020	---	< 0.00060	0.00156	< 0.00100	< 0.0020
MW-08	09-Mar-2005	< 0.01	0.0006	0.0042	0.084	< 0.0005	< 0.00005	0.244	< 0.0001	0.0011	0.0008	0.001	5.66	0.0004	---	0.474	< 0.0001	0.0012	< 0.0001	---	0.0004	---	< 0.0002	1.4	---	< 0.0005	< 0.0002	0.0008	0.0011	< 0.0001	0.003
	15-Nov-2005	< 0.01	0.0005	0.0046	0.115	< 0.0005	0.00009	0.184	< 0.0001	0.0005	0.0009	0.001	5.16	< 0.0001	---	0.384	< 0.0001	0.0025	< 0.0001	---	0.0005	---	< 0.0002	1.27	---	< 0.0001	< 0.0002	0.001	0.0015	< 0.0001	< 0.002
	16-Jun-2006	< 0.01	0.0006	0.0044	0.0629	< 0.0005	< 0.00005	0.206	< 0.0001	0.0012	0.0004	0.0011	6.97	< 0.0001	---	0.481	< 0.0001	0.0011	< 0.0001	---	< 0.0004	---									

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 317085-55576-24000

PROJECT No.: 317085-55576-24000																																
Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (Total) (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Strontium (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	
Canadian Drinking Water Quality Guidelines 2022 - AO		N/A	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	0.006	0.01	2	---	---	5	0.007	0.05	---	2	---	0.005	---	0.12	0.001	---	---	---	---	0.05	---	---	7	---	---	---	---	0.02	---	---
MW-09 (cont'd)	29-May-2012	0.0112	< 0.00040	0.00234	0.0209	< 0.00050	---	0.226	< 0.00010	< 0.0050	0.00080	< 0.0010	1.89	< 0.00010	---	0.784	< 0.000020	0.00143	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00121	< 0.00010	0.0030	
	10-Jul-2013	< 0.0050	< 0.00040	0.00237	0.0243	< 0.0010	---	0.249	< 0.00010	< 0.0050	0.00138	< 0.0010	1.94	< 0.00010	---	0.842	< 0.000020	0.00154	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.00010	---	< 0.00060	0.00138	< 0.00020	< 0.0030	
(Duplicate)	13-Jun-2014	< 0.0050	< 0.00040	0.00232	0.0224	< 0.00050	---	0.196	< 0.00010	< 0.0050	0.00120	< 0.0010	1.85	< 0.00010	---	0.868	< 0.0000050	0.00131	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00132	< 0.00010	< 0.0030	
	25-Jun-2015	< 0.0030	< 0.00060	0.0020	0.023	< 0.0010	---	0.27	< 0.000020	< 0.0010	0.0011	< 0.00020	2.0	< 0.00020	0.081	0.80	---	0.0016	0.00051	< 0.10	< 0.00020	6.4	< 0.00010	0.88	---	< 0.00020	< 0.0010	< 0.0010	< 0.0010	< 0.0030		
	20-Sep-2016	< 0.0020	< 0.00020	0.00249	0.0227	< 0.00020	---	0.285	< 0.000010	< 0.00020	0.00118	< 0.00040	1.93	< 0.00010	---	0.822	< 0.0000050	0.00161	< 0.0010	---	< 0.00010	---	< 0.000020	---	---	< 0.000020	---	< 0.00060	0.00131	< 0.0010	< 0.0020	
	20-Sep-2016	< 0.0020	< 0.00020	0.00240	0.0227	< 0.00020	---	0.281	< 0.000010	< 0.00020	0.00117	< 0.00040	1.88	< 0.00010	---	0.795	< 0.0000050	0.00155	< 0.0010	---	< 0.00010	---	< 0.000020	---	---	< 0.000020	---	< 0.00060	0.00129	< 0.0010	< 0.0020	
	14-Jul-2017	< 0.0010	< 0.00010	0.00260	0.0223	< 0.00010	---	0.258	< 0.0000050	< 0.00010	0.00157	< 0.00020	1.96	< 0.000050	---	0.872	< 0.0000050	0.000861	0.00096	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00130	< 0.00050	< 0.0010	
	01-Aug-2018	< 0.0050	< 0.00050	0.00243	0.0199	---	---	0.268	< 0.000025	< 0.00050	---	< 0.0010	2.01	< 0.00025	---	0.813	< 0.0000050	---	< 0.0025	---	< 0.00025	---	< 0.000050	---	---	---	---	---	---	0.00117	---	< 0.0050
(Duplicate)	13-May-2020	< 0.0010	< 0.00010	0.00237	0.0154	< 0.00010	---	0.259	< 0.0000050	< 0.00010	0.00082	0.00050	2.05	< 0.000050	---	0.189	< 0.0000050	0.00161	0.00109	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00123	< 0.00050	0.0023	
	23-Aug-2022	< 0.0010	< 0.00010	0.00271	0.0214	< 0.000020	< 0.000050	0.282	< 0.0000050	< 0.00050	0.00165	< 0.00020	1.87	< 0.000050	0.0796	0.782	---	0.00140	0.00096	< 0.050	< 0.000050	6.73	< 0.000010	0.816	< 0.00020	< 0.000010	< 0.00010	< 0.00030	0.00106	< 0.00050	< 0.0010	
	23-Aug-2022	< 0.0010	< 0.00010	0.00271	0.0211	< 0.000020	< 0.000050	0.295	< 0.0000050	< 0.00050	0.00170	< 0.00020	1.87	< 0.000050	0.0795	0.811	---	0.00147	0.00102	< 0.050	< 0.000050	6.67	< 0.000010	0.817	< 0.00020	< 0.000010	< 0.00010	< 0.00030	0.00132	< 0.00050	< 0.0010	
	26-Jun-2024	< 0.0010	< 0.00010	0.00263	0.0194	< 0.000020	---	0.314	< 0.0000050	< 0.00050	0.00144	< 0.00020	1.91	< 0.000050	---	0.807	< 0.0000050	0.00136	< 0.00050	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00123	< 0.00050	< 0.0010	
MW-10	09-Mar-2005	< 0.01	0.0007	0.003	0.0296	< 0.0005	< 0.00005	0.209	< 0.0001	0.0012	0.0003	0.0007	5.29	0.0004	---	0.639	< 0.0001	0.0009	< 0.0001	---	< 0.0004	---	< 0.0002	1.29	---	< 0.0005	< 0.0002	0.0008	0.0019	< 0.0001	0.003	
	16-Nov-2005	< 0.01	0.0006	0.0037	0.0331	< 0.0005	< 0.0001	0.202	< 0.0001	< 0.0004	0.0005	0.0009	5.49	< 0.0001	---	0.642	< 0.0001	0.001	< 0.0001	---	0.0006	---	< 0.0002	1.43	---	< 0.0001	< 0.0002	0.0008	0.0015	< 0.0001	< 0.002	
	16-Jun-2006	< 0.01	0.0006	0.0036	0.0319	< 0.0005	< 0.00005	0.187	< 0.0001	0.0011	0.0003	0.0009	5.89	< 0.0001	---	0.67	< 0.0001	0.0009	< 0.0001	---	< 0.0004	---	< 0.0002	1.41	---	< 0.00005	< 0.0002	0.0007	0.0014	< 0.0001	0.009	
	11-Jul-2007	< 0.01	0.0005	0.0039	0.0291	< 0.0005	< 0.00005	0.168	< 0.0001	0.0015	0.0004	0.0008	5.93	< 0.0001	---	0.656	< 0.0001	0.0009	0.003	---	< 0.0004	---	< 0.0002	1.55	---	< 0.00005	< 0.0002	0.0007	0.0013	0.0004	0.015	
	18-Dec-2007	< 0.001	< 0.0002	0.002	0.02	< 0.001	---	0.16	< 0.0002	< 0.001	0.0005	0.0006	< 0.06	< 0.0002	---	0.64	< 0.00005	0.0011	0.0029	---	< 0.001	---	< 0.0001	1.3	---	< 0.0002	< 0.001	0.002	0.0014	< 0.001	< 0.003	
	22-Apr-2009	< 0.001	< 0.0002	0.0044	---	< 0.001	---	---	0.000007	< 0.001	< 0.0003	0.0006	5.9	< 0.0002	---	0.71	< 0.000001	0.0009	0.001	---	< 0.0002	---	< 0.0001	---	---	< 0.0002	< 0.001	< 0.001	0.0011	< 0.001	< 0.003	
	05-May-2010	< 0.0050	< 0.00040	0.00459	0.0290	< 0.00050	---	0.177	< 0.00010	< 0.0050	0.00044	0.0015	6.80	< 0.00010	---	0.735	< 0.00010	0.00097	0.0029	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	0.00083	0.00115	< 0.00010	0.0023	
	02-Jun-2011	< 0.0050	< 0.00040	0.00287	0.0321	< 0.00050	---	0.170	< 0.00010	< 0.0050	0.00031	< 0.0010	3.89	< 0.00010	---	0.566	< 0.000020	0.00481	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00133	0.00021	0.0030	
	30-May-2012	0.0139	< 0.00040	0.00420	0.0273	< 0.00050	---																									

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 317085-55576-24000

PROJECT No.: 317085-55576-24000																																	
Monitoring Station	Date (dd-mm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (Total) (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Strontium (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)		
Canadian Drinking Water Quality Guidelines 2022 - AO		N/A	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	0.006	0.01	2	---	---	5	0.007	0.05	---	2	---	0.005	---	0.12	0.001	---	---	---	---	0.05	---	---	---	7	---	---	---	---	0.02	---	---
MW-12 (cont'd)	06-May-2010	< 0.0050	< 0.00040	0.00285	0.143	< 0.00050	---	0.242	< 0.00010	< 0.0050	0.00065	< 0.0010	4.24	< 0.00010	---	0.456	< 0.00010	0.00115	0.0022	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	0.00081	0.00083	< 0.00010	< 0.0020		
	02-Jun-2011	< 0.0050	< 0.00040	0.00199	0.130	< 0.00050	---	0.244	< 0.00010	< 0.0050	0.00043	< 0.0010	3.34	< 0.00010	---	0.450	< 0.000020	0.00102	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00087	< 0.00010	0.0021		
	30-May-2012	0.0146	< 0.00040	0.00267	0.112	< 0.00050	---	0.219	< 0.00010	< 0.0050	0.00046	< 0.0010	4.14	< 0.00010	---	0.435	< 0.000020	0.00121	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00085	< 0.00010	< 0.0030		
	10-Jul-2013	< 0.0050	< 0.00040	0.00285	0.143	< 0.00050	---	0.227	< 0.00010	< 0.0050	0.00045	< 0.0010	3.99	< 0.00010	---	0.457	< 0.000020	0.00115	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00094	< 0.00010	< 0.0030		
	12-Jun-2014	< 0.0050	< 0.00040	0.00266	0.125	< 0.00050	---	0.178	< 0.00010	< 0.0050	0.00044	< 0.0010	3.88	< 0.00010	---	0.462	< 0.0000050	0.000921	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00080	< 0.00010	0.0044		
	24-Jun-2015	< 0.0030	< 0.00060	0.0022	0.12	< 0.0010	---	0.24	0.000020	< 0.0010	0.00039	< 0.00020	4.0	< 0.00020	0.068	0.42	---	0.0010	0.0015	< 0.10	< 0.00020	7.3	< 0.00010	0.90	---	< 0.00020	< 0.0010	< 0.0010	0.00075	< 0.0010	< 0.0030		
	20-Sep-2016	0.0024	< 0.00010	0.00280	0.125	< 0.00010	---	0.245	< 0.0000050	< 0.00010	0.00041	< 0.00020	4.21	< 0.000050	---	0.442	< 0.0000050	0.000685	0.00062	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000810	< 0.00050	< 0.0010		
	14-Jul-2017	< 0.0010	< 0.00010	0.00268	0.122	< 0.00010	---	0.237	< 0.0000050	< 0.00010	0.00037	< 0.00020	4.18	< 0.000050	---	0.437	< 0.0000050	0.000594	0.00052	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000867	< 0.00050	< 0.0010		
	01-Aug-2018	0.0446	< 0.00010	0.00315	0.124	---	---	0.191	< 0.0000050	0.00013	---	0.00024	4.17	0.000063	---	0.493	< 0.0000050	---	0.00076	---	< 0.000050	---	< 0.000010	---	---	---	---	---	0.000667	---	0.0015		
	14-May-2020	0.0201	< 0.00010	0.00287	0.0984	< 0.00010	---	0.220	< 0.0000050	< 0.00010	0.00028	0.00035	5.22	< 0.000050	---	0.225	< 0.0000050	0.00101	0.00051	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	0.00044	0.000842	< 0.00050	0.0061		
23-Aug-2022	< 0.0010	< 0.00010	0.00274	0.120	< 0.000020	< 0.000050	0.245	< 0.0000050	< 0.00050	0.00044	< 0.00020	4.21	< 0.000050	0.0707	0.458	---	0.000980	0.00056	< 0.050	< 0.000050	7.74	0.000011	0.869	< 0.00020	< 0.000010	< 0.00010	< 0.00030	0.000875	< 0.00050	< 0.0010			
26-Jun-2024	< 0.0010	< 0.00010	0.00280	0.112	< 0.000020	---	0.269	< 0.0000050	< 0.00050	0.00042	< 0.00020	4.47	< 0.000050	---	0.439	< 0.0000050	0.000915	< 0.00050	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000780	< 0.00050	< 0.0010			
MW-13	10-Mar-2005	< 0.01	0.0008	0.0012	0.389	< 0.0005	< 0.00005	0.258	< 0.0001	0.0048	0.0008	< 0.0006	0.818	0.0002	---	0.263	< 0.0001	0.0023	0.0009	---	< 0.0004	---	< 0.0002	0.57	---	< 0.0005	< 0.0002	0.0006	0.0008	< 0.0001	0.005		
	16-Nov-2005	0.07	0.0006	0.0016	0.413	< 0.0005	< 0.0001	0.301	< 0.0001	0.0007	0.0033	0.0007	1.08	0.0002	---	0.243	0.0001	0.0027	0.0015	---	< 0.0005	---	< 0.0002	0.542	---	< 0.0001	< 0.0002	0.0006	0.0009	< 0.0001	< 0.002		
	16-Jun-2006	< 0.01	0.0006	0.0014	0.424	< 0.0005	< 0.00005	0.273	< 0.0001	0.0011	0.0007	< 0.0006	1.19	< 0.0001	---	0.256	< 0.0001	0.0021	< 0.0001	---	< 0.0004	---	< 0.0002	0.553	---	< 0.00005	< 0.0002	0.0006	0.0008	< 0.0001	0.009		
	11-Jul-2007	< 0.01	0.0004	0.0014	0.428	< 0.0005	< 0.00005	0.246	< 0.0001	0.0016	0.0009	< 0.0006	1.26	< 0.0001	---	0.252	< 0.0001	0.0023	0.0022	---	< 0.0004	---	< 0.0002	0.58	---	< 0.00005	< 0.0002	0.0006	0.0008	0.0004	< 0.002		
	18-Dec-2007	< 0.001	< 0.0002	0.001	0.29	< 0.001	---	0.25	< 0.0002	< 0.001	0.0009	< 0.0002	< 0.06	< 0.0002	---	0.25	0.00007	0.0028	0.0016	---	< 0.001	---	< 0.0001	0.5	---	< 0.0002	< 0.001	0.002	0.0009	< 0.001	< 0.003		
	22-Apr-2009	< 0.001	< 0.0002	0.0015	---	< 0.001	---	---	0.000005	< 0.001	0.0007	0.0003	1.3	< 0.0002	---	0.26	< 0.000001	0.0022	0.0012	---	< 0.0002	---	< 0.0001	---	---	< 0.0002	< 0.001	< 0.001	0.0007	< 0.001	< 0.003		
	06-May-2010	< 0.0050	< 0.00040	0.00162	0.407	< 0.00050	---	0.254	< 0.00010	< 0.0050	0.00092	< 0.0010	1.45	< 0.00010	---	0.249	< 0.00010	0.00219	0.0021	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	0.00070	0.00069	< 0.00010	< 0.0020		
	02-Jun-2011	< 0.0050	< 0.00040	0.00157	0.411	< 0.00050	---	0.265	< 0.00010	< 0.0050	0.00062	< 0.0010	1.25	< 0.00010	---	0.231	< 0.000020	0.00194	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00073	< 0.00010	< 0.0020		
	30-May-2012	< 0.0050	< 0.00040	0.00140	0.354	< 0.00050	---	0.197	< 0.00010	< 0.0050	0.00065	< 0.0010	1.33	< 0.00010	---	0.238	< 0.000020	0.00180	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00063	< 0.00010	< 0.0030		
	10-Jul-2013	< 0.0050	< 0.00040	0.00176	0.462	< 0.00050	---	0.221	< 0.00010	< 0.0050	0.00128	< 0.0010	1.17	< 0.00010	---	0.252	< 0.000020	0.00484	0.0112	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	< 0.00030	0.00075	< 0.00010	< 0.0030		
	12-Jun-2014	0.0371	< 0.00040	0.00179	0.420	< 0.00050	---	0.196	< 0.00010	< 0.0050	0.00074	< 0.0010	1.30	< 0.00010	---	0.245	< 0.0000050	0.00183	< 0.0020	---	< 0.00040	---	< 0.00010	---	---	< 0.000050	---	0.00148	0.00069	0.00013	< 0.0030		
	24-Jun-2015	< 0.0030	< 0.00060	0.0014	0.40	< 0.0010	---	0.26	< 0.000020	< 0.0010	0.00062	< 0.00020	1.3	< 0.00020	0.048	0.24	---	0.0022	0.00086	< 0.10	< 0.00020	6.0	< 0.00010	0.52	---	< 0.00020	< 0.0010	< 0.0010	0.00065	< 0.0010	< 0.0030		
	20-Sep-2016	0.0023	< 0.00010	0.00167	0.394	< 0.00010	---	0.266	< 0.0000050	< 0.00010	0.00064	< 0.00020	1.33	< 0.000050	---	0.235	0.000212	0.00157	0.00090	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.000664	< 0.00050	< 0.0010		
	14-Jul-2017	< 0.0010	< 0.00010	0.00152	0.393	< 0.00010	---	0.217	< 0.0000050	< 0.00010	0.00062	< 0.00020	1.29	< 0.000050	---	0.227	< 0.0000050	0.00113	0.00081	---	<												

Groundwater Analytical Results: Dissolved Metals and Trace Elements

PROJECT No.: 317085-55576-24000																																
Monitoring Station	Date (dd-mmm-yyyy)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Chromium (Total) (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Strontium (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	
Canadian Drinking Water Quality Guidelines 2022 - AO		N/A	---	---	---	---	---	---	---	---	---	1	0.3	---	---	0.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5
Canadian Drinking Water Quality Guidelines 2022 - MAC		---	0.006	0.01	2	---	---	5	0.007	0.05	---	2	---	0.005	---	0.12	0.001	---	---	---	0.05	---	---	---	7	---	---	---	---	0.02	---	---
Relative Percent Difference (RPD) Report																																
MW-04	26-Jun-2024	< 0.0010	< 0.00010	0.00043	0.102	< 0.000020	---	0.103	0.0000077	< 0.00050	0.00020	0.00074	0.910	< 0.000050	---	0.267	< 0.0000050	0.000359	0.00147	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00308	< 0.00050	0.0015	
(Duplicate)	26-Jun-2024	< 0.0010	< 0.00010	0.00040	0.0998	< 0.000020	---	0.105	0.0000069	< 0.00050	0.00021	0.00088	0.897	< 0.000050	---	0.266	< 0.0000050	0.000349	0.00125	---	< 0.000050	---	< 0.000010	---	---	< 0.000010	---	< 0.00030	0.00313	< 0.00050	0.0018	
RPD(%)		---	---	7.2%	2.2%	---	---	1.9%	11.0%	---	4.9%	17.3%	1.4%	---	---	0.4%	---	2.8%	16.2%	---	---	---	---	---	---	---	---	---	1.6%	---	18.2%	

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 non-detect parameters above applied guideline/criteria.
4. Highlighting indicates parameters at applied guideline/criteria.
5. Denotes values exceeding
(Health Canada. 2022. Guidelines for Canadian Drinking Water Quality. Summary Table. Aesthetic Objective.
Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.
September 2022.)
Aluminum:
Not specifically an AO. Operational guideline value, applies to drinking water treatment plants using aluminum-based coagulates: 0.1 mg/L (conventional treatment plants) and 0.2 mg/L (other treatment types).
6. Denotes values exceeding
(Health Canada. 2022. Guidelines for Canadian Drinking Water Quality. Summary Table. Maximum Acceptable Concentration.
Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.
September 2022.)
Chromium (Total):
MAC established for total chromium to protect from Chromium (VI).

Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)
PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C ₆ -C ₁₀) (mg/L)	PHC F1 (C ₆ -C ₁₀) - BTEX (mg/L)	PHC F2 (C ₁₀ -C ₁₆) (mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	0.024	0.0016	0.02	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		0.005	0.06	0.14	0.09	---	---	---
Monitoring Wells								
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	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	16-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	29-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	19-Sep-2016	< 0.00050	0.00112	< 0.00050	0.00253	< 0.10	< 0.10	< 0.10
	13-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	12-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	22-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
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	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	0.31
	16-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	28-Aug-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	25-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	0.10
	19-Sep-2016	< 0.00050	0.00099	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	29-Sep-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	02-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	12-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	22-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	27-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
MW-02B	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	29-Sep-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	02-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	12-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	22-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
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

Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)

PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C ₆ -C ₁₀) (mg/L)	PHC F1 (C ₆ -C ₁₀) - BTEX (mg/L)	PHC F2 (C ₁₀ -C ₁₆) (mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	0.024	0.0016	0.02	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		0.005	0.06	0.14	0.09	---	---	---
MW-03 (cont'd)	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	16-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	29-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	19-Sep-2016	< 0.00050	0.00309	< 0.00050	0.00234	< 0.10	< 0.10	< 0.10
	13-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	(Duplicate)	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	31-Jul-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	12-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	22-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
MW-04	08-Mar-2005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.1	< 0.1	< 0.05
	17-Nov-2005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.1	< 0.1	< 0.05
	(Duplicate)	< 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	< 0.001	< 0.10	< 0.10	< 0.25
	07-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
	(Duplicate)	---	---	---	---	---	---	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	13-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	29-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
MW-05	19-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	31-Jul-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	12-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	22-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	(Duplicate)	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	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	< 0.001	< 0.10	< 0.10	< 0.25
	25-May-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	---	---	---	---	---	---	< 0.25
	08-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	13-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	25-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	19-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	31-Jul-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	12-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	22-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1

Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)
PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C ₆ -C ₁₀) (mg/L)	PHC F1 (C ₆ -C ₁₀) - BTEX (mg/L)	PHC F2 (C ₁₀ -C ₁₆) (mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	0.024	0.0016	0.02	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		0.005	0.06	0.14	0.09	---	---	---
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	< 0.001	< 0.10	< 0.10	< 0.25
	07-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	---	---	---	---	---	---	< 0.25
	08-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	25-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	31-Jul-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	22-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	(Duplicate)	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
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	< 0.001	< 0.10	< 0.10	< 0.25
	08-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	28-Jul-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
	11-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	13-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	25-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	31-Jul-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	(Duplicate)	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	23-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	27-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
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	< 0.001	< 0.10	< 0.10	< 0.25
	07-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	24-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	02-Aug-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10

Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)

PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C ₆ -C ₁₀) (mg/L)	PHC F1 (C ₆ -C ₁₀) - BTEX (mg/L)	PHC F2 (C ₁₀ -C ₁₆) (mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	0.024	0.0016	0.02	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		0.005	0.06	0.14	0.09	---	---	---
MW-08 (cont'd)	13-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	23-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	27-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
MW-09 (Duplicate)	09-Mar-2005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.1	< 0.1	< 0.05
	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	< 0.001	< 0.10	< 0.10	< 0.25
	06-May-2010	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
(Duplicate)	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
(Duplicate)	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	29-May-2012	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	13-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	25-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
(Duplicate)	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	23-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
(Duplicate)	23-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
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	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
(Duplicate)	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	09-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
(Duplicate)	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
(Duplicate)	24-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	24-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	26-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	27-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
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	< 0.001	< 0.10	< 0.10	< 0.25

Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)

PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C ₆ -C ₁₀) (mg/L)	PHC F1 (C ₆ -C ₁₀) - BTEX (mg/L)	PHC F2 (C ₁₀ -C ₁₆) (mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	0.024	0.0016	0.02	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		0.005	0.06	0.14	0.09	---	---	---
MW-11 (cont'd)	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	24-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	13-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	23-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	27-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	(Duplicate)							
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	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	24-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	02-Aug-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	23-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
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	< 0.001	< 0.10	< 0.10	< 0.25
	02-Jun-2011	< 0.00050	< 0.00075	< 0.00050	< 0.001	< 0.10	< 0.10	< 0.25
	30-May-2012	---	---	---	---	---	---	< 0.25
	10-Jul-2013	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	12-Jun-2014	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.25
	24-Jun-2015	< 0.00040	< 0.00040	< 0.00040	< 0.00080	< 0.10	< 0.10	< 0.10
	20-Sep-2016	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-Jul-2017	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	01-Aug-2018	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	14-May-2020	< 0.00050	< 0.00050	< 0.00050	< 0.00071	< 0.10	< 0.10	< 0.10
	23-Aug-2022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1
	26-Jun-2024	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.1	< 0.1	< 0.1

Groundwater Analytical Results: Petroleum Hydrocarbons (PHCs)
PROJECT No.: 317085-55576-24000

PROJECT No.: 317085-55576-24000								
Monitoring Station	Date (dd-mmm-yyyy)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (Total) (mg/L)	PHC F1 (C ₆ -C ₁₀) (mg/L)	PHC F1 (C ₆ -C ₁₀) - BTX (mg/L)	PHC F2 (C ₁₀ -C ₁₆) (mg/L)
Canadian Drinking Water Quality Guidelines 2022 - AO		---	0.024	0.0016	0.02	---	---	---
Canadian Drinking Water Quality Guidelines 2022 - MAC		0.005	0.06	0.14	0.09	--	---	---

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 non-detect parameters above applied guideline/criteria.

4. Highlighting indicates parameters at applied guideline/criteria.

5. Denotes values exceeding

(Health Canada. 2022. Guidelines for Canadian Drinking Water Quality. Summary Table. Aesthetic Objective.

Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

September 2022.)

6. Denotes values exceeding

(Health Canada. 2022. Guidelines for Canadian Drinking Water Quality. Summary Table. Maximum Acceptable Concentration.

Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

September 2022.)

Groundwater Analytical Results: Isotopes

PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	delta ¹⁸ O (H ₂ O) (‰)	delta ² H (H ₂ O) (‰)
Monitoring Wells			
MW-01	29-Jun-2015	-18.87	-147.2
	19-Sep-2016	-18.15	-143.1
	13-Jul-2017	-17.72	-141.8
	01-Aug-2018	-17.83	-142.8
	12-May-2020	-17.85	-143.6
	22-Aug-2022	-17.80	-143.0
	29-Jun-2024	-18.00	-143.0
MW-02	25-Jun-2015	-18.69	-144.3
	19-Sep-2016	-18.28	-143.9
	13-Jul-2017	-17.82	-142.8
	29-Sep-2017	-18.02	-144.8
	02-Aug-2018	-18.16	-145.0
	12-May-2020	-18.16	-145.1
	22-Aug-2022	-18.20	-145.0
MW-02B	27-Jun-2024	-18.40	-146.0
	20-Sep-2016	-16.93	-134.9
	14-Jul-2017	-16.40	-133.8
	29-Sep-2017	-16.56	-135.5
	02-Aug-2018	-16.51	-135.0
	12-May-2020	-16.47	-133.4
	22-Aug-2022	-16.60	-135.0
MW-03	26-Jun-2024	-16.80	-136.0
	29-Jun-2015	-19.51	-151.5
	19-Sep-2016	-19.03	-149.1
	13-Jul-2017	-18.54	-147.8
	14-Jul-2017	-18.55	-147.5
	31-Jul-2018	-18.62	-148.5
	12-May-2020	-18.73	-147.8
(Duplicate)	22-Aug-2022	-18.40	-148.0
	26-Jun-2024	-19.00	-149.0
	29-Jun-2015	-17.47	-137.9
	19-Sep-2016	-17.18	-137.5
	13-Jul-2017	-16.37	-133.8
	31-Jul-2018	-16.37	-134.7
	12-May-2020	-16.39	-134.0
MW-04	22-Aug-2022	-16.00	-132.0
	26-Jun-2024	-16.70	-134.0
	26-Jun-2024	-16.70	-135.0
	25-Jun-2015	-16.77	-133.2
	19-Sep-2016	-16.26	-131.8
	13-Jul-2017	-16.00	-131.8
	31-Jul-2018	-16.03	-132.6
MW-05	12-May-2020	-16.07	-130.8
	22-Aug-2022	-16.10	-132.0
	26-Jun-2024	-16.30	-133.0
	25-Jun-2015	-18.27	-145.3
	20-Sep-2016	-17.79	-142.8
	13-Jul-2017	-17.48	-143.2
	31-Jul-2018	-17.52	-143.2
MW-06	12-May-2020	-17.67	-143.0
	22-Aug-2022	-17.60	-144.0
	22-Aug-2022	-17.70	-144.0
	26-Jun-2024	-18.00	-145.0
	(Duplicate)		

Groundwater Analytical Results: Isotopes

PROJECT No.: 317085-55576-24000

Monitoring Station	Date (dd-mmm-yyyy)	delta ¹⁸ O (H ₂ O) (‰)	delta ² H (H ₂ O) (‰)
MW-07	25-Jun-2015	-18.76	-147.7
	20-Sep-2016	-18.24	-144.7
	14-Jul-2017	-17.91	-145.7
	31-Jul-2018	-17.84	-144.6
	13-May-2020	-18.08	-145.0
	13-May-2020	-18.05	-144.2
	23-Aug-2022	-18.20	-147.0
MW-08	27-Jun-2024	-18.40	-147.0
	24-Jun-2015	-18.39	-145.7
	20-Sep-2016	-17.93	-143.4
	02-Aug-2017	-17.39	-141.4
	01-Aug-2018	-17.49	-142.7
	13-May-2020	-17.61	-142.9
	23-Aug-2022	-17.60	-143.0
MW-09	27-Jun-2024	-17.90	-145.0
	25-Jun-2015	-19.04	-149.1
	20-Sep-2016	-18.47	-146.7
	(Duplicate)	-18.48	-146.6
	14-Jul-2017	-18.21	-147.3
	01-Aug-2018	-18.11	-146.5
	13-May-2020	-18.38	-147.2
MW-10	23-Aug-2022	-18.40	-148.0
	(Duplicate)	-18.50	-148.0
	26-Jun-2024	-18.80	-149.0
	24-Jun-2015	-18.97	-148.1
	(Duplicate)	-18.86	-148.0
	20-Sep-2016	-18.54	-146.3
	14-Jul-2017	-18.23	-146.5
MW-11	01-Aug-2018	-18.17	-144.8
	13-May-2020	-18.42	-147.1
	26-Aug-2022	-18.40	-147.0
	27-Jun-2024	-18.70	-148.0
	24-Jun-2015	-17.57	-141.6
	20-Sep-2016	-17.05	-137.6
	14-Jul-2017	-16.86	-139.3
MW-12	01-Aug-2018	-16.69	-136.9
	(Duplicate)	-16.71	-139.4
	13-May-2020	-17.07	-140.1
	23-Aug-2022	-17.10	-141.0
	27-Jun-2024	-17.40	-142.0
	24-Jun-2015	-17.84	-142.0
	20-Sep-2016	-17.30	-139.0
MW-13	14-Jul-2017	-16.95	-138.6
	01-Aug-2018	-16.95	-138.7
	14-May-2020	-17.18	-140.2
	23-Aug-2022	-17.20	-141.0
	26-Jun-2024	-17.40	-142.0
	24-Jun-2015	-19.06	-148.2
	20-Sep-2016	-18.69	-146.7
MW-14	14-Jul-2017	-18.22	-145.1
	01-Aug-2018	-18.23	-146.4
	14-May-2020	-18.63	-148.2
	23-Aug-2022	-18.70	-148.0
	26-Jun-2024	-19.00	-149.0
	24-Jun-2015	-19.06	-148.2
	20-Sep-2016	-18.69	-146.7

Groundwater Analytical Results: Isotopes
PROJECT No.: 317085-55576-24000

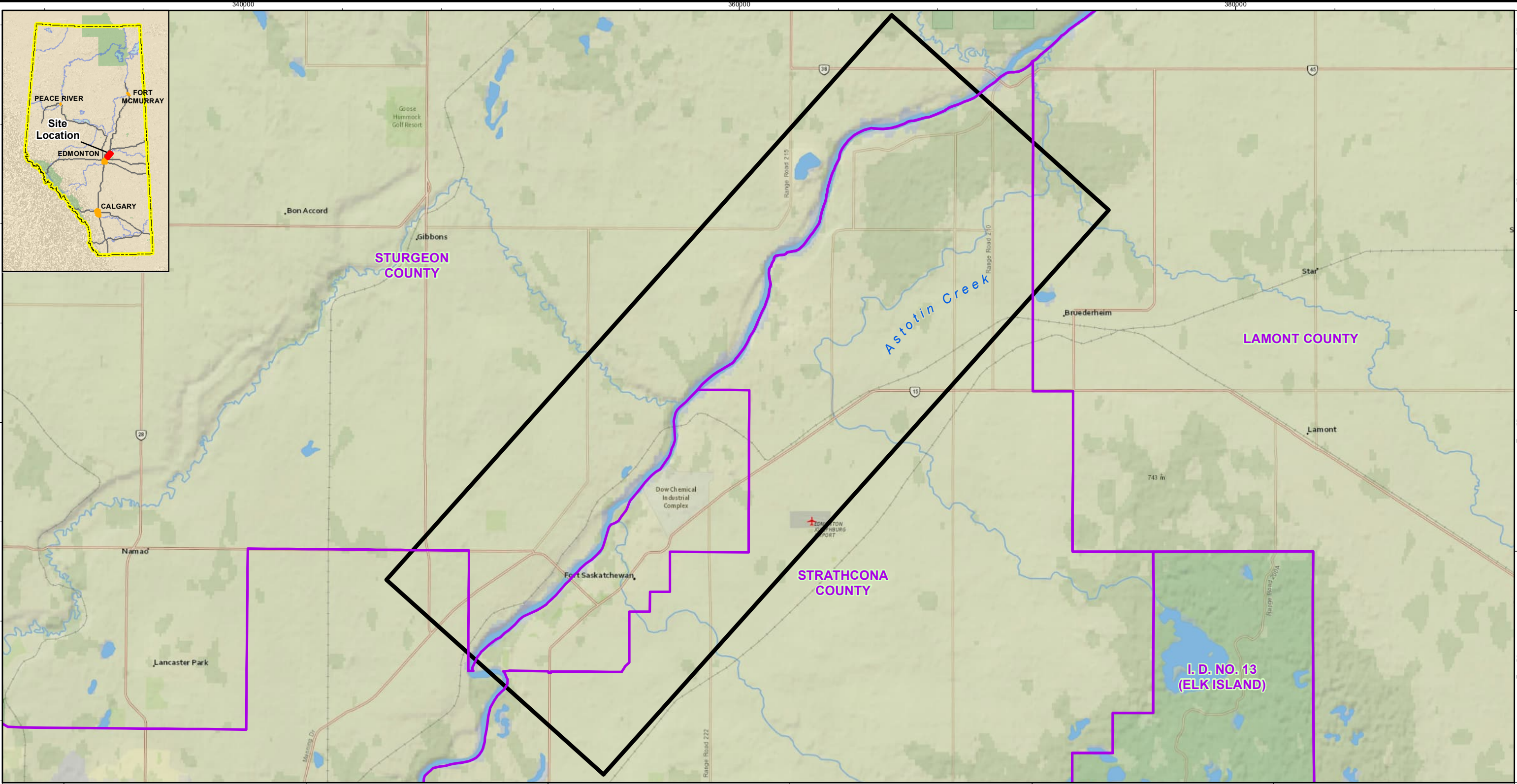
Monitoring Station	Date (dd-mmm-yyyy)	delta ^{18}O (H_2O) (‰)	delta ^2H (H_2O) (‰)
--------------------	-----------------------	---	--

Relative Percent Difference (RPD) Report			
MW-04	26-Jun-2024	---	-134.0
(Duplicate)	26-Jun-2024	---	-135.0
RPD(%)		---	0.7%

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 non-detect parameters above applied guideline/criteria.
4. Highlighting indicates parameters at applied guideline/criteria.

Figures



Study Area

County Boundaries

N

02.55

Kilometres

1:150,000

NAD 1983 UTM Zone 12N

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION

2024 GROUNDWATER QUALITY MONITORING

BEVERLY CHANNEL MONITORING WELLS

SITE LOCATION

Date:04-SEP-24

Drawn by:KR

Edited by:KR

App'd by:TB

worley

consulting

Project No.

317085-55576-24000

REV

0

1

0

This drawing is prepared solely for the use of our customers as specified in the accompanying report.

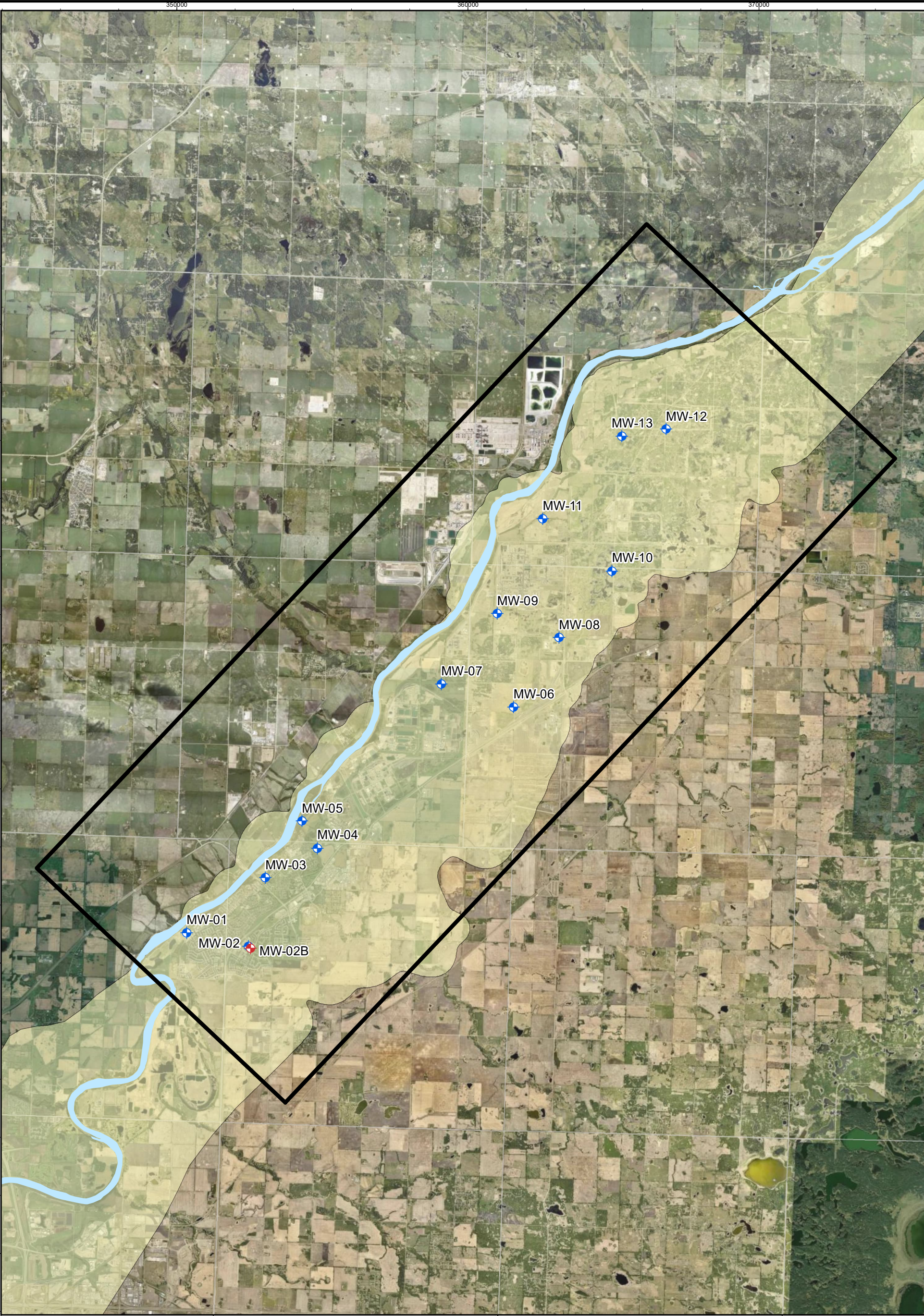
Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.

National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

FILE LOCATION: Q:\PROJECTS\NICA\Beverly Channel\MXDs\317085-55576-24000\Site_Location.mxd

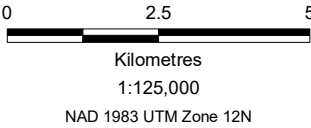
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LOT DATE & TIME: 04/20/24 3:04:38 PM
SAVE DATE & TIME: 04/25/24 3:04:35 PM
USER NAME: Kenneth W. Ritchie



- Study Area
- Beverly Channel
- Beverly Channel Monitoring Well
- Bedrock Monitoring Well

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



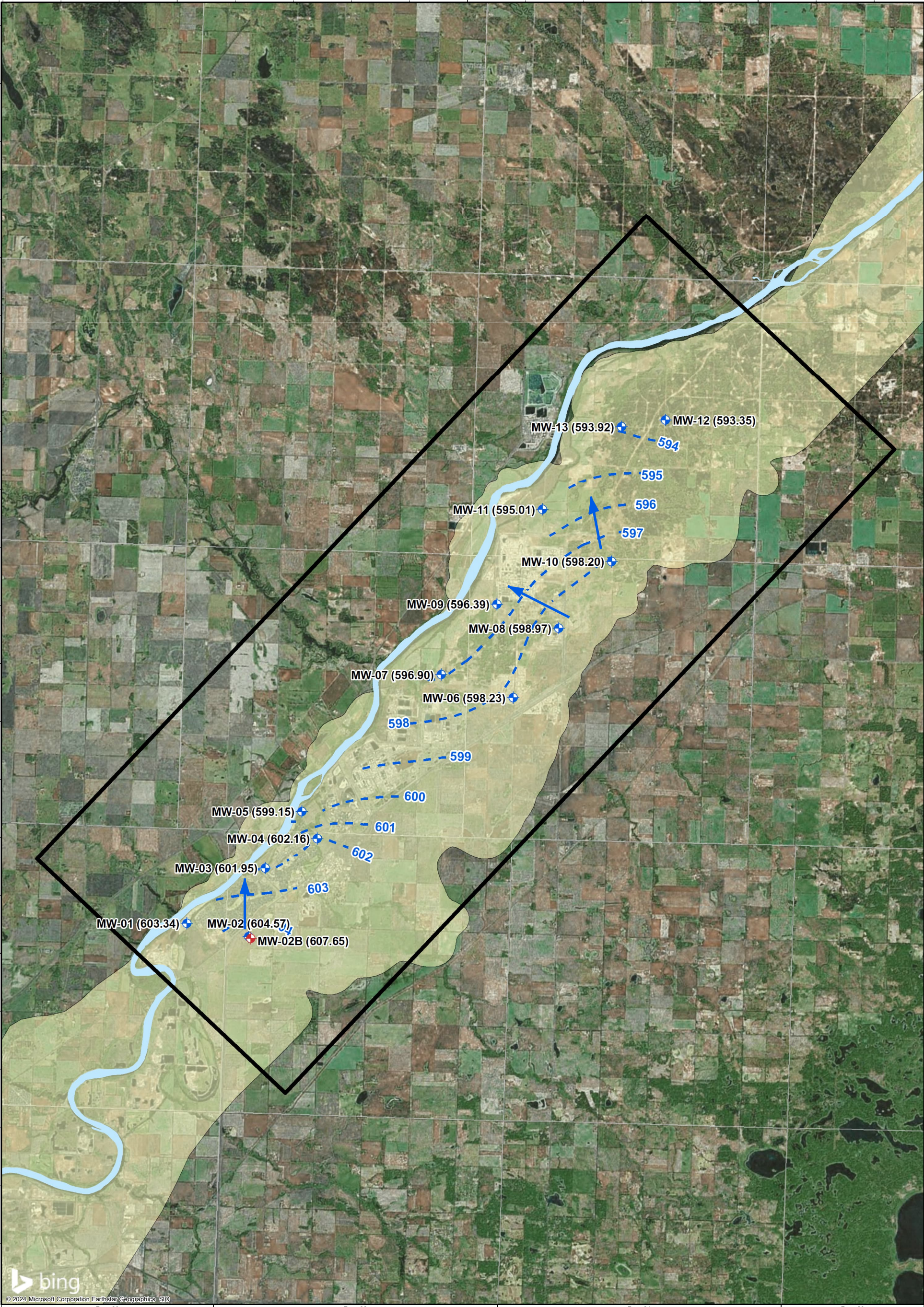
NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

MONITORING WELL LOCATIONS

Date: 04-SEP-24	Drawn by: KR	Edited by: KR	App'd by: TB
Project No. 317085-55576-24000		REV 0	
2		0	

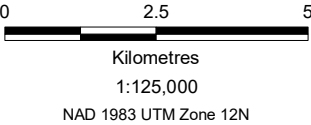


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- Study Area
- Beverly Channel
- Beverly Channel Monitoring Well
- Bedrock Monitoring Well
- Groundwater Surface Elevation Contour (masl)
- Inferred Groundwater Flow Direction
- Groundwater Surface Elevation (masl)
Measured 26 & 27 June, 2024

Note: MW-02B Not included in contouring



NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

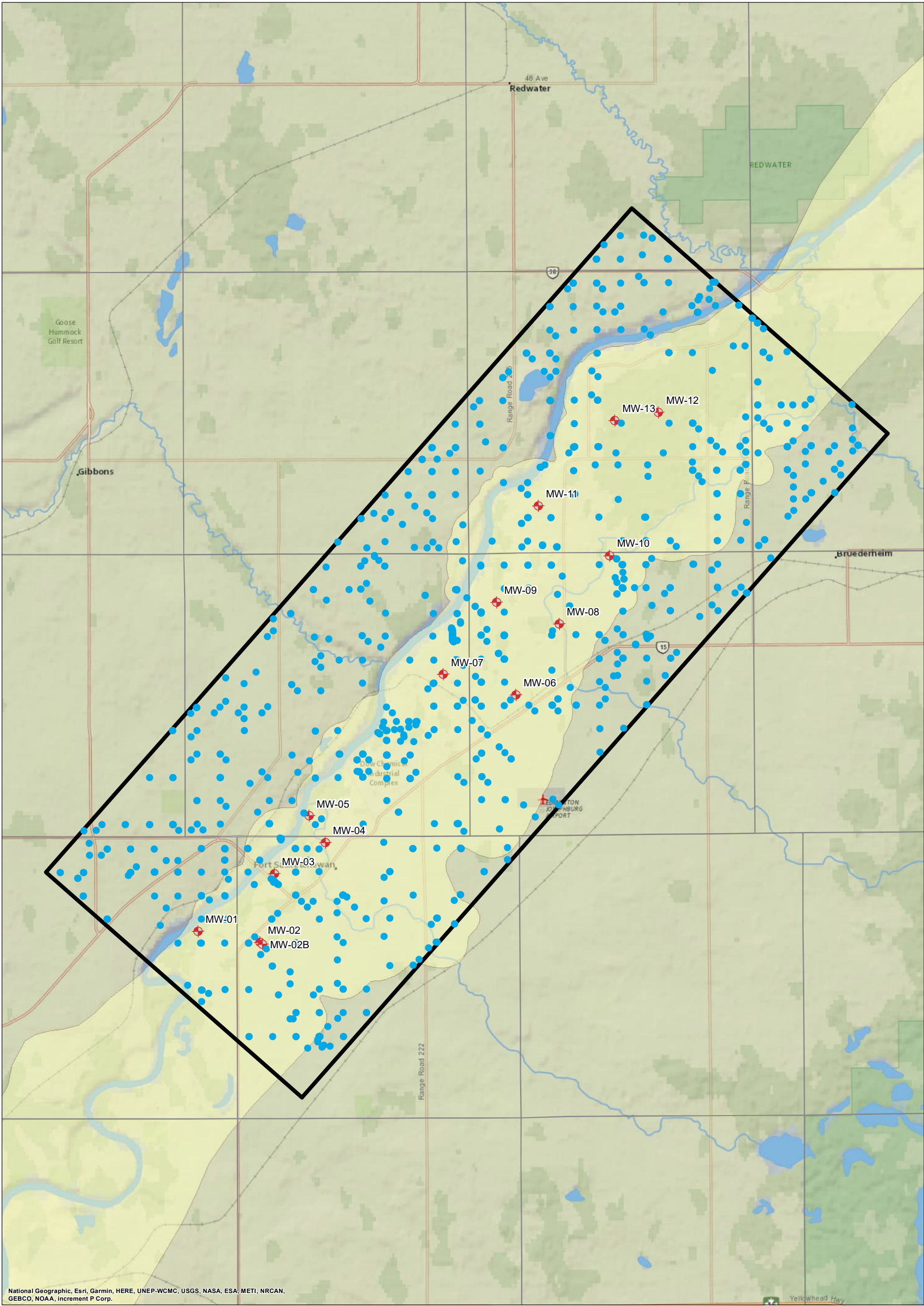
2024 GROUNDWATER SURFACE ELEVATIONS

Date:	04-SEP-24	Drawn by:	KR	Edited by:	KR	App'd by:	TB
		Project No.		317085-55576-24000			
				3		REV 0	



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Appendix 1. Water Well Records

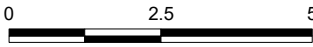


National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

- Study Area
- Beverly Channel
- NCIA Monitoring Well
- Water Well Record

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

Data Source:
Alberta Groundwater Information Centre
Alberta Water Well Information Database.
Retrieved January 17, 2024,
via Alberta Groundwater Information Centre website.



1:125,000
NAD 1983 UTM Zone 12N



NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

WATER WELL RECORDS WITHIN THE STUDY AREA

Date:	05-SEP-24	Drawn by:	KR	Edited by:	KR	App'd by:	..
Project No.				317085-55576-24000			
A1-1						REV	A



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Water Well Records Within the Study Area

	WELL ID	LOCATION					WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE		WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
		LSID	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
1	1421800	8	14	55	22	4														KEYERA				No Chemistry
2	1716347	2	27	55	21	4														LEDOR				No Chemistry
3	1716349	2	27	55	21	4														LEDOR				No Chemistry
4	1716350	2	27	55	21	4														LEDOR				No Chemistry
5	1716352	2	27	55	21	4														LEDOR				No Chemistry
6	261198	SE	7	55	22	4							1.8							HERDER, H		Chemistry	Hand Dug	Chemistry Exists
7	261609	10	18	55	22	4							792.5					1953-08-11		MID-WESTERN #10-18		Oil Exploratory	Unknown	No Chemistry
8	261734	4	27	55	22	4							256.3					1953-05-22		IMPERIAL OIL LTD #AO282-6		Oil Exploratory	Unknown	No Chemistry
9	261824	4	34	55	22	4							295.7					1953-05-22		IMPERIAL OIL LTD #AO282 4		Oil Exploratory	Unknown	No Chemistry
10	261829	1	3	56	22	4							268.2					1953-05-13		IMPERIAL OIL LTD #AO190-173		Oil Exploratory	Unknown	No Chemistry
11	261847	4	36	55	22	4							299.0					1953-05-21		IMPERIAL OIL LTD		Oil Exploratory	Unknown	No Chemistry
12	263716	16	12	56	21	4							42.7					1975-11-17		BRUDERHEIM, TOWN OF #15-75		Unknown	Unknown	No Chemistry
13	42021	13	24	56	21	4								34.1	35.7					ALTA ENV		Unknown	Unknown	No Chemistry
14	42022	4	14	56	21	4																Unknown	Unknown	No Chemistry
15	1690170	SE	12	55	22	4							38.7					2014-10-23		CORMODE-DICKSON	Commercial	New Well	Rotary - Mud	No Chemistry
16	1716880	9	25	55	22	4								35.4	38.4					CANADIAN DEWATERING	Commercial	sting Well-Decommissio	Not Applicable	No Chemistry
17	1716880	9	25	55	22	4		2.4	11.0									2019-07-10		CANADIAN DEWATERING	Commercial	New Well	Rotary - Air	No Chemistry
18	1716881	9	25	55	22	4														CANADIAN DEWATERING	Commercial	sting Well-Decommissio	Not Applicable	No Chemistry
19	1716881	9	25	55	22	4							4.9					2019-07-10		CANADIAN DEWATERING	Commercial	New Well	Rotary - Air	No Chemistry
20	1270077	7	10	55	22	4							21.6					1998-05-25		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Drilled	No Chemistry
21	1270078	7	10	55	22	4							24.7					1998-05-25		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Drilled	No Chemistry
22	1270079	7	10	55	22	4							27.1					1998-05-26		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
23	1270080	7	10	55	22	4							24.4					1998-05-27		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
24	1270081	7	10	55	22	4							29.6					1998-05-27		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
25	1270082	7	10	55	22	4							28.3					1998-05-28		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
26	1270083	7	10	55	22	4							28.0					1998-06-23		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
27	1270084	7	10	55	22	4							30.5					1998-06-25		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
28	1270085	7	10	55	22	4							24.7					1998-06-24		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
29	1270086	7	10	55	22	4							13.4					1998-09-29		DOW CHEMICAL CANADA LTD	Contamination Invest.	New Well	Rotary	No Chemistry
30	261191	SE	7	55	22	4							6.1							HERDER, H	Contamination Invest.	Chemistry	Hand Dug	Chemistry Exists
31	1320051	1	35	56	21	4							11.9					2008-11-04		AMEC EARTH & ENVIRONMENTAL	Dewatering	New Well	Bored	No Chemistry
32	1716651	2	25	55	22	4												2018-05-30		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
33	1716651	2	25	55	22	4							11.6					2018-04-09		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
34	1716652	2	25	55	22	4							11.6					2018-04-09		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
35	1716652	2	25	55	22	4														CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
36	1716656	2	25	55	22	4												2018-05-30		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
37	1716656	2	25	55	22	4							11.6					2018-07-11		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
38	1716657	2	25	55	22	4												2018-04-10		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
39	1716657	2	25	55	22	4							11.6					2018-04-11		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
40	1716658	2	25	55	22	4							11.6					2018-04-10		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
41	1716658	2	25	55	22	4												2018-07-11		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
42	1716659	2	25	55	22	4												2018-07-11		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
43	1716659	2	25	55	22	4							11.6					2018-04-10		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
44	1716660	2	25	55	22	4							11.6					2018-04-10		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
45	1716660	2	25	55	22	4														CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
46	1716661	2	25	55	22	4												2018-07-11		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
47	1716661	2	25	55	22	4							11.6					2018-07-03		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
48	1716662	2	25	55	22	4												2018-04-11		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
49	1716662	2	25	55	22	4							11.6					2018-07-03		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
50	1716663	2	25	55	22	4												2018-04-11		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
51	1716663	2	25	55	22	4							11.6					2018-07-03		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
52	1716684	2	25	55	22	4												2018-04-23		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
53	1716684	2	25	55	22	4							11.6					2018-04-23		CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
54	1716685	2	25	55	22	4							11.6					2018-04-23		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
55	1716685	2	25	55	22	4														CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Unknown	No Chemistry
56	1716686	2	25	55	22	4							11.6					2018-04-23		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
57	1716686	2	25	55	22	4														CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
58	1716687	7	25	55	22	4							11.6					2018-04-23		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
59	1716687	7	25	55	22	4														CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
60	1716688	7	25	55	22	4														CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
61	1716688	7	25	55	22	4							11.6					2018-04-24		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry
62	1716689	7	25	55	22	4														CANADIAN DEWATERING	Dewatering	sting Well-Decommissio	Not Applicable	No Chemistry
63	1716689	7	25	55	22	4							11.6					2018-04-24		CANADIAN DEWATERING	Dewatering	New Well	Rotary - Air	No Chemistry

Water Well Records Within the Study Area

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Water Well 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
		USD	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
163	1370496	5	22	55	21	4	37.2	30.5	37.2									2012-10-25		ROCQUE, SHANE	Domestic	New Well	Combination	No Chemistry
164	1370549	SW	30	56	20	4	36.6	29.0	35.1									2014-06-30		SHILOH YOUTH RANCH	Domestic	New Well	Combination	No Chemistry
165	1422029	14	30	54	22	4	42.7							5.2	8.2			2018-06-21		SAWCHUK, TERRY	Domestic	New Well	Rotary - Mud	No Chemistry
166	150309	SE	29	55	22	4	91.4											1990-01-25		GROOT, DON	Domestic	New Well	Combination	No Chemistry
167	152373	WH	8	56	21	4	25.0											1990-06-26		MASCHMEYER, RAY	Domestic	New Well	Rotary	No Chemistry
168	153167	SE	22	55	21	4	48.8							41.1	42.7			1990-07-20		POULIN, RODGER	Domestic	New Well	Rotary	No Chemistry
169	154895	NW	16	55	21	4	48.8	42.7	48.8									1990-10-13		KREBS, BERNARD L.	Domestic	New Well	Rotary	No Chemistry
170	156817	NW	7	54	22	4	67.1													ALLEN, GERALD	Domestic	Chemistry	Unknown	No Chemistry
171	156870	NW	16	55	21	4	74.7													KREBS, BERNARD L.	Domestic	Chemistry	Rotary	Chemistry Exists
172	156871	SE	30	55	21	4	9.8													HONISCH, VERNON	Domestic	Chemistry	Not Applicable	No Chemistry
173	156872	SW	1	55	22	4	0.0													THEROUX, CHRIS	Domestic	Chemistry	Not Applicable	No Chemistry
174	156874		20	55	22	4	8.5													LAMOREUX, JOHN C./CRAIG, RAY	Domestic	Chemistry	Not Applicable	No Chemistry
175	157040	NW	1	56	21	4	11.0													CHOLEWSKI, TOM	Domestic	Chemistry	Hand Dug	No Chemistry
176	157041	NE	27	56	21	4	54.9													EASTWOOD, J.W.	Domestic	Chemistry	Not Applicable	No Chemistry
177	158532	NE	8	54	22	4	14.0											1979-07-07		MAKUICH, PETER J.	Domestic	New Well	Bored	No Chemistry
178	158533	NE	8	54	22	4	23.2											1972-07-01		OGDEN, WAYNE	Domestic	New Well	Bored	No Chemistry
179	158577	NE	3	56	22	4	64.0	30.5	64.0									1968-04-06		KUGLER, ERIKA	Domestic	New Well	Rotary	No Chemistry
180	159287	SE	5	55	22	4	14.6	8.2	14.6									1991-07-10		GODBOUT, ROMEO	Domestic	New Well	Bored	No Chemistry
181	160456	NE	34	56	21	4	12.2													GORGICHUK, DIANA	Domestic	Chemistry	Not Applicable	No Chemistry
182	160666	SE	30	55	21	4	8.5													SOWDEN, HELEN	Domestic	Chemistry	Not Applicable	No Chemistry
183	160801	SE	16	54	22	4	5.5													BONOWICZ, KEN	Domestic	Chemistry	Not Applicable	No Chemistry
184	161740	NE	8	54	22	4	30.5													OSTERLAND, JOYCE	Domestic	Chemistry	Not Applicable	No Chemistry
185	161789	NE	19	56	21	4	7.6													MELTON, JAMES	Domestic	Chemistry	Not Applicable	No Chemistry
186	161790	NW	27	56	21	4	3.7													JOHNSTON, DAVID	Domestic	Chemistry	Not Applicable	No Chemistry
187	162337	9	4	57	21	4	22.9							16.2	22.3			1991-11-16		LANE, C./EST OF M. PICH	Domestic	New Well	Cable Tool	No Chemistry
188	162337	9	4	57	21	4	22.9											2001-05-26		LANE, C.	Domestic	Old Well-Yield	Not Applicable	No Chemistry
189	162337	9	4	57	21	4	21.3							17.7	21.3			1991-12-31		LANE, C/EST OF M PICH	Domestic	Reconditioned	Not Applicable	No Chemistry
190	1640316	16	14	54	23	4	15.2							12.2	15.2			2010-11-05		MOIZARD, ANDRE	Domestic	New Well	Rotary - Mud	No Chemistry
191	165347	SE	34	54	23	4	24.4													MOAK, CARL A.	Domestic	Chemistry	Unknown	No Chemistry
192	166298	NE	8	54	22	4	73.2	42.7	72.2									1992-06-01		TAPLEY, CAM	Domestic	New Well	Rotary	No Chemistry
193	167085	NE	8	54	22	4	11.6													AMBLER, TERRY D.	Domestic	Chemistry	Unknown	No Chemistry
194	167584	NW	25	55	21	4	61.0													PROKOPCZAK, WM	Domestic	Chemistry	Unknown	No Chemistry
195	168098	16	8	54	22	4	14.6	4.3	9.8									1992-06-25		COOL, NORMAND	Domestic	New Well	Bored	No Chemistry
196	168181	9	18	54	22	4	9.8	4.9	9.8									1992-07-21		DAKIN, DEXTER	Domestic	New Well	Bored	No Chemistry
197	168267	NE	8	54	22	4	11.3	6.1	11.3									1992-07-16		DORLICH, HELGA	Domestic	New Well	Bored	No Chemistry
198	1690074	SE	1	55	22	4	59.4	51.8	57.9									1999-05-13		RASMUSSEN, RON	Domestic	New Well	Rotary	No Chemistry
199	1690085	NE	36	54	23	4	17.7	12.2	17.4									1999-09-28		NYHUIS, DAVE	Domestic	New Well	Rotary	No Chemistry
200	1690122	NE	24	55	22	4	18.0	4.6	12.2									2008-10-17		AUX-SABLE CANADA LTD	Domestic	New Well	Bored	No Chemistry
201	1690124	16	31	54	22	4	17.4	8.5	14.9									2008-06-05		LAMOREUX, ART	Domestic	New Well	Bored	No Chemistry
202	1690166	1	1	55	22	4	52.4	45.7	51.8									2011-08-11		SCHOENLEBER, TIM	Domestic	New Well	Rotary - Mud	No Chemistry
203	169284	8	14	55	22	4	40.5							37.8	39.3			1992-10-02		FEDERATED PIPELINE LTD	Domestic	New Well	Rotary	No Chemistry
204	169305	NE	8	54	22	4	9.4													DAKIN, DOREEN	Domestic	Chemistry	Unknown	No Chemistry
205	169519	SW	2	57	21	4	3.0													SUDAYKO, MIKE	Domestic	Chemistry	Unknown	No Chemistry
206	169601	SW	2	57	21	4	48.8													SUDAYKO, MIKE	Domestic	Chemistry	Unknown	No Chemistry
207	1755005	SW	2	57	21	4	18.3	4.0	5.8									2002-10-22		SUDAYKO, MIKE	Domestic	New Well	Bored	No Chemistry
208	1755094	11	25	54	23	4	25.0	15.8	18.6									2009-09-08		KAM, IAN	Domestic	New Well	Bored	No Chemistry
209	1755120	SE	35	56	21	4	36.6	29.3	33.2									2011-07-08		BADRY, RICK	Domestic	New Well	Bored	No Chemistry
210	1795056	NE	8	54	22	4	93.0	67.1	93.0									2003-07-18		SUPINA, NICK	Domestic	New Well	Rotary	No Chemistry
211	1795213	NE	25	54	23	4	74.7											2009-04-21		KAM, IAN	Domestic	New Well	Rotary	No Chemistry
212	1795249	NW	25	54	23	4	74.7	48.8	73.2									2009-04-21		KAM, IAN	Domestic	New Well	Combination	No Chemistry
213	1795445	NE	7	56	20	4	117.3	85.3	115.8									2018-12-13		BETH & SCHULTZ, DALE	Domestic	New Well	Combination	No Chemistry
214	1795577	SE	36	55	22	4	50.3							39.6	42.7			2022-06-07		YOUNG, CARL	Domestic	New Well	Rotary - Mud	No Chemistry
215	1888906	11	28	54	22	4	31.4							28.3	29.9			2009-07-21		KROHMAN, KURT	Domestic	New Well	Rotary	No Chemistry
216	1888958	1	36	54	23	4	73.2	61.0	73.2									2010-06-24		FIVE STAR POULTRY	Domestic	New Well	Rotary - Mud	No Chemistry
217	1889569	9	3	57	21	4	23.2	17.1	23.2									2021-06-03		HARASIMIUK, BRANDYN	Domestic	New Well	Bored	No Chemistry
218	1889571	9	3	57	21	4	48.8											2021-05-10		HARASIMIUK, BRANDYN	Domestic	Test Hole-Decommission	Rotary - Mud	No Chemistry
219	1912482	NE	23	54	23	4	42.7	30.5	36.6									2019-08-13		CURRIE, JOHN	Domestic	New Well	Rotary - Mud	No Chemistry
220	193975	SW	30	55	21	4	42.7											2001-01-01		G&J TRAILER ENT	Domestic	Chemistry	Unknown	No Chemistry
221	195146	NW	33	56	21	4	15.2											1973-08-01		PICH, PETER	Domestic	New Well	Bored	No Chemistry
222	196672	SE	8	56	20	4	6.1													ALEXANDER, BOB	Domestic	Chemistry	Unknown	No Chemistry
223	208911	SE	16	56	21	4	11.9	4.6	11.3									1992-09-25		HENKELMAN, PERCY	Domestic	New Well	Bored	No Chemistry
224	2096934	16	31	54	22	4	16.8																	

Water Well 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					
244	260058	NE	8	54	22	4	11.9										1986-05-28		HESKE, GERRY	Domestic	New Well	Bored	Chemistry Exists
245	260171	SE	16	54	22	4	61.0	54.9	61.0								1988-11-03		BONOWICZ, JOE	Domestic	New Well	Cable Tool	Chemistry Exists
246	260194	NW	21	54	22	4	70.1	61.0	68.6								1985-04-03		GRAYMAN, LYLE	Domestic	New Well	Cable Tool	No Chemistry
247	260203	NW	23	54	22	4	46.9	22.6	46.0								1984-04-17		MCEACHERN, MEL	Domestic	New Well	Rotary	Chemistry Exists
248	260225	SW	27	54	22	4	50.3	33.5	47.2								1969-12-20		SHAREK, TONY	Domestic	New Well	Rotary	No Chemistry
249	260227	NE	27	54	22	4	61.9	24.4	61.0								1967-04-11		SIMMONS, HECTOR	Domestic	New Well	Rotary	Chemistry Exists
250	260229	NW	28	54	22	4	47.5										1960-02-28		DAVIS, DON	Domestic	New Well	Rotary	No Chemistry
251	260230	NW	28	54	22	4	73.2	67.1	71.9								1976-08-12		ROBERT, VICTOR	Domestic	New Well	Rotary	Chemistry Exists
252	260232	NW	28	54	22	4	27.4										1960-08-20		SNEDSTEAD	Domestic	New Well	Drilled	No Chemistry
253	260233	NW	28	54	22	4	30.5										1960-09-25		STARK, R.	Domestic	New Well	Drilled	No Chemistry
254	260234	NW	28	54	22	4	60.0										1970-05-06		PIERCE, E.	Domestic	New Well	Rotary	Chemistry Exists
255	260235	NW	28	54	22	4	30.5										1959-09-17		BOHNET, HANS	Domestic	New Well	Rotary	Chemistry Exists
256	260236	NW	28	54	22	4	30.5										1960-10-07		PETROSKI CONTRACTING	Domestic	New Well	Drilled	No Chemistry
257	260237	NW	28	54	22	4	30.5										1961-01-19		WETZTREN, M.	Domestic	New Well	Cable Tool	Chemistry Exists
258	260366	NW	28	54	22	4	76.8										1977-10-26		SHEPPARD, JOHN	Domestic	New Well	Rotary	No Chemistry
259	260369	12	28	54	22	4	32.3					28.3	29.3				1959-07-02		HAMILTON, CALVIN	Domestic	New Well	Rotary	Chemistry Exists
260	260375	NW	29	54	22	4	13.7												VLA	Domestic	Chemistry	Hand Dug	Chemistry Exists
261	260383	SE	30	54	22	4	76.2												KREBS, D.	Domestic	Chemistry	Unknown	Chemistry Exists
262	260386	SE	30	54	22	4	76.2										1968-05-30		KREBS, DON	Domestic	New Well	Rotary	No Chemistry
263	260397	SE	32	54	22	4	24.4												CHOLOWSKI, GERALD	Domestic	Chemistry	Unknown	Chemistry Exists
264	260425	SW	34	54	22	4	45.7												FLEMING, ERNEST	Domestic	Chemistry	Drilled	Chemistry Exists
265	260441	NE	34	54	22	4	57.9												BARTLELL, RICHARD	Domestic	Chemistry	Unknown	Chemistry Exists
266	260447	NW	35	54	22	4	48.2										1912-01-01		SIMMONS, F.	Domestic	New Well	Drilled	No Chemistry
267	260903	WH	13	54	23	4	3.7												MITHELL, DOUG	Domestic	Chemistry	Unknown	Chemistry Exists
268	260906	NW	13	54	23	4	31.7										1977-10-01		OBRADOVICH, VUKSAN	Domestic	New Well	Rotary	Chemistry Exists
269	260914	NW	13	54	23	4	82.3						28.3	31.7					ELLEFSOIL, NORM	Domestic	Chemistry	Cable Tool	Chemistry Exists
270	260922	NW	13	54	23	4	82.3												GAVINCHUK, GEORGE	Domestic	Chemistry	Drilled	Chemistry Exists
271	260948	NW	13	54	23	4	31.7					29.0	31.4				1978-03-23		PESKLEVIS, ALBERT	Domestic	New Well	Rotary	Chemistry Exists
272	260972	NW	13	54	23	4	32.0					29.3	32.0				1979-05-29		KIEL, RUDY	Domestic	New Well	Rotary	Chemistry Exists
273	260980	NW	13	54	23	4	31.7										1979-07-04		SIGURDSON, HOWARD	Domestic	New Well	Rotary	Chemistry Exists
274	260987	NW	13	54	23	4	42.7					29.9	31.4				1980-11-04		MITCHELL, DOUGLAS B.	Domestic	New Well	Rotary	No Chemistry
275	260996	NW	13	54	23	4	36.6												BERG, AARON	Domestic	Chemistry	Unknown	Chemistry Exists
276	261001	NW	13	54	23	4	32.0					29.0	32.0				1980-04-24		BERG, AARON	Domestic	New Well	Rotary	No Chemistry
277	261009	NE	13	54	23	4	12.2										1935-01-01		DAWSON, MAJ.	Domestic	Federal Well Survey	Hand Dug	No Chemistry
278	261032	SE	1	55	22	4	45.7												SCHWANDT, E A	Domestic	Chemistry	Unknown	Chemistry Exists
279	261039	SE	1	55	22	4	54.9												HANSEN, P E	Domestic	New Well	Unknown	No Chemistry
280	261073	SE	1	55	22	4	0.0												WALLACE, J	Domestic	Chemistry	Unknown	Chemistry Exists
281	261075	SE	1	55	22	4	0.0												BARR, F	Domestic	Chemistry	Unknown	Chemistry Exists
282	261078	SE	1	55	22	4	121.9												BEST, S.	Domestic	Chemistry	Unknown	Chemistry Exists
283	261082	SE	1	55	22	4	0.0												SCHLOSSER, D	Domestic	Chemistry	Unknown	Chemistry Exists
284	261107	16	31	54	22	4	2.7												CAMERON, D.	Domestic	Chemistry	Unknown	Chemistry Exists
285	261129	4	55	22	4	0.0													LAMOUREUX CHILDRENS HOME	Domestic	Chemistry	Hand Dug	Chemistry Exists
286	261133	SE	5	55	22	4	11.3										1982-09-14		LAMOUREUX, J	Domestic	New Well	Bored	Chemistry Exists
287	261139	SE	5	55	22	4	11.3										1959-05-11		LAMOUREUX, J	Domestic	New Well	Bored	Chemistry Exists
288	261147	SW	6	55	22	4	39.6										1973-07-01		GABERT, B	Domestic	New Well	Cable Tool	No Chemistry
289	261149	SE	6	55	22	4	73.2	43.3	49.4								1980-07-15		BOYCHUK, N	Domestic	New Well	Rotary	No Chemistry
290	261151	3	6	55	22	4	8.2										1906-01-01		LAMOUREUX, A.L.	Domestic	Federal Well Survey	Hand Dug	No Chemistry
291	261154	4	6	55	22	4	51.8												ZIMA, M	Domestic	Chemistry	Unknown	Chemistry Exists
292	261182	NE	6	55	22	4	79.2												ELLIOTT, F	Domestic	Chemistry	Unknown	Chemistry Exists
293	261187	9	6	55	22	4	18.3										1927-01-01		ADAMS, B.S.	Domestic	Federal Well Survey	Drilled	No Chemistry
294	261202	SE	7	55	22	4	9.1												HERDER, H	Domestic	Chemistry	Drilled	Chemistry Exists
295	261203	SE	7	55	22	4	82.3										1974-08-26	1974-08-26	JUKASZ, A	Domestic	Chemistry	Unknown	No Chemistry
296	261213	NW	7	55	22	4	18.3										1969-05-23		CHRISTIANSEN, J.M.	Domestic	New Well	Bored	Chemistry Exists
297	261220	NE	7	55	22	4	10.7												PRINS, W	Domestic	Chemistry	Unknown	Chemistry Exists
298	261225	NE	7	55	22	4	11.6										1978-10-21		PRINS, W	Domestic	New Well	Bored	No Chemistry
299	261250	10	9	55	22	4	19.8												KEITH, D	Domestic	Chemistry	Unknown	Chemistry Exists
300	261348	SE	11	55	22	4	36.9						34.4	36.9			1978-04-27		WOUDENBERG, M.	Domestic	New Well	Rotary	No Chemistry
301	261357	SE	11	55	22	4	79.2										1965-08-01		TIMNALL, C.V.	Domestic	New Well	Rotary	No Chemistry
302	261368	SE	11	55	22	4	73.2												SHEWCHUK, S	Domestic	Chemistry	Unknown	Chemistry Exists
303	261376	SE	11	55	22	4	61.0												HAREL, C.	Domestic	Chemistry	Unknown	Chemistry Exists
304	261383	SE	11	55	22	4	121.9	103.6	121.9								1977-10-20		WOUDENBERG, M.	Domestic	New Well	Rotary	No Chemistry
305	261396	SE	11	55	22	4	64.0												TINDALL, V	Domestic	Chemistry	Unknown	Chemistry Exists
306	261398	SE	11	55	22	4	27.4												DENNIS, D.	Domestic	Chemistry	Unknown	Chemistry Exists
307	261403	SW	11	55	22	4	54.9												SHEWCHUK, T	Domestic	Chemistry	Unknown	Chemistry Exists
308	261446	NW	13	55	22	4	24.4</																

Water Well 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
			FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
325	261586 NW 18 55 22 4	0.0													CURTIS, R. L.	Domestic	Chemistry	Unknown	Chemistry Exists
326	261587 NW 25 54 23 4	28.3													ORAM, JAMES M	Domestic	Chemistry	Unknown	Chemistry Exists
327	261588 NW 25 54 23 4	12.8													VILLENEUVE, L	Domestic	Chemistry	Hand Dug	Chemistry Exists
328	261589 NW 18 55 22 4	22.9													CURTIS, R.	Domestic	Chemistry	Unknown	Chemistry Exists
329	261590 NW 25 54 23 4	0.0													MURPHY, H	Domestic	Chemistry	Drilled	Chemistry Exists
330	261591 NW 18 55 22 4	15.2													CURTIS, R.	Domestic	Chemistry	Unknown	Chemistry Exists
331	261593 NE 25 54 23 4	10.1													BYERS, D.H.	Domestic	Chemistry	Unknown	No Chemistry
332	261598 NW 26 54 23 4	29.0	21.3	27.4									1969-06-01		MCGEACHY, JIM	Domestic	New Well	Rotary	No Chemistry
333	261605 NE 26 54 23 4	73.2											1978-06-07		SIMPSON, TOM	Domestic	New Well	Rotary	No Chemistry
334	261606 NE 18 55 22 4	0.0													ANWEILER, S.	Domestic	Chemistry	Unknown	Chemistry Exists
335	261610 26 54 23 4	9.8													KIEL, RUDOLF	Domestic	Chemistry	Unknown	Chemistry Exists
336	261614 SW 20 55 22 4	30.5											1960-01-01		CRAIG, R.S.	Domestic	Chemistry	Unknown	Chemistry Exists
337	261615 SW 27 54 23 4	24.4													PENNY, STEPHEN	Domestic	Chemistry	Unknown	Chemistry Exists
338	261618 1 21 55 22 4	10.4													DEMERS,	Domestic	Chemistry	Unknown	Chemistry Exists
339	261619 SW 27 54 23 4	61.0	24.4	61.0									1978-05-31		FYTH, JAMES	Domestic	New Well	Rotary	Chemistry Exists
340	261629 SW 27 54 23 4	23.9													FEDORAK, NESTOR	Domestic	Chemistry	Unknown	Chemistry Exists
341	261635 SW 21 55 22 4	11.6													COURCHESNE, L	Domestic	Chemistry	Bored	Chemistry Exists
342	261639 SW 21 55 22 4	7.6													COURCHESNE, L	Domestic	Chemistry	Hand Dug	Chemistry Exists
343	261640 3 21 55 22 4	91.4	79.2	91.4									1986-04-08		COURCHESNE, L E	Domestic	New Well	Rotary	Chemistry Exists
344	261646 16 21 55 22 4	61.0											1962-12-18		DAMCHUK, J	Domestic	New Well	Rotary	No Chemistry
345	261652 NE 21 55 22 4	0.0													GAUMONT, J R	Domestic	Chemistry	Unknown	No Chemistry
346	261653 NW 22 55 22 4	0.0													RIVARD, K	Domestic	Chemistry	Unknown	Chemistry Exists
347	261654 NE 22 55 22 4	97.5	85.3	97.5									1981-11-26		CNR	Domestic	New Well	Rotary	No Chemistry
348	261657 NE 23 55 22 4	20.4													JOHNSTON, GARY	Domestic	Chemistry	Drilled	Chemistry Exists
349	261660 SE 24 55 22 4	8.1													ESLER, J	Domestic	Chemistry	Hand Dug	Chemistry Exists
350	261662 SW 24 55 22 4	12.2							5.8	7.3			1966-07-23		MCCEE, K	Domestic	New Well	Rotary	Chemistry Exists
351	261669 SW 24 55 22 4	4.6													MAGEE, K	Domestic	Chemistry	Bored	Chemistry Exists
352	261670 4 24 55 22 4	4.3													SELTHGATE, G A	Domestic	Federal Well Survey	Hand Dug	No Chemistry
353	261672 NW 24 55 22 4	30.5													MAGEE, K	Domestic	Chemistry	Drilled	Chemistry Exists
354	261675 NE 24 55 22 4	0.0													FISH & GAME ASSOC	Domestic	Chemistry	Unknown	Chemistry Exists
355	261678 NE 28 54 23 4	13.1													PARENTEAU, L	Domestic	Chemistry	Bored	Chemistry Exists
356	261681 NW 25 55 22 4	7.6													GAUMONT, M	Domestic	Chemistry	Unknown	Chemistry Exists
357	261710 NE 25 55 22 4	76.2													GAUMONT, M	Domestic	New Well	Unknown	Chemistry Exists
358	261716 NE 25 55 22 4	61.0													GAUMONT, M	Domestic	Chemistry	Unknown	Chemistry Exists
359	261726 NW 26 55 22 4	54.9											1963-01-01		JIGOLYK, L.	Domestic	Chemistry	Unknown	Chemistry Exists
360	261729 SE 27 55 22 4	6.1													BELOIR, R	Domestic	Chemistry	Unknown	Chemistry Exists
361	261731 SE 27 55 22 4	96.0	50.3	96.0									1986-10-14		BELOIR, R	Domestic	New Well	Rotary	No Chemistry
362	261737 SE 28 55 22 4	0.0													SAWCHUK, J	Domestic	Chemistry	Unknown	Chemistry Exists
363	261738 NW 28 55 22 4	50.9											1965-04-30		GOUTBECK, P.	Domestic	New Well	Rotary	Chemistry Exists
364	261742 SE 1 55 23 4	0.0													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
365	261744 SE 1 55 23 4	0.0													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
366	261745 SE 1 55 23 4	15.2													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
367	261746 NW 28 55 22 4	30.5													BOHNET, H	Domestic	Chemistry	Drilled	Chemistry Exists
368	261748 SE 1 55 23 4	15.2													SERNA, VICTOR	Domestic	Chemistry	Unknown	Chemistry Exists
369	261750 NW 28 55 22 4	0.0													VAN BOOM, H.	Domestic	Chemistry	Unknown	Chemistry Exists
370	261752 SE 1 55 23 4	94.5	61.0	94.5									1984-09-01		SERNA, VICTOR	Domestic	New Well	Rotary	Chemistry Exists
371	261757 SE 1 55 23 4	48.8											1984-08-21		SERNA, VICTOR	Domestic	Dry Hole	Rotary	No Chemistry
372	261759 SE 1 55 23 4	80.5											1984-08-20		SERNA, VICTOR	Domestic	Dry Hole	Rotary	No Chemistry
373	261764 SW 1 55 23 4	24.4													PARADIS, F.	Domestic	Chemistry	Drilled	Chemistry Exists
374	261769 SE 2 55 23 4	24.4													PARADIS, NORMAN	Domestic	Chemistry	Unknown	Chemistry Exists
375	261771 SE 2 55 23 4	22.9													PARADIS, NORMAN	Domestic	Chemistry	Drilled	Chemistry Exists
376	261813 SE 33 55 22 4	42.7													ALLISON, G	Domestic	Chemistry	Unknown	Chemistry Exists
377	261820 SE 34 55 22 4	9.4													JIGOLYK, H.	Domestic	Chemistry	Unknown	Chemistry Exists
378	261823 SH 34 55 22 4	9.8													CARROLL, T	Domestic	Chemistry	Unknown	Chemistry Exists
379	261827 NE 34 55 22 4	45.7													HOLMES, S	Domestic	Chemistry	Drilled	Chemistry Exists
380	261828 NE 34 55 22 4	39.6	27.4	39.6											HOLMES, R	Domestic	New Well	Cable Tool	No Chemistry
381	261830 NW 35 55 22 4	49.7													DOSHEWNEK, G	Domestic	Chemistry	Drilled	Chemistry Exists
382	261845 NW 35 55 22 4	51.8							24.4	42.7			1983-05-12		SVYENKY, P.	Domestic	New Well	Rotary	No Chemistry
383	262011 2 33 54 23 4	37.5													STRAUSS, HOWARD	Domestic	Chemistry	Unknown	Chemistry Exists
384	262057 SE 34 54 23 4	29.6													BLOWER, JERRY	Domestic	Chemistry	Bored	Chemistry Exists
385	262061 SE 34 54 23 4	22.6											1975-06-20		NEWMAN, NELSON	Domestic	New Well	Bored	Chemistry Exists
386	262070 SE 34 54 23 4	0.0													THIMER, ERIC	Domestic	Chemistry	Unknown	Chemistry Exists
387	262074 SE 34 54 23 4	61.0													MARSH, JEROME L	Domestic	Chemistry	Rotary	Chemistry Exists
388	262083 NW 34 54 23 4	76.2													MELNYCHUK, GEORGE G	Domestic	Chemistry	Drilled	Chemistry Exists
389	262104 NW 34 54 23 4	24.4													PARADIS, GILBERT	Domestic	Chemistry	Unknown	Chemistry Exists
390	262109 NE 34 54 23 4	61.0													MELNYCHUK, GEORGE G	Domestic	Chemistry	Unknown	Chemistry Exists
391	262113 SE 35 54 23 4	76.2													DEVEREUX, J.R.	Domestic	Chemistry	Unknown	Chemistry Exists
392	262141 SW 1 55 23 4	19.8											1920-07-10		PARDIS, W.	Domestic	Federal Well Survey	Backhoe	No Chemistry
393	262261 SW 35 54 23 4	30.5													GAUMONT, P	Domestic	Chemistry	Unknown	Chemistry Exists
394	262265 SW 35 54 23 4	28.3													KJENNER, GEORGE	Domestic	Chemistry	Drilled	Chemistry Exists
395	262271 SW 35 54 23 4	16.8													L. PETERSON DEV LTD	Domestic	Chemistry	Hand Dug	Chemistry Exists
396	262278 SW 35 54 23 4	21.3													L. PETERSON DEV LTD	Domestic	Chemistry	Hand Dug	Chemistry Exists
397	262285 SW 35 54 23 4	36.6													HANES, ALBERT	Domestic	Chemistry	Unknown	Chemistry Exists
398	262292 SW 35 54 23 4	42.7													HOFFSTETER, B.	Domestic	Chemistry	Unknown	Chemistry Exists
399	262296 SW 35 54 23 4	25.9													HOFFSTETER, BEN	Domestic	Chemistry	Bored	Chemistry Exists
400	262305 SW 35 54 23 4	31.1													FEDORAK, J	Domestic	Chemistry	Unknown	Chemistry Exists
401	262314 SW 35 54 23 4	30.5													PALTZAT, MARVIN	Domestic	Chemistry	Bored	Chemistry Exists
402	262324 SW 35 54 23 4	25.0											1980-09-09		BURAK, FRED	Domestic	New Well	Bored	Chemistry Exists
403	262332 SW 35 54 23 4	54.9	42.7	54.9									1978-06-07		HORNES, ALBERT	Domestic	New Well	Rotary	No Chemistry
404	262356 NW 35 54 23 4	19.8											1976-08-01		L. PETERSON DEV LTD	Domestic	Chemistry	Bored	Chemistry Exists
405	262366 35 54 23 4	16.8													PALTZAT, M.	Domestic	Chemistry	Drilled	No Chemistry

Water Well 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						
406	262369	SE	36	54	23	4	80.5	73.2	79.2									1977-11-03		MAYRHUT, JAMES	Domestic	New Well	Rotary	No Chemistry	
407	262385	NW	36	54	23	4	20.1													NYHUIS, ALBERT	Domestic	Chemistry	Unknown	Chemistry Exists	
408	262393	NE	36	54	23	4	13.1											1986-08-15		GAUMONT, EMIL	Domestic	New Well	Bored	No Chemistry	
409	262397	NE	36	54	23	4	12.2													SEVNE, GEORGE	Domestic	Chemistry	Unknown	No Chemistry	
410	262468	SW	12	55	23	4	21.3											1968-05-01		STRAUSS, L.	Domestic	New Well	Rotary	Chemistry Exists	
411	262511	SE	13	55	23	4	13.4													COURCHESNE, RAY	Domestic	Chemistry	Drilled	Chemistry Exists	
412	263303	SE	1	56	21	4	12.2													GUENETTE, D	Domestic	Chemistry	Bored	Chemistry Exists	
413	263308	SW	1	56	21	4	14.0													TARON, D.E.	Domestic	Chemistry	Drilled	Chemistry Exists	
414	263315	SW	1	56	21	4	36.6													OLD, R/C	Domestic	Chemistry	Unknown	Chemistry Exists	
415	263327	SW	2	56	21	4	10.7													HALABEY, A	Domestic	Chemistry	Bored	Chemistry Exists	
416	263334	3	2	56	21	4	118.9											1965-07-09		HALABEY, ALEX	Domestic	New Well	Drilled	Chemistry Exists	
417	263375	SW	3	56	21	4	6.4											1973-01-01		HANNERMAN, R	Domestic	Chemistry	Unknown	Chemistry Exists	
418	263380	NE	3	56	21	4	39.6													VELTMAN, H	Domestic	Chemistry	Unknown	Chemistry Exists	
419	263474	SW	5	56	21	4	16.8													REED, D	Domestic	Chemistry	Drilled	Chemistry Exists	
420	263484	4	5	56	21	4	8.5											1970-01-28		YARSHUK, P	Domestic	New Well	Bored	No Chemistry	
421	263489	NW	13	54	23	4	33.5					30.8	32.3					1987-02-05		DORJEKO, GERRY	Domestic	New Well	Rotary	No Chemistry	
422	263492	NW	5	56	21	4	42.7												1961-01-12		CHOLOWSKI, R.	Domestic	Well Decommission	Drilled	No Chemistry
423	263502	NW	13	54	23	4	34.1					32.3	33.8					1981-05-05		NISBET, BOB	Domestic	New Well	Rotary	No Chemistry	
424	263525	NE	5	56	21	4	6.1													CHOLOWSKI, R.	Domestic	Chemistry	Bored	Chemistry Exists	
425	263543	NE	5	56	21	4	4.9													CHOLOWSKI, R.	Domestic	Chemistry	Unknown	Chemistry Exists	
426	263560	SW	8	56	21	4	48.8											1973-04-01		KOFLUK, D	Domestic	New Well	Rotary	Chemistry Exists	
427	263579	SW	8	56	21	4	25.0					22.9	24.4					1966-11-11		MASCHMEYER, R	Domestic	New Well	Rotary	No Chemistry	
428	263583	15	8	56	21	4	11.6													BRODIE, H.L.	Domestic	Chemistry	Unknown	Chemistry Exists	
429	263592	SW	9	56	21	4	0.0													LECHENKO #3 DRINKING WELL	Domestic	Chemistry	Unknown	Chemistry Exists	
430	263595	NE	11	56	21	4	64.6													NAURATIL, J	Domestic	Chemistry	Drilled	Chemistry Exists	
431	263633	9	11	56	21	4	10.7													NAURATIL, J	Domestic	Chemistry	Bored	Chemistry Exists	
432	263640	NE	11	56	21	4	43.3					41.1	42.4					1984-08-17		ANDRUCHOW, E	Domestic	New Well	Rotary	Chemistry Exists	
433	263645	NE	11	56	21	4	36.6													O'BRIEN, N	Domestic	Chemistry	Unknown	Chemistry Exists	
434	263651	NE	11	56	21	4	18.0											1986-06-20		BREIT, E	Domestic	New Well	Backhoe	Chemistry Exists	
435	263676	SE	12	56	21	4	7.9													ESCH, G	Domestic	Chemistry	Hand Dug	Chemistry Exists	
436	263683	SE	12	56	21	4	91.4	79.2	91.4									1981-11-05		ESCH, G	Domestic	New Well	Rotary	No Chemistry	
437	263697	SE	12	56	21	4	0.0													MIZERA, T.	Domestic	Chemistry	Unknown	Chemistry Exists	
438	263707	SW	12	56	21	4	61.0													GABERT, M.	Domestic	Chemistry	Unknown	Chemistry Exists	
439	263714	NW	12	56	21	4	33.5													GABERT, M.	Domestic	Chemistry	Unknown	Chemistry Exists	
440	263736	SE	13	56	21	4	7.9													YOUNG, C.S.	Domestic	Chemistry	Unknown	Chemistry Exists	
441	263842	SE	14	56	21	4	3.7													SMART, D	Domestic	Chemistry	Hand Dug	Chemistry Exists	
442	263852	SW	2	56	22	4	61.0													NOEL MAURICE	Domestic	Chemistry	Unknown	Chemistry Exists	
443	263854	NW	2	56	22	4	36.6													SANK, LLOYD	Domestic	Chemistry	Unknown	Chemistry Exists	
444	263867	SW	3	56	22	4	54.9													MELENKA, ALEX	Domestic	Chemistry	Unknown	Chemistry Exists	
445	263870	NE	14	56	21	4	10.7													HODGSON, G A	Domestic	Chemistry	Unknown	Chemistry Exists	
446	263877	NE	14	56	21	4	13.4											1972-08-01		HODGSON, G	Domestic	New Well	Bored	No Chemistry	
447	263883	NE	14	56	21	4	11.3													PERCY, G.	Domestic	Chemistry	Bored	Chemistry Exists	
448	263887	NE	14	56	21	4	48.8											1985-05-17		PERCY, G.	Domestic	New Well	Rotary	No Chemistry	
449	263910	NE	14	56	21	4	0.0													SMIBERT, R.	Domestic	Chemistry	Unknown	No Chemistry	
450	263924	SW	16	56	21	4	0.0													KROPP, L.	Domestic	Spring	Not Applicable	Chemistry Exists	
451	263933	SW	16	56	21	4	0.0													BOLTON SCHOOL	Domestic	Chemistry	Unknown	Chemistry Exists	
452	263959	SW	16	56	21	4	9.1													MARQUARDT, E	Domestic	Chemistry	Drilled	Chemistry Exists	
453	263963	NW	16	56	21	4	6.7													BLENN	Domestic	Chemistry	Unknown	Chemistry Exists	
454	263969	NW	18	56	21	4	22.9													VISSCHER, H	Domestic	Chemistry	Unknown	Chemistry Exists	
455	263970	NW	18	56	21	4	12.2													VISSCHER, H	Domestic	Chemistry	Unknown	Chemistry Exists	
456	263974	SE	19	56	21	4	9.1													CAMPBELL, R	Domestic	Chemistry	Hand Dug	Chemistry Exists	
457	263991	SW	19	56	21	4	22.9													SMULSKI, J	Domestic	Chemistry	Unknown	Chemistry Exists	
458	263992	SW	19	56	21	4	18.9											1984-06-20		S V HALF DIAMOND RANCHES	Domestic	New Well	Bored	No Chemistry	
459	263993	NE	19	56	21	4	12.2													ROBINSON, J	Domestic	Chemistry	Unknown	Chemistry Exists	
460	263996	NE	19	56	21	4	8.5													ROBINSON, J	Domestic	Chemistry	Hand Dug	Chemistry Exists	
461	264112	SW	11	56	22	4	106.7	14.0	64.0									1980-03-06		BRIGGS, EARL	Domestic	Deepened	Cable Tool	No Chemistry	
462	264146	SW	12	56	22	4	0.0													SERINK, MIKE	Domestic	Chemistry	Unknown	No Chemistry	
463	264148	SE	20	56	21	4	54.9											1977-08-01		SAWYER, D	Domestic	Chemistry	Drilled	Chemistry Exists	
464	264150	SW	12	56	22	4	0.0													SERINK, MIKE	Domestic	Chemistry	Unknown	No Chemistry	
465	264151	NW	12	56	22	4	22.9											1968-05-01		MINCHOU, CLARENCE	Domestic	New Well	Unknown	Chemistry Exists	
466	264156	15	20	56	21	4	19.8											1958-10-24		FEDORAK, M	Domestic	Chemistry	Bored	No Chemistry	
467	264163	NE	12	56	22	4	76.2													PUCHALIK, NICK	Domestic	Chemistry	Drilled	Chemistry Exists	
468	264167	NE	20	56	21	4	24.4													FEDORAK, M	Domestic	Chemistry	Unknown	Chemistry Exists	
469	264173	SE	13	56	22	4	35.1					32.0	35.1					1989-11-03		DUPONT CAN	Domestic	New Well	Rotary	No Chemistry	
470	264176	16	20	56	21	4	0.0																		

Water Well 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
			FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
487	264305 SE 29 56 21 4	54.9													PACHALUCK, P.	Domestic	Chemistry	Unknown	Chemistry Exists
488	264343 SE 29 56 21 4	7.6											1963-08-15		SMULSKI, J.	Domestic	New Well	Backhoe	No Chemistry
489	264347 SE 29 56 21 4	76.2													KALISVAART, J/T	Domestic	Chemistry	Drilled	Chemistry Exists
490	264357 SE 29 56 21 4	74.7											1961-09-02		PUCHALIK, P.	Domestic	Deepened	Drilled	Chemistry Exists
491	264368 SE 29 56 21 4	14.0													PUCHALIK, P.	Domestic	Chemistry	Unknown	Chemistry Exists
492	264384 SW 29 56 21 4	9.8													PUCHALIK, S.	Domestic	Chemistry	Unknown	Chemistry Exists
493	264385 SW 29 56 21 4	0.0													PUCHALIK, S.	Domestic	Chemistry	Unknown	Chemistry Exists
494	264386 SW 29 56 21 4	7.3											1958-09-24		PUCHALIK, S.	Domestic	New Well	Bored	Chemistry Exists
495	264392 SW 29 56 21 4	0.0													PUCHALIK, S. #PUMPHOUSE WELL	Domestic	Chemistry	Unknown	Chemistry Exists
496	264393 SW 29 56 21 4	13.7													PUCHALIK, S.	Domestic	Chemistry	Unknown	Chemistry Exists
497	264396 NE 29 56 21 4	0.0													SAUNDERS, P.	Domestic	Chemistry	Unknown	No Chemistry
498	264424 SE 32 56 21 4	27.4													YAKIMETS, O	Domestic	Chemistry	Unknown	Chemistry Exists
499	264437 SE 32 56 21 4	42.7	36.6	39.6									1980-04-16		YAKIMETS, O J	Domestic	New Well	Rotary	No Chemistry
500	264466 1 33 56 21 4	19.5							17.7	18.9			1977-05-01		KUIPER, A/D	Domestic	New Well	Rotary	Chemistry Exists
501	264491 NE 33 56 21 4	0.0													LUBEMSKI, K.	Domestic	Chemistry	Unknown	No Chemistry
502	264507 4 34 56 21 4	15.2	3.7	4.6									1985-06-12		WOLANSKY, W.	Domestic	New Well	Backhoe	Chemistry Exists
503	264531 SW 34 56 21 4	61.0	15.2	24.4									1974-03-30		WOLANSKY, W.	Domestic	New Well	Rotary	Chemistry Exists
504	264630 NW 34 56 21 4	24.4													MAHONEY, R.	Domestic	Chemistry	Unknown	Chemistry Exists
505	264637 NE 34 56 21 4	32.0	26.5	32.0									1974-03-10		ANDERSON, K	Domestic	New Well	Rotary	Chemistry Exists
506	264659 8 35 56 21 4	4.9													SCHILLER, J.	Domestic	Chemistry	Auger	Chemistry Exists
507	264666 NW 35 56 21 4	4.3													HESS, R	Domestic	Chemistry	Jet	Chemistry Exists
508	264680 SE 36 56 21 4	5.2													RUDKO, W.	Domestic	Chemistry	Unknown	Chemistry Exists
509	264699 SW 36 56 21 4	7.3													DRABBLE, R.	Domestic	Chemistry	Unknown	Chemistry Exists
510	264707 NW 36 56 21 4	9.1													MAKOWECKI, A	Domestic	Chemistry	Drilled	Chemistry Exists
511	264712 NW 36 56 21 4	8.4													MAKOWECKI, A	Domestic	Chemistry	Hand Dug	Chemistry Exists
512	264902 NE 8 54 22 4	79.9											1970-06-24		KENNEDY, CLIFF	Domestic	New Well	Rotary	Chemistry Exists
513	264908 NE 8 54 22 4	54.9													KALISTA, JOE	Domestic	Chemistry	Drilled	Chemistry Exists
514	264911 NE 8 54 22 4	9.1													ATTEW, ELAINE	Domestic	Chemistry	Bored	Chemistry Exists
515	264913 NE 8 54 22 4	11.6													SPALLIN, K.A.	Domestic	Chemistry	Drilled	Chemistry Exists
516	264915 NE 8 54 22 4	13.1											1979-06-08		LEVERSEDGE, DAN	Domestic	New Well	Bored	Chemistry Exists
517	264921 NE 8 54 22 4	10.4													KENNEDY, C.A.	Domestic	Chemistry	Unknown	Chemistry Exists
518	264923 NE 8 54 22 4	14.9											1979-06-11		KENNEDY, KEN	Domestic	New Well	Bored	Chemistry Exists
519	265801 SW 2 57 21 4	27.4													MCCULLOUGH, DAVID	Domestic	Chemistry	Hand Dug	Chemistry Exists
520	265802 SW 2 57 21 4	74.7											1981-10-05		ROMANIUK, ELI	Domestic	New Well	Rotary	No Chemistry
521	265804 SW 2 57 21 4	3.0													MCCULLOUGH, DAVE	Domestic	Chemistry	Unknown	Chemistry Exists
522	265805 SW 3 57 21 4	10.4											1940-01-01		LIBBY, KATHERINE	Domestic	Chemistry	Drilled	Chemistry Exists
523	265811 SE 4 57 21 4	30.5							25.0	27.4			1979-08-03		SCHWING, ROMAN	Domestic	New Well	Rotary	Chemistry Exists
524	266031 SE 13 56 22 4	12.2													SCHROTER, RON	Domestic	Chemistry	Unknown	Chemistry Exists
525	267205 SW 1 55 23 4	64.0	57.9	64.0									1976-09-06		ROLF, RON	Domestic	New Well	Rotary	No Chemistry
526	271650 SE 5 55 22 4	59.4							57.0	58.5			1978-07-13		GODBOUT, ROMEO	Domestic	New Well	Rotary	No Chemistry
527	271736 SW 36 54 23 4	39.3													SMITH, B.B.	Domestic	Chemistry	Drilled	Chemistry Exists
528	273997 NW 36 54 23 4	24.4													BISSON, R	Domestic	Chemistry	Unknown	Chemistry Exists
529	274006 EH 36 54 23 4	0.0													GAUMONT, E	Domestic	Chemistry	Unknown	Chemistry Exists
530	274171 SE 5 55 22 4	14.9	8.2	12.8									1991-08-19		GILLARD, R	Domestic	New Well	Bored	No Chemistry
531	274184 16 31 54 22 4	14.6											1989-05-08		BANDURA, E	Domestic	New Well	Bored	No Chemistry
532	274248 SE 5 55 22 4	12.2											1986-06-20		LAPOUREUX, C	Domestic	New Well	Bored	Chemistry Exists
533	274249 SE 5 55 22 4	14.6	9.1	12.8									1988-03-24		LAPOUREUX, R.	Domestic	New Well	Bored	No Chemistry
534	274956 NE 5 55 21 4	41.1											1978-09-05		PICKETT, J	Domestic	New Well	Rotary	Chemistry Exists
535	280645 NW 31 54 22 4	10.7											1980-09-18		LAPOUREUX HALL	Domestic	New Well	Bored	No Chemistry
536	280650 SW 28 55 21 4	9.1													VISSCHER, D.	Domestic	Chemistry	Unknown	Chemistry Exists
537	280651 4 55 22 4	15.2													FLEMING, E.B.	Domestic	Chemistry	Unknown	Chemistry Exists
538	280653 SE 16 55 22 4	6.1													RANDON, J.R.	Domestic	Chemistry	Unknown	Chemistry Exists
539	280654 SE 16 55 22 4	39.6													RANDON, J.R.	Domestic	Chemistry	Unknown	Chemistry Exists
540	280657 SE 16 55 22 4	7.6													GEM SOD FARMS	Domestic	Chemistry	Hand Dug	Chemistry Exists
541	280703 SE 9 55 22 4	17.4	7.6	15.2									1994-04-26		LAPOUREUX, ROBERT	Domestic	New Well	Bored	No Chemistry
542	282099 NW 18 55 21 4	24.4													MACLEE, KEN	Domestic	Chemistry	Hand Dug	Chemistry Exists
543	285787 NE 17 55 21 4	18.6							12.2	18.3			1996-06-04		HUTTERIAN BRETHREN	Domestic	New Well	Rotary	No Chemistry
544	285789 NW 30 55 21 4	51.8							46.3	47.9			1995-05-30	2001-01-01	BENFELD, BILL	Domestic	New Well	Rotary	No Chemistry
545	285792 SE 12 55 23 4	21.9	9.8	11.9	18.6	19.5							1996-10-24		PICKUNYK, NICK	Domestic	New Well	Bored	No Chemistry
546	286113 WH 17 55 22 4	22.9											1968-04-30		READNER, HENRY #400-H	Domestic	New Well	Auger	No Chemistry
547	286990 NE 8 54 22 4	85.3	43.9	85.3									1997-01-07		MARSHALL, RANDY	Domestic	New Well	Rotary	No Chemistry
548	286991 SE 31 54 22 4	16.2	9.8	14.9									1996-07-27		GAUMONT, LARRAINE	Domestic	New Well	Bored	No Chemistry
549	287800 NE 8 54 22 4	82.3	70.1	82.3									1996-09-11		RICE, LYALL	Domestic	New Well	Rotary	No Chemistry
550	287802 NE 28 54 23 4	61.0											1997-07-10	1997-07-10	NORTH COUNTRY CATTLE CO	Domestic	ast Hole-Decommission	Rotary	No Chemistry
551	289102 NE 28 54 23 4	48.8	36.6	45.7									1997-07-11		NORTH COUNTRY CATTLE CO	Domestic	New Well	Rotary	No Chemistry
552	289381 SE 9 55 22 4	73.2	61.0	73.2									1998-05-19		NAKAKSAR, GUARDARA	Domestic	New Well	Rotary	No Chemistry
553	290026 SE 12 55 23 4	23.8	6.7	9.1	16.2	17.1							1998-05-20		PICHUNYK, JACK	Domestic	New Well	Bored	No Chemistry
554	290974 SE 28 54 22 4	39.6	33.5	39.6									1998-10-07		ROBERTSON, DALE	Domestic	New Well	Rotary	No Chemistry
555	290979 SE 21 56 21 4	18.3	3.7	4.3	13.1	14.3	16.2	16.8					1998-07-14		MARQUARDT, BRENT	Domestic	New Well	Bored	No Chemistry
556	292191 SE 33 55 22 4	47.2	39.6	45.7									1999-04-26		WESTRA, MARTIN/WESTRALIA FARM	Domestic	New Well	Rotary	No Chemistry
557	293392 NW 31 55 21 4	24.4							19.8	21.3			1999-09-13		MCKAY, BRIAN	Domestic	New Well	Rotary	No Chemistry
558	293774 SW 17 56 20 4	85.3	72.2	74.7	77.7	80.8							1999-10-17		SCHRAM, BARRY	Domestic	New Well	Rotary	No Chemistry
559	293775 SW 17 56 20 4	123.4											1999-10-12	1999-10-12	SCHRAM, BARRY	Domestic	ry Hole-Decommission	Rotary	No Chemistry
560	294342 SE 21 56 21 4	24.4	10.1	12.5	15.5	20.1	23.2	23.5					1998-08-08		SOOREE, DICK	Domestic	New Well	Bored	No Chemistry
561	295164 SW 30 56 20 4	37.2	31.1	37.2									2000-05-18		SHILOH REBMAN YOUTH CAMP	Domestic	New Well	Rotary	No Chemistry
562	297082 SE 33 54 23 4	36.6											2001-06-21	2001-06-21	STRAUSS, HOWARD #1	Domestic	ast Hole-Decommission	Rotary	No Chemistry
563	297083 SE 33 54 23 4	36.6	25.9	32.0									2001-06-22		STRAUSS, HOWARD	Domestic	New Well	Rotary	No Chemistry
564	297115 NE 18 56 20 4	18.3											2000-10-07		MARTIN, BONNIE	Domestic	Old Well-Yield	Unknown	No Chemistry
565	297409 SW 30 56 20 4	82.3											2000-05-18	2001-05-18	SHILOH REBMAN YOUTH CAMP	Domestic	ry Hole-Decommission	Rotary	No Chemistry
566	297410 SW 30 56 20 4	85.3	36.6	42.7	48.8	54.9	61.0	67.1					2000-05-15	2000-05-16	SHILOH REBMAN YOUTH CAMP #2	Domestic	New Well	Rotary	No Chemistry
567	297411 SW 30 56 20 4	36.6	26.8	32.9									2000-05-17		SHILOH REBMAN YOUTH CAMP #3	Domestic	New Well	Rotary	No Chemistry

Water Well 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
			FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
568	297579	7	21	56	21	4	18.3							2007-07-26	MARQUARDT, BRENT & CINDY	Domestic	sting Well-Decommissio	Bored	No Chemistry
569	297579	7	21	56	21	4	21.0	13.7	16.8				2001-09-18		MARQUARDT, B.	Domestic	New Well	Bored	No Chemistry
570	297580	NE	21	56	21	4	21.0	13.7	16.8				2001-09-19		LEICHTNER, WALTER	Domestic	New Well	Bored	No Chemistry
571	299631	NW	7	55	21	4	71.0	63.1	69.2				2001-05-17		CHARTRAND, LOUIE/MARY	Domestic	New Well	Rotary	No Chemistry
572	40488	SE	19	55	21	4	13.4						1970-02-02		HEARTLAND PROPERTIES	Domestic	sting Well-Decommissio	Not Applicable	No Chemistry
573	40835	NW	3	57	21	4	18.3	12.2	18.3				2001-08-22		LANE, COLLEEN	Domestic	New Well	Rotary	No Chemistry
574	83363	6	5	55	21	4	35.1								WESTMAN, F.W.	Domestic	Chemistry	Drilled	Chemistry Exists
575	83364	12	5	55	21	4	24.4						1920-01-01		COATTA, E.J.	Domestic	Federal Well Survey	Bored	No Chemistry
576	83365	9	5	55	21	4	4.3								PICKETT, JACK	Domestic	Chemistry	Unknown	Chemistry Exists
577	83367	NW	6	55	21	4	64.0						1979-08-03		GAUF, ROD	Domestic	New Well	Rotary	No Chemistry
578	83368	NE	6	55	21	4	18.3								SCHNEIDER, EARL A.	Domestic	Chemistry	Bored	Chemistry Exists
579	83372	SW	7	55	21	4	39.6								NEWMAN, WILBERT	Domestic	Chemistry	Drilled	Chemistry Exists
580	83373	9	7	55	21	4	30.5								MELTON, OTIS	Domestic	Chemistry	Drilled	Chemistry Exists
581	83374	12	7	55	21	4	24.4						1920-01-01		THORNE, A.	Domestic	Federal Well Survey	Drilled	No Chemistry
582	83375	NW	7	55	21	4	54.9	48.8	54.9				1987-09-12		FINCH, E.	Domestic	New Well	Cable Tool	No Chemistry
583	83376	NW	7	55	21	4	9.1								FINCH, EDWARD	Domestic	Chemistry	Drilled	Chemistry Exists
584	83377	NE	7	55	21	4	9.1								ENGLISH, LESLIE	Domestic	Chemistry	Unknown	Chemistry Exists
585	83379	15	7	55	21	4	81.1								GEISLINGER, W.	Domestic	Chemistry	Unknown	Chemistry Exists
586	83383	NE	9	55	21	4	0.0								EDE, W.	Domestic	Chemistry	Unknown	No Chemistry
587	83417	SW	15	55	21	4	54.9	48.8	54.9				1989-06-08		WHELAN, JAMES	Domestic	New Well	Rotary	No Chemistry
588	83418	NE	15	55	21	4	91.4								ANWEILER, SAL	Domestic	Chemistry	Unknown	Chemistry Exists
589	83419	NW	16	55	21	4	56.4								KREBS, BERNARD	Domestic	Chemistry	Unknown	Chemistry Exists
590	83423	11	17	55	21	4	21.3			20.1	21.3		1985-04-09		CNR	Domestic	New Well	Rotary	No Chemistry
591	83425	NE	17	55	21	4	82.3	70.1	82.3				1983-08-17		SCOTFORD COLONY	Domestic	New Well	Rotary	No Chemistry
592	83426	NE	17	55	21	4	79.2								SCOTFORD HUTTERITE BRETHREN	Domestic	Chemistry	Unknown	Chemistry Exists
593	83428	NE	17	55	21	4	36.6								SCOTFORD COLONY	Domestic	Chemistry	Unknown	Chemistry Exists
594	83439	SW	18	55	21	4	45.7								DUECK, MICHAEL	Domestic	Chemistry	Unknown	No Chemistry
595	83440	NW	18	55	21	4	5.5								MAGEE, GARY	Domestic	Chemistry	Unknown	Chemistry Exists
596	83447	5	19	55	21	4	46.9								DZURNY, EMIL	Domestic	Chemistry	Unknown	Chemistry Exists
597	83448	NW	19	55	21	4	6.1						2001-01-01		BACHLEITNER, CATHY	Domestic	Chemistry	Hand Dug	Chemistry Exists
598	83449	NE	19	55	21	4	39.6			36.6	38.1		1975-07-23	2001-01-01	EDE, WILLIAM	Domestic	New Well	Rotary	Chemistry Exists
599	83450	NE	19	55	21	4	61.0								OLSON, FRED	Domestic	Chemistry	Unknown	Chemistry Exists
600	83451	NE	19	55	21	4	40.2			34.7	40.2		1981-10-10		EDE, W.J.	Domestic	New Well	Rotary	No Chemistry
601	83452	NE	19	55	21	4	48.8								ENOS, AL	Domestic	Chemistry	Drilled	Chemistry Exists
602	83453	NE	19	55	21	4	39.0								NEBEL, ROBERT	Domestic	Chemistry	Drilled	Chemistry Exists
603	83456	15	19	55	21	4	11.6			10.1	11.3		1978-05-11		NEBEL, ROBERT	Domestic	New Well	Rotary	No Chemistry
604	83458	NE	19	55	21	4	18.3								NYHUIS, ALBERT	Domestic	Chemistry	Hand Dug	Chemistry Exists
605	83460	NE	19	55	21	4	9.1								DOIGE, J.F.	Domestic	Chemistry	Unknown	Chemistry Exists
606	83461	NE	19	55	21	4	50.3								CAMERON, ED	Domestic	Chemistry	Unknown	Chemistry Exists
607	83462	SE	20	55	21	4	99.4								CNR#BEAMER SPUR	Domestic	Chemistry	Unknown	Chemistry Exists
608	83463	SE	20	55	21	4	0.0								CNR#SCOTFORD YARD	Domestic	Chemistry	Unknown	No Chemistry
609	83467	NE	21	55	21	4	76.2								SCOTFORD HUTTERITE COLONY	Domestic	Chemistry	Unknown	Chemistry Exists
610	83470	NW	22	55	21	4	64.0								LARSEN, SVEND	Domestic	Chemistry	Drilled	Chemistry Exists
611	83471	NW	22	55	21	4	54.9								LARSEN, HELEN	Domestic	Chemistry	Unknown	Chemistry Exists
612	83473	NE	22	55	21	4	18.3								CHERNIGHAN, JOHN	Domestic	Chemistry	Bored	Chemistry Exists
613	83500	SW	27	55	21	4	0.0								CHOLOWSKI, ALBERT	Domestic	Chemistry	Unknown	No Chemistry
614	83501	SW	27	55	21	4	67.1								CHIPCHASE, G.	Domestic	Chemistry	Unknown	Chemistry Exists
615	83502	NW	27	55	21	4	42.7								MILLWARD, DONALD	Domestic	Chemistry	Unknown	Chemistry Exists
616	83503	NW	27	55	21	4	42.7								MILLWARD, DONALD	Domestic	Chemistry	Unknown	Chemistry Exists
617	83505	SE	28	55	21	4	38.7								ROYCE, SIDNEY	Domestic	Chemistry	Drilled	Chemistry Exists
618	83506	SE	28	55	21	4	24.4								ROYCE, SIDNEY	Domestic	Chemistry	Unknown	No Chemistry
619	83510	SE	30	55	21	4	9.8								WATERS, DEAN	Domestic	Chemistry	Unknown	Chemistry Exists
620	83511	SE	30	55	21	4	7.6						2001-01-01		DOCKSTEADER, LEF	Domestic	Chemistry	Hand Dug	Chemistry Exists
621	83512	SE	30	55	21	4	9.1								HARBOWAY, M.	Domestic	Chemistry	Hand Dug	Chemistry Exists
622	83513	SE	30	55	21	4	14.3						1970-02-15		BALMORE, WESLY	Domestic	New Well	Bored	No Chemistry
623	83514	SE	30	55	21	4	6.1								ORDELL, RICHARD	Domestic	Chemistry	Unknown	Chemistry Exists
624	83516	SE	30	55	21	4	12.2								WATERS, DEAN	Domestic	Chemistry	Drilled	Chemistry Exists
625	83517	SE	30	55	21	4	45.7								WOUDENBURG, MARY	Domestic	Chemistry	Unknown	Chemistry Exists
626	83518	SW	30	55	21	4	6.1						1968-12-12		DAYTON, GEORGE	Domestic	Chemistry	Bored	Chemistry Exists
627	83519	SW	30	55	21	4	6.7								DEMEULE, LORETTA	Domestic	Chemistry	Hand Dug	Chemistry Exists
628	83520	6	30	55	21	4	41.1			39.6	41.1		1984-08-08		MOSER, GEORGETTE	Domestic	New Well	Rotary	No Chemistry
629	83521	3	30	55	21	4	13.4						1970-02-02		YARSHUK, PETE	Domestic	New Well	Bored	No Chemistry
630	83522	SW	30	55	21	4	10.7								WIEBE, G.	Domestic	Chemistry	Unknown	Chemistry Exists
631	83523	SW	30	55	21	4	9.1								DEMEULE, N.E.	Domestic	Chemistry	Drilled	Chemistry Exists
632	83524	NW	30	55	21	4	6.7								BAKER, I.H.	Domestic	Chemistry	Drilled	Chemistry Exists
633	83525	NW	30	55	21	4	7.3								LIVING, DALE	Domestic	Chemistry	Bored	Chemistry Exists
634	83526	NW	30	55	21	4	7.3								FRANCOUER, LARRY	Domestic	Chemistry	Unknown	Chemistry Exists
635	83527	NW	30	55	21	4	9.1								BECK, LINDA	Domestic	Chemistry	Unknown	Chemistry Exists
636	83528	NW	30	55	21	4	12.2								FRANCOUER, LARRY	Domestic	Chemistry	Drilled	Chemistry Exists
637	83529	NW	30	55	21	4	9.8						1965-11-30		YANCHUK, PETE	Domestic	New Well	Bored	No Chemistry
638	83531	NW	30	55	21	4	12.2						1970-02-06		YARSHUK, PETER	Domestic	New Well	Bored	No Chemistry
639	83532	13	30	55	21	4	8.5						2001-01-01		YARSHUK, PETER	Domestic	New Well	Bored	No Chemistry
640	83533	SE	31	55	21	4	41.1								PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
641	83534	NE	31	55	21	4	39.6								PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
642	83536	NW	32	55	21	4	39.6								PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
643	83537	NW	32	55	21	4	39.6								PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
644	83538	NW	32	55	21	4	45.7								PCL BRAUN SIMONS LTD	Domestic	Chemistry	Unknown	Chemistry Exists
645	83544	NE	32	55	21	4	46.3								VISSCHER, D.	Domestic	Chemistry	Unknown	Chemistry Exists
646	83548	SW	34	55	21	4	15.2								RADKE, JAMES	Domestic	Chemistry	Drilled	Chemistry Exists
647	83549	4	34	55	21	4	12.2						1975-08-26		RADKE, BEN	Domestic	New Well	Bored	No Chemistry
648	83551	SW	34	55	21	4	0.0								RADKE	Domestic	Chemistry	Unknown	No Chemistry

Water Well 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					
649	83552	5	34	55	21	4	35.1						32.0	35.1			1986-02-09		RADKE, J./R.	Domestic	New Well	Rotary	No Chemistry
650	83554	NW	34	55	21	4	18.3												PICKARD, WAYNE	Domestic	Chemistry	Drilled	Chemistry Exists
651	83556	NW	34	55	21	4	39.6						34.4	36.0			1970-10-01		FISHER, GEORGE P.	Domestic	New Well	Rotary	No Chemistry
652	83560	NW	34	55	21	4	42.7						36.6	42.7			1989-08-14		DAOUST, C.	Domestic	New Well	Rotary	No Chemistry
653	83561	NE	34	55	21	4	30.5						28.3	29.9			1968-06-05		BERG, ALFRED	Domestic	New Well	Rotary	No Chemistry
654	83564	NE	35	55	21	4	12.8												CHARBONNEAU, MARCEL	Domestic	Chemistry	Drilled	Chemistry Exists
655	83570	SE	36	55	21	4	18.3												NAVRAITL, JOHN	Domestic	Chemistry	Bored	Chemistry Exists
656	83571	SE	36	55	21	4	15.2												WIENS, LORI	Domestic	Chemistry	Unknown	Chemistry Exists
657	83572	SW	36	55	21	4	39.6	37.8	39.6								1988-04-07		UNITED GRAIN GROWERS LTD	Domestic	New Well	Cable Tool	No Chemistry
658	83573	NW	36	55	21	4	12.2												PROKOPCZAK, DAVID	Domestic	Chemistry	Unknown	Chemistry Exists
659	83565	SE	16	55	21	4	48.2												RIETVELD, LEENDERT	Domestic	Chemistry	Drilled	Chemistry Exists
660	90354	SE	27	55	21	4	54.9	39.0	42.7								1972-08-01		CHOLOWSKI, ALBERT	Domestic	New Well	Rotary	No Chemistry
661	91494	4	6	56	20	4	6.1												SAMPERT, T.	Domestic	Federal Well Survey	Hand Dug	No Chemistry
662	91496	SW	6	56	20	4	3.0												THORNE, KEITH	Domestic	Chemistry	Unknown	No Chemistry
663	91498	NE	6	56	20	4	91.4												SCHRAM, GEORGE	Domestic	Chemistry	Unknown	Chemistry Exists
664	91502	9	7	56	20	4	9.1												DRIESNER, D.	Domestic	Federal Well Survey	Bored	No Chemistry
665	91504	SW	8	56	20	4	23.8												SCHRAM, ED	Domestic	Chemistry	Rotary	Chemistry Exists
666	91506	16	8	56	20	4	75.0										1961-11-15		FREY, BERT W.	Domestic	New Well	Rotary	Chemistry Exists
667	91507	NE	8	56	20	4	5.5												FREY, B.	Domestic	Chemistry	Unknown	No Chemistry
668	91508	9	8	56	20	4	12.2										1920-01-01		FREY, J.	Domestic	Federal Well Survey	Bored	No Chemistry
669	91550	SW	16	56	20	4	6.1												ROSDAU, N.	Domestic	Chemistry	Unknown	Chemistry Exists
670	91553	12	16	56	20	4	19.5										1985-03-20		NEAVE, JOHN	Domestic	New Well	Bored	Chemistry Exists
671	91554	2	17	56	20	4	34.1										1981-05-06		SAMPERT, RAY	Domestic	New Well	Bored	No Chemistry
672	91558	SE	18	56	20	4	5.8												MCLELLAN, ARTHUR	Domestic	Chemistry	Unknown	Chemistry Exists
673	91559	SE	18	56	20	4	8.7												MCLELLAN, ARTHUR	Domestic	Chemistry	Hand Dug	Chemistry Exists
674	91561	SE	18	56	20	4	33.5										1981-12-17		MCLELLAN, ARTHUR	Domestic	New Well	Cable Tool	No Chemistry
675	91562	SE	18	56	20	4	67.1										2000-10-07		HELMER, MURIEL/ABNER	Domestic	Old Well-Yield	Not Applicable	Chemistry Exists
676	91562	SE	18	56	20	4	67.1	61.0	67.1								1981-12-31		MCLELLAN, ARTHUR	Domestic	New Well	Rotary	Chemistry Exists
677	91564	4	18	56	20	4	0.0												STELTER, A.	Domestic	Federal Well Survey	Hand Dug	No Chemistry
678	91565	NW	18	56	20	4	12.2												SERINK, W.	Domestic	Chemistry	Bored	Chemistry Exists
679	91566	11	18	56	20	4	14.9										1979-06-17		SERINK, W.	Domestic	New Well	Bored	No Chemistry
680	91572	4	19	56	20	4	44.2										1978-09-23		SERINK, BILL	Domestic	New Well	Rotary	No Chemistry
681	91573	12	19	56	20	4	10.4										1974-07-01		MATTHEWS, BILL	Domestic	New Well	Bored	Chemistry Exists
682	9676085	15	11	56	21	4	44.8						42.4	43.9			2017-07-27		HANS, KARAM	Domestic	New Well	Rotary - Mud	No Chemistry
683	264494	9	33	56	21	4	23.5										1981-08-16		SCURRY RAINBOW OIL LTD	Domestic & Industrial	New Well	Rotary	Chemistry Exists
684	153068	NE	8	54	22	4	73.2	61.0	73.2								1988-09-26		BORYS, BILLIE	Domestic & Stock	New Well	Cable Tool	No Chemistry
685	153696	13	36	56	21	4	45.7	36.6	45.7								1989-04-14		BOWERIN, CATHERINE	Domestic & Stock	New Well	Cable Tool	No Chemistry
686	153768	NW	23	55	21	4	42.7						35.4	36.6			1990-08-31		ARNDT, R.E.	Domestic & Stock	New Well	Rotary	No Chemistry
687	154442	SE	36	55	22	4	30.5						29.3	30.5			1990-03-21		STEFFLER, BENGERALD	Domestic & Stock	New Well	Rotary	No Chemistry
688	1577037	NW	22	55	21	4	56.4	39.6	53.3				39.6	53.3			2023-07-19		KML FARMS	Domestic & Stock	New Well	Combination	No Chemistry
689	158576	SW	8	56	20	4	21.0										1979-09-25		SCHRAM, EDWARD	Domestic & Stock	New Well	Bored	No Chemistry
690	160258	SW	16	54	22	4	15.2	7.6	13.7								1991-11-09		BIZUK, MORRIS	Domestic & Stock	New Well	Bored	No Chemistry
691	164457	NE	11	56	22	4	59.4	30.2	58.5								1992-03-10		BIGGS, ALAN	Domestic & Stock	New Well	Rotary	No Chemistry
692	166391	SE	17	54	22	4	12.2	6.1	10.7								1989-06-28		TWIGGE, MRS E.	Domestic & Stock	New Well	Bored	No Chemistry
693	1911765	SW	2	57	21	4	79.2	71.0	77.1								2006-02-27	2006-02-27	SUNDAY KO, MIKE	Domestic & Stock	New Well	Rotary	No Chemistry
694	206702	NE	3	56	21	4	44.2						40.5	42.1			1993-03-26		VELTMAN, HERB	Domestic & Stock	New Well	Rotary	No Chemistry
695	208867	SW	6	56	20	4	16.5	4.6	13.7								1993-03-12		YAWORSKI, MICHAEL	Domestic & Stock	New Well	Bored	No Chemistry
696	220716	NE	17	55	21	4	105.2										1991-09-20		SCOTFORD COLONY	Domestic & Stock	Reconditioned	Cable Tool	No Chemistry
697	231536	SW	2	55	23	4	67.1	57.9	64.0								1993-08-09		ARNDT, PETER	Domestic & Stock	New Well	Rotary	No Chemistry
698	260034	NW	8	54	22	4	47.2										1925-01-01		ARBS, E.	Domestic & Stock	New Well	Drilled	No Chemistry
699	260068	NW	9	54	22	4	30.5												MCEACHERN, J.	Domestic & Stock	Chemistry	Drilled	No Chemistry
700	260172	4	16	54	22	4	6.7												FLEMING, J.	Domestic & Stock	New Well	Hand Dug	No Chemistry
701	260174	13	16	54	22	4	24.4										1910-01-01		SPALAN, G.	Domestic & Stock	New Well	Drilled	No Chemistry
702	260179	SW	17	54	22	4	61.0										1935-01-01		GALLOWAY, P.	Domestic & Stock	New Well	Drilled	No Chemistry
703	260181	13	17	54	22	4	25.9												PETERS, H.B.	Domestic & Stock	New Well	Bored	No Chemistry
704	260192	NW	20	54	22	4	36.6						27.4	29.0			1966-05-10		STETSON, H.A.	Domestic & Stock	New Well	Rotary	Chemistry Exists
705	260193	5	21	54	22	4	42.7										1920-01-01		ARMSTRONG, J.	Domestic & Stock	New Well	Drilled	No Chemistry
706	260195	13	21	54	22	4	61.0										1928-01-01		ARMSTRONG, G.	Domestic & Stock	New Well	Drilled	No Chemistry
707	260196	SE	22	54	22	4	37.2										1988-11-29		LA TRACE, DARLENE	Domestic & Stock	New Well	Rotary	Chemistry Exists
708	260198	13	22	54	22	4	61.0										1916-01-01		ROTH, H.G.	Domestic & Stock	New Well	Drilled	No Chemistry
709	260217	2	26	54	22	4	70.1	50.3	61.3								1966-12-12		SLATER, GRACE	Domestic & Stock	New Well	Rotary	Chemistry Exists
710	260219	4	26	54	22	4	59.4	49.1	55.2								1969-03-24		KLAUTT, A.R.	Domestic & Stock	New Well	Drilled	No Chemistry
711	260223	SW	26	54	22	4	61.0	47.9	61.0								1984-10-04		GALLOWAY, ED	Domestic & Stock	New Well	Cable Tool	No Chemistry
712	260224	10	26	54	22	4	30.2										1930-01-01		BETHIEL, A.	Domestic & Stock	New Well	Drilled	No Chemistry
713	260226	12	27	54	22	4	21.3												ROBERTSON, F.A.	Domestic & Stock	New Well	Bored	No Chemistry
714	260228	5	28	54	22	4	30.5										1928-01-01		CRANSON, G.A.	Domestic & Stock	New Well	Drilled	No Chemistry
715	260378	11	29	54	22	4	61.0										1911-01-01		ADAMSON, R.F.	Domestic & Stock	New Well	Drilled	No Chemistry
716	260424	SE	32	54	22	4	6.1												DOMESTIC & STOCK	Domestic & Stock	New Well	Hand Dug	No Chemistry
717	260427	4	34	54	22	4	48.8										1930-01-01		LAWRENCE, F.B.	Domestic & Stock	New Well	Drilled	No Chemistry
718	260438	13	34	54	22	4	54.9										1926-01-01		WALL, T.	Domestic & Stock	New Well	Drilled	No Chemistry
719	260442	NE	34	54	22	4	42.7										1988-11-21		BARTEL, RICHARD	Domestic & Stock	New Well	Rotary	Chemistry Exists
720	260928	NW	13	54	23	4	4.9												TURNBULL, R.J.	Domestic & Stock	Chemistry	Hand Dug	Chemistry Exists
721	261215	12	7	55	22	4	5.5										1908-01-01		LAMOREUX, A.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry

Water Well 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
		USD	SECTION	TOWNSHIP	RANGE		MERIDIAN	FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED					
730	261679	9	24	55	22	4	4.9										1932-01-01		THORNE, R E	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
731	261728	1	27	55	22	4	4.6												BELAIR, E C	Domestic & Stock	Chemistry	Hand Dug	Chemistry Exists
732	261778	9	29	55	22	4	22.9										1931-01-01		LANGLOIS, G R	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
733	261821	8	34	55	22	4	60.0										1926-01-01		LA CHAPPELLE	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
734	261822	SE	34	55	22	4	54.9	42.7	53.3								1984-03-19		JIGOLYK, H.	Domestic & Stock	New Well	Cable Tool	No Chemistry
735	261844	13	35	55	22	4	22.9										1935-01-01		LECLAIRE, L	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
736	261886	9	1	56	21	4	4.6												SCHULTZ, E	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
737	262005	SE	33	54	23	4	42.7										1988-11-03	1988-11-03	STRAUSS, HOWARD #TEST HOLE	Domestic & Stock	Test Hole	Rotary	No Chemistry
738	262018	SW	33	54	23	4	45.7										1988-11-02	1988-11-02	STRAUSS, HOWARD #TEST HOLE 2	Domestic & Stock	Test Hole	Rotary	No Chemistry
739	262076	8	34	54	23	4	18.3										1928-01-01		PARRIDY, C.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
740	262102	12	34	54	23	4	35.1										1921-01-01		SPEER, C.R.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
741	262130	SE	35	54	23	4	79.2	67.1	79.2								1988-11-22		DEVEREUX, W	Domestic & Stock	New Well	Rotary	No Chemistry
742	262341	SW	35	54	23	4	48.8	36.6	48.8								1981-10-13		HANES, ALBERT R	Domestic & Stock	New Well	Rotary	No Chemistry
743	262348	SW	35	54	23	4	42.7	30.5	42.7								1988-09-26		HANES, ALBERT	Domestic & Stock	New Well	Rotary	No Chemistry
744	262432	4	2	55	23	4	0.0												SPEER, C.R.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
745	262523	SE	13	55	23	4	103.6	82.3	103.6								1983-03-19		KOZAK, NICK	Domestic & Stock	New Well	Rotary	Chemistry Exists
746	263732	SE	13	56	21	4	42.1												WAGNER, J	Domestic & Stock	New Well	Cable Tool	No Chemistry
747	263735	8	13	56	21	4	4.9										1927-01-01		WAGNER, J	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
748	263820	SW	13	56	21	4	47.2	35.1	47.2								1988-05-09		PROCHNAU, E.	Domestic & Stock	New Well	Rotary	No Chemistry
749	263834	4	1	56	22	4	64.0										1929-01-01		MORROW, E.	Domestic & Stock	New Well	Drilled	No Chemistry
750	263841	NW	1	56	22	4	34.4										1987-12-10		LAMOUREUX, RENALD	Domestic & Stock	New Well	Bored	Chemistry Exists
751	263856	14	2	56	22	4	54.9										1924-01-01		TROTTER, J.	Domestic & Stock	New Well	Drilled	No Chemistry
752	263863	10	2	56	22	4	10.7										1900-01-01		MCPKE, T.	Domestic & Stock	New Well	Hand Dug	No Chemistry
753	263896	NE	14	56	21	4	48.8					42.4	43.9				1988-11-04		HODGSON, G	Domestic & Stock	New Well	Rotary	No Chemistry
754	263966	6	18	56	21	4	42.7										1922-01-01		MATHIEU, A	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
755	263979	4	19	56	21	4	15.2										1921-01-01		TAYLOR, J	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
756	264014	16	19	56	21	4	7.3										1930-01-01		SMOLSKI, D.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
757	264143	SW	12	56	22	4	26.8										1985-08-22		SERINK, MIKE	Domestic & Stock	New Well	Bored	Chemistry Exists
758	264170	2	13	56	22	4	10.7										1916-01-01		BERWICK, C.D.	Domestic & Stock	New Well	Hand Dug	No Chemistry
759	264301	SE	22	55	22	4	14.3										1985-06-25		GODBOUT, N.	Domestic & Stock	New Well	Bored	No Chemistry
760	264335	SE	29	56	21	4	70.1										1976-06-02		PUCHALIK, P.	Domestic & Stock	New Well	Cable Tool	Chemistry Exists
761	264354	1	29	56	21	4	30.5												PUCHLUK, J.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
762	264375	8	35	56	21	4	3.7												CONSARTO	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
763	264387	3	29	56	21	4	5.5												PUCHALACH	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
764	264395	9	29	56	21	4	12.2												KACHUK	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
765	264486	12	33	56	21	4	24.4												PSYCH	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
766	264503	4	34	56	21	4	3.7												MALOWNY	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
767	264662	4	35	56	21	4	19.2												ROMANIUK, E.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
768	264672	SE	36	56	21	4	42.7	27.4	42.7								1976-05-12		CORNELIUS	Domestic & Stock	New Well	Cable Tool	No Chemistry
769	264716	12	36	56	21	4	4.0												TKACHUK	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
770	264931	NE	17	54	22	4											2012-06-25		ARMSTRONG, JIM	Domestic & Stock	sting Well-Decommissio	Unknown	Chemistry Exists
771	265807	SE	4	57	21	4	30.5										1976-12-02		SAWKA, WALTER	Domestic & Stock	New Well	Cable Tool	Chemistry Exists
772	266021	13	1	56	22	4	18.3										1934-01-01		YANCH, J	Domestic & Stock	New Well	Bored	Chemistry Exists
773	271540	NE	5	55	22	4	13.4										1985-06-21		GODBOUT, ROMEO	Domestic & Stock	New Well	Bored	No Chemistry
774	274016	EH	36	54	23	4	17.7										1983-04-25		GAUMONT, C	Domestic & Stock	New Well	Bored	Chemistry Exists
775	274028	EH	36	54	23	4	15.5	9.8	13.7								1989-04-20		GAUMONT, L	Domestic & Stock	New Well	Bored	No Chemistry
776	280646	NE	36	54	23	4	14.3										1987-10-19		LAMOUREUX, JIM	Domestic & Stock	New Well	Bored	No Chemistry
777	299620	SW	33	54	23	4	54.9	29.9	32.6	35.7	51.8						2002-03-23		HAZELAAR, HARVEY	Domestic & Stock	New Well	Rotary	No Chemistry
778	83010	13	25	55	21	4	27.4												HOFFMAN	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
779	83265	14	31	55	20	4	24.1										1915-01-01		FISHER, J.	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
780	83366	2	6	55	21	4	16.5												BRICK, A.W.	Domestic & Stock	Federal Well Survey	Hand Dug	No Chemistry
781	83378	9	7	55	21	4	12.2												MAGEE, H.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
782	83420	NE	16	55	21	4	51.8										1965-04-23		MOHR, GUS	Domestic & Stock	New Well	Jet	No Chemistry
783	83433	NE	17	55	21	4	109.7	91.4	109.7								1986-03-19		SCOTFORD COLONY	Domestic & Stock	Deepened	Rotary	No Chemistry
784	83435	NE	17	55	21	4	97.5	85.3	97.5								1985-06-18		SCOTFORD COLONY	Domestic & Stock	New Well	Rotary	No Chemistry
785	83436	NE	17	55	21	4	79.9												SCOTFORD COLONY	Domestic & Stock	Chemistry	Unknown	Chemistry Exists
786	83437	NE	17	55	21	4	0.0												SCOTFORD COLONY	Domestic & Stock	Chemistry	Unknown	No Chemistry
787	83438	3	18	55	21	4	12.2										1938-01-01		MOORE, T.	Domestic & Stock	Federal Well Survey	Bored	No Chemistry
788	83459	NE	19	55	21	4	0.0												SPRUCE HILL HOG RANCH	Domestic & Stock	Chemistry	Unknown	No Chemistry
789	83465	SE	21	55	21	4	64.0										1982-09-12		THOMAS, WARREN	Domestic & Stock	New Well	Rotary	No Chemistry
790	83468	5	22	55	21	4	39.0										1915-01-01		LANGHAUSEN, J.	Domestic & Stock	Federal Well Survey	Drilled	No Chemistry
791	83469	NW	22	55	21	4	51.8										1965-04-01		LARSEN, S.A.	Domestic & Stock	New Well	Cable Tool	No Chemistry
792	83477	NW	23	55	21	4	36.6																

Water Well Records Within the Study Area

Water Well Records from 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		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
811	1270376	1	27	55	21	4	46.9									2016-06-13		INTERCHEM CANADA	Industrial	New Well	Combination	No Chemistry
812	1270378	1	27	55	21	4	30.5					22.3	24.4			2016-06-07		INTERCHEM CANADA	Industrial	New Well	Combination	No Chemistry
813	1270379	8	29	55	21	4	48.8					33.5	35.1			2016-06-29		PEMBINA MIDSTREAM LTD.	Industrial	New Well	Rotary - Mud	No Chemistry
814	1270389	1	27	55	21	4	33.5	22.8	25.9							2017-06-01		INTERCHEM CANADA	Industrial	Piezometer	Rotary - Mud	No Chemistry
815	1270390	1	27	55	21	4	21.3	16.8	19.8							2017-06-05		INTERCHEM CANADA	Industrial	Piezometer	Rotary - Mud	No Chemistry
816	1270530	1	27	55	21	4	45.7	31.8	45.5							2021-09-23		HEARTLAND SULPHUR	Industrial	New Well	Combination	No Chemistry
817	1300178	12	5	56	21	4	39.6									2007-04-18		SHELL CANADA/THURBER ENG.	Industrial	New Well	Rotary	No Chemistry
818	1421784	2	14	55	22	4						31.4	34.4					KEYERA CORP	Industrial	New Well	Rotary - Mud	No Chemistry
819	1421795	7	14	55	22	4	48.8					37.1	42.1			2015-10-30		KEYERA CORP	Industrial	New Well	Rotary - Mud	No Chemistry
820	1421796	SE	14	55	22	4	48.8					37.2	42.2			2015-10-24		KEYERA CORP	Industrial	New Well	Rotary - Mud	No Chemistry
821	1421797	3	14	55	22	4	46.6					34.7	39.7			2015-11-02		KEYERA CORP	Industrial	New Well	Rotary - Mud	No Chemistry
822	1421798	4	14	55	22	4	45.7					34.0	39.1			2015-11-06		KEYERA CORP	Industrial	New Well	Rotary - Mud	No Chemistry
823	1421799	5	14	55	22	4	46.6					34.6	39.6			2015-11-08		KEYERA	Industrial	New Well	Rotary - Mud	No Chemistry
824	1421801	8	14	55	22	4	48.8					36.6	41.6			2015-11-27		KEYERA	Industrial	New Well	Rotary - Mud	No Chemistry
825	1422455	13	18	55	21	4	46.0					35.8	39.0			2017-12-14		KEYERA CORP	Industrial	New Well	Rotary - Mud	No Chemistry
826	152045	NW	10	55	22	4	37.8					34.7	37.8			1989-12-08		DOW CHEMICAL#MONITORING WELL	Industrial	New Well	Rotary	No Chemistry
827	152046	NW	10	55	22	4	36.0					32.9	36.0			1989-12-12		DOW CHEMICAL#MONITORING WELL	Industrial	New Well	Rotary	No Chemistry
828	152047	NW	10	55	22	4	41.1					38.1	41.1			1989-12-10		DOW CHEMICAL#MONITORING WELL	Industrial	New Well	Rotary	No Chemistry
829	152048	NW	10	55	22	4	37.8					34.7	37.8			1989-12-13		DOW CHEMICAL#MONITORING WEL	Industrial	New Well	Rotary	No Chemistry
830	1575400	SE	18	56	21	4	47.2					16.8	47.2			2006-10-25		ACCESS PIPELINES	Industrial	New Well	Rotary	No Chemistry
831	1889277	5	18	55	21	4	49.4					36.9	43.0			2015-03-02		KEYERA CORP.	Industrial	New Well	Rotary - Mud	No Chemistry
832	260182	10	17	54	22	4	780.3									1954-05-10		TRIZONE OIL DEV CO LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
833	260380	10	29	54	22	4	751.3									1953-10-02		MID-WESTERN IND GAS LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
834	260402	NW	32	54	22	4	64.0									1956-11-29		PEACE RIVER GLASS	Industrial	New Well	Drilled	No Chemistry
835	260408	NW	32	54	22	4	35.7	31.4	35.1							1955-01-01		PEACE RIVER GLASS	Industrial	New Well	Unknown	No Chemistry
836	261083	2	55	22	4	44.2	33.5	39.6								1978-02-24		DOW CHEMICAL	Industrial	New Well	Unknown	No Chemistry
837	261087	2	55	22	4	25.9	21.3	25.9								1978-03-02		DOW CHEMICALS	Industrial	New Well	Unknown	No Chemistry
838	261092	2	55	22	4	42.7	39.6	42.7								1978-03-08		DOW CHEMICALS	Industrial	New Well	Unknown	No Chemistry
839	261097	SE	3	55	22	4	64.0											CAN COMSTOCK LTD	Industrial	Chemistry	Unknown	Chemistry Exists
840	261104	8	4	55	22	4	762.0									1962-09-03		MIDWESTERN IND GAS LTD #8-4	Industrial	New Well	Unknown	No Chemistry
841	261247	6	9	55	22	4	765.0									1959-12-03		DOVE PETRO LTD	Industrial	Oil Exploratory	Unknown	No Chemistry
842	261344	10	10	55	22	4	1881.5									1966-08-30		DOW CHEMICAL #NACL	Industrial	Cathodic Protection	Unknown	No Chemistry
843	261436	SW	13	55	22	4	4.9											DOW CHEMICAL	Industrial	Chemistry	Unknown	No Chemistry
844	261496	11	14	55	22	4	39.6					33.2	35.1			1974-09-14		DOVE PETRO	Industrial	New Well	Rotary	No Chemistry
845	261535	17	55	22	4	987.7										1953-06-12		NORTHWESTERN UTILITIES LTD#5	Industrial	Unknown	Unknown	No Chemistry
846	261682	4	36	55	22	4	299.0									1953-05-21		IMPERIAL OIL LTD #AO282-2	Industrial	Oil Exploratory	Unknown	No Chemistry
847	261723	4	26	55	22	4	317.9									1953-05-17		IMPERIAL OIL LTD #AO282-1	Industrial	Oil Exploratory	Unknown	No Chemistry
848	261736	16	27	55	22	4	304.5									1953-05-21		IMPERIAL OIL LTD #AO282-3	Industrial	Oil Exploratory	Unknown	No Chemistry
849	261761	1	1	55	23	4	9.1											#SP 1914497	Industrial	Flowing Shot Hole	Unknown	No Chemistry
850	261825	12	34	55	22	4	304.5									1953-05-13		IMPERIAL OIL LTD #AO282 5	Industrial	Oil Exploratory	Unknown	No Chemistry
851	261848	16	36	55	22	4	365.8									1946-05-11		IMPERIAL OIL LTD #615	Industrial	Oil Exploratory	Unknown	No Chemistry
852	263838	3	1	56	22	4	1321.3									1951-02-28		LINGNORA GOLD MINES LTD	Industrial	Unknown	Drilled	No Chemistry
853	263849	1	2	56	22	4	304.5									1953-05-17		IMPERIAL OIL LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
854	263860	13	2	56	22	4	286.5									1953-05-18		IMPERIAL OIL LTD	Industrial	Oil Exploratory	Drilled	No Chemistry
855	263918	4	15	56	21	4	996.1									1950-11-15		SEABOARD OIL CO #4-15	Industrial	Oil Exploratory	Unknown	No Chemistry
856	264108	1	11	56	22	4	286.5									1953-05-14		IMPERIAL OIL LTD	Industrial	Test Hole	Drilled	No Chemistry
857	264153	4	13	56	22	4	0.0									1953-08-11		IMPERIAL OIL LTD	Industrial	Flowing Shot Hole	Unknown	No Chemistry
858	264161	13	12	56	22	4	292.6									1953-05-14		IMPERIAL OIL LTD	Industrial	Test Hole	Drilled	No Chemistry
859	264189	3	13	56	22	4	246.3											IMPERIAL OIL LTD	Industrial	Flowing Shot Hole	Drilled	No Chemistry
860	280652	WH	11	55	22	4	29.0									1984-07-19		DOW CHEMICAL	Industrial	Cathodic Protection	Rotary	No Chemistry
861	282100	NW	2	55	22	4	70.7									1984-05-09		DOW CHEMICAL#R-240-1	Industrial	New Well	Rotary	No Chemistry
862	282101	SE	10	55	22	4	71.9									1984-05-08		DOW CHEMICAL#R-90-3	Industrial	New Well	Rotary	No Chemistry
863	282102	SW	11	55	22	4	27.4									1984-05-03		DOW CHEMICAL #R-240-2	Industrial	New Well	Rotary	No Chemistry
864	282103	NW	11	55	22	4	98.8									1984-05-01		DOW CHEMICAL #370-5	Industrial	New Well	Rotary	No Chemistry
865	282104	NW	11	55	22	4	100.6									1984-05-03		DOW CHEMICAL #370-4	Industrial	New Well	Rotary	No Chemistry
866	282105	NW	11	55	22	4	100.0									1984-04-26		DOW CHEMICAL #370-3	Industrial	New Well	Rotary	No Chemistry
867	282106	NW	11	55	22	4	94.8									1984-04-25		DOW CHEMICAL #370-2	Industrial	New Well	Rotary	No Chemistry
868	282117	SE	10	55	22	4	25.9									1984-05-04		DOW CHEMICAL #150-2	Industrial	New Well	Rotary	No Chemistry
869	289172	EH	7	56	21	4	30.5									1997-09-06	1997-09-06	I.O.L. #1	Industrial	Test Hole-Decommission	Rotary	No Chemistry
870	289173	EH	17	56	21	4	15.2	11.9	13.4							1997-09-09	1997-09-09	I.O.L. #6	Industrial	Test Hole-Decommission	Rotary	No Chemistry
871	289174	EH	17	56	21	4	13.4									1997-09-08	1997-09-08	I.O.L. #5	Industrial	Test Hole-Decommission	Rotary	No Chemistry
872	289175	EH	17	56	21	4	14.9	11.9	14.9							1997-09-06	1997-09-06	I.O.L. #2	Industrial	Test Hole-Decommission	Rotary	No Chemistry
873	289176	EH	17	56	21	4	18.3	15.8	17.4							1997-09-07	1997-09-07	I.O.L. #3	Industrial	Test Hole-Decommission	Rotary	

Water Well Records Within the Study Area

WELL ID	LOCATION				WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE		WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
	LSID	SECTION	TOWNSHIP	RANGE		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
892	1270420	6	14	55	22	4	39.6					37.5	39.0			2017-12-01		KEYERA ENERGY	Investigation	Piezometer	Rotary - Mud	No Chemistry
893	242397	SE	10	55	22	4	12.2									1978-11-14		DOW CHEMICAL	Investigation	Test Hole	Cable Tool	No Chemistry
894	242398	NW	11	55	22	4	7.3	0.9	7.3							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
895	242399	NW	11	55	22	4	7.6	0.9	7.6							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
896	242400	NW	11	55	22	4	7.9	0.9	7.9							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
897	242401	NW	11	55	22	4	8.5	0.9	8.5							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
898	242402	NW	11	55	22	4	9.4	0.9	9.4							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
899	242403	NW	11	55	22	4	9.8	0.9	9.8							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
900	242404	NW	11	55	22	4	10.7	0.9	10.7							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
901	242405	NW	11	55	22	4	11.6	0.9	11.6							1978-11-22		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
902	242406	SE	11	55	22	4	13.1									1978-11-29		DOW CHEMICAL	Investigation	New Well	Cable Tool	No Chemistry
903	261846	NE	35	54	22	4	30.5									1976-08-05		ALTA ENV	Investigation	Test Hole	Unknown	No Chemistry
904	281168	SH	6	56	21	4	36.6									1969-05-11		ALTA ENV #0294E	Investigation	Test Hole	Drilled	No Chemistry
905	281169	9	33	56	21	4	19.8									1972-04-18		ALTA ENV #0792E	Investigation	Test Hole	Drilled	No Chemistry
906	281170	9	32	55	21	4	47.2									1970-05-09		ALTA ENV #0499E	Investigation	New Well	Drilled	Chemistry Exists
907	281173	SE	1	56	22	4	29.0					40.5	42.1	45.1	46.3	1969-05-11		ALTA ENV #0292E	Investigation	Test Hole	Drilled	No Chemistry
908	1270257	5	14	55	22	4	37.6					35.2	36.7			2013-12-20		KEYERA ENERGY LTD.	Monitoring	New Well	Rotary - Mud	No Chemistry
909	1270258	6	14	55	22	4	36.4					34.9	36.4			2013-12-18		KEYERA ENERGY LTD.	Monitoring	New Well	Rotary - Mud	No Chemistry
910	1270271	1	14	55	22	4	41.8	39.0	40.5			39.0	40.5			2014-09-30		KEYERA ENERGY LTD.	Monitoring	Piezometer	Rotary - Mud	No Chemistry
911	1270272	2	14	55	22	4	39.2	36.6	38.1			36.6	38.1			2014-10-02		KEYERA ENERGY LTD.	Monitoring	Piezometer	Rotary - Mud	No Chemistry
912	1270273	2	14	55	22	4	38.7	36.0	37.7			36.0	37.6			2014-10-03		KEYERA ENERGY LTD.	Monitoring	Piezometer	Rotary - Mud	No Chemistry
913	1420288	NW	14	56	21	4	42.7					35.1	38.1			2005-02-02		NCIA	Monitoring	New Well	Rotary	No Chemistry
914	1420299	SW	31	54	22	4	32.0					25.0	29.6			2005-01-25		NCIA	Monitoring	New Well	Rotary	No Chemistry
915	1420305	NW	31	55	21	4	42.7					31.1	37.2			2005-01-28		NCIA	Monitoring	Test Hole	Rotary	No Chemistry
916	1420309	NE	33	55	21	4	44.8					35.7	41.8			2005-01-27		NCIA	Monitoring	New Well	Rotary	No Chemistry
917	1420313	SE	4	55	22	4	36.6					26.5	31.1			2005-02-03		NCIA	Monitoring	New Well	Rotary	No Chemistry
918	1420564	NW	19	54	22	4	38.1					27.7	34.4			2005-01-24		N C I A	Monitoring	New Well	Rotary	No Chemistry
919	1795605	SW	36	55	21	4	115.8	91.4	115.8							2018-11-15		SULPHUR MIDSTREAM	Monitoring	New Well	Rotary - Mud	No Chemistry
920	2093187	1	35	56	21	4	8.4					4.6	7.6			2008-11-10		AMEC EARTH & ENVIRONMENT	Monitoring	New Well	Auger	No Chemistry
921	2093188	1	35	56	21	4	13.0					9.8	12.8			2008-11-10		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
922	2093213	1	35	56	21	4	8.4					4.8	7.8			2008-11-11		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
923	2093222	1	35	56	21	4	10.0					7.0	10.0			2008-09-18		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
924	2093223	1	35	56	21	4	9.8					6.8	9.8			2008-09-19		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
925	2093224	1	35	56	21	4	12.0					9.0	12.0			2008-09-19		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
926	2093225	1	35	56	21	4	12.0					7.0	10.0			2008-09-19		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
927	2093226	1	35	56	21	4	13.1					7.7	10.7			2008-09-22		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
928	2093227	1	35	56	21	4	9.9					5.2	8.2			2007-12-13		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
929	2093228	1	35	56	21	4	13.1					8.5	11.5			2008-09-22		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
930	2093229	1	35	56	21	4	13.0					7.1	10.1			2008-11-10		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
931	2093230	1	35	56	21	4	12.0					7.0	10.0			2008-09-19		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
932	2093232	1	35	56	21	4	8.4					5.0	8.0			2008-09-18		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
933	2093233	1	35	56	21	4	8.4					5.2	8.2			2007-12-13		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
934	2093235	1	35	56	21	4	12.5					9.0	12.0			2008-09-18		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
935	2093241	1	35	56	21	4	8.4					4.6	7.6			2008-11-11		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
936	2093243	1	35	56	21	4	11.5					7.1	10.1			2007-12-13		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
937	2093244	1	35	56	21	4	9.9					6.8	9.9			2007-12-13		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
938	2093249	1	35	56	21	4	8.4					5.2	8.2			2007-12-14		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
939	2093250	1	35	56	21	4	8.4					5.2	8.2			2007-12-14		AMEC EARTH & ENVIRONMENTAL	Monitoring	New Well	Auger	No Chemistry
940	261254	SE	10	55	22	4	8.5									1978-11-08		DOW CHEMICAL #MONCTOUNGWELL	Monitoring	New Well	Cable Tool	No Chemistry
941	261261	8	10	55	22	4	7.9									1978-11-14		DOW CHEMICAL LTD #8	Monitoring	Test Hole	Cable Tool	No Chemistry
942	261265	7	10	55	22	4	33.5									1978-11-08		DOW CHEMICAL #6 MONITORING	Monitoring	Test Hole	Cable Tool	No Chemistry
943	261271	NW	10	55	22	4	16.8					13.4	16.5			1989-10-24		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
944	261281	NW	10	55	22	4	18.0					13.7	16.8			1989-10-21		DOW CHEMICAL #1 MONITOR	Monitoring	Test Hole	Rotary	No Chemistry
945	261285	NW	10	55	22	4	16.2					13.1	16.2			1989-10-26		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
946	261294	NW	10	55	22	4	16.5					13.4	16.5			1989-10-26		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
947	261297	NW	10	55	22	4	18.0					14.9	18.0			1989-10-26		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
948	261302	10	10	55	22	4	4.9									1979-04-09		DOW CHEMICAL #21	Monitoring	Test Hole	Cable Tool	No Chemistry
949	261321	10	10	55	22	4	5.8									1979-04-09		DOW CHEMICAL #22 MONITORING V	Monitoring	Test Hole	Cable Tool	No Chemistry
950	261340	9	10	55	22	4	5.8									1979-04-09		DOW CHEMICAL	Monitoring	Test Hole	Cable Tool	No Chemistry
951	261414	NW	11	55	22	4	36.6					34.1	35.7			1980-08-27		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
952	261420	NW	11	55	22	4	39.6					36.0	37.5			1980-08-25		DOW CHEMICAL	Monitoring	Test Hole	Rotary	No Chemistry
953	261423	NE	11	55	22	4	39.6									1978-11-27		DOW CHEMICAL #10 MONITORING V	Monitoring	Test Hole	Cable Tool	No Chemistry
954	261427	NE	11	55	22	4	7.3	0.9	7.3							1978-11-22		DOW CHEMICAL #12 MONITORING V	Monitoring	Test Hole	Cable Tool	No Chemistry
955	261428	10	11	55	22	4	7.3	0.9	7.3							1978-11-22		DOW CHEMICAL #13 MONITORING V	Monitoring	Test Hole	Cable Tool	No Chemistry
956	261460	SW	14	55	22	4	6.1					4.6	6.1					DOME PETRO#BRINE UGS PITSITE	Monitoring	Chemistry	Unknown	Chemistry Exists
957	261475	SW	14	55	22	4	6.1					4.6	6.1					DOME PETRO#BRINE UGS PITSITE	Monitoring	Chemistry	Unknown	Chemistry Exists
958	261485	SW	14	55	22	4	6.1					4.6	6.1					DOME PETRO#UGS@BRINEPITSITE	Monitoring	Chemistry	Unknown	Chemistry Exists
959	261489	SW	14	55	22	4	6.1					4.6	6.1					DOME PETRO#UGS@BRINEPITSITE	Monitoring	Chemistry	Unknown	Chemistry Exists
960	263387	1	5	56	21	4	42.1	39.3	42.1							1982-04-27		CAN BADGER CO LTD #7	Monitoring	New Well	Rotary	No Chemistry
961	263397	1	5	56	21	4	45.7	38.1	39.6							1982-03-30	1982-03-30	CAN BADGER CO LTD	Monitoring	aw Well-Decommission	Rotary	No Chemistry
962	263410	1	5	56	21	4	47.2	38.1	41.1							1982-04-06		CAN BADGER CO LTD #2	Monitoring	New Well	Rotary	No Chemistry
963	263417	1	5	56	21	4	61.0	45.7	61.0							1982-04-08		CAN BADGER CO LTD #3	Monitoring	New Well	Rotary	No Chemistry

Water Well 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					
973	264050	SE	20	56	21	4	43.0												IMPERIAL OIL #3B	Monitoring	Chemistry	Unknown	Chemistry Exists
974	264054	SE	20	56	21	4	2.1												IMPERIAL OIL #5F	Monitoring	Chemistry	Unknown	Chemistry Exists
975	264056	SE	20	56	21	4	43.3												IMPERIAL OIL #5A	Monitoring	Chemistry	Unknown	Chemistry Exists
976	264061	SE	20	56	21	4	15.2												IMPERIAL OIL #6C	Monitoring	Chemistry	Unknown	Chemistry Exists
977	264075	SE	20	56	21	4	7.3												IMPERIAL OIL #5D	Monitoring	Chemistry	Unknown	Chemistry Exists
978	264078	SE	20	56	21	4	5.5												IMPERIAL OIL #7	Monitoring	Chemistry	Unknown	Chemistry Exists
979	264081	SE	20	56	21	4	5.5												IMPERIAL OIL #10	Monitoring	Chemistry	Unknown	Chemistry Exists
980	264086	SE	20	56	21	4	4.3												IMPERIAL OIL #8	Monitoring	Chemistry	Unknown	Chemistry Exists
981	264089	SE	20	56	21	4	4.3												IMPERIAL OIL #5H	Monitoring	Chemistry	Unknown	Chemistry Exists
982	264094	SE	20	56	21	4	4.3												IMPERIAL OIL #5E	Monitoring	Chemistry	Unknown	Chemistry Exists
983	264096	SE	20	56	21	4	4.0												IMPERIAL OIL #4A	Monitoring	Chemistry	Unknown	Chemistry Exists
984	264098	SE	20	56	21	4	4.0												IMPERIAL OIL #5G	Monitoring	Chemistry	Unknown	Chemistry Exists
985	264103	SE	20	56	21	4	3.0												IMPERIAL OIL #9	Monitoring	Chemistry	Unknown	Chemistry Exists
986	42021	13	24	56	21	4	4.6						3.0	4.6			1991-09-25		ALTA ENV	Monitoring	New Well	Rotary	No Chemistry
987	101384	NW	32	54	22	4	0.0												FT SASK. TOWN OF #WELL 1	Municipal	Unknown	Unknown	No Chemistry
988	1495323	NE	12	56	21	4	38.1						33.2	36.3			2007-08-22		STRATHCONA COUNTY / UMA	Municipal	New Well	Rotary	No Chemistry
989	156873	NW	9	55	22	4	0.0												U.M.O.L.-C.R.N.E.W.S.	Municipal	Chemistry	Not Applicable	No Chemistry
990	260180	4	17	54	22	4	29.0										1972-04-22		ALTA ENV/WATER RES	Municipal	Unknown	Drilled	No Chemistry
991	260416	NH	32	54	22	4	18.6													Municipal	New Well	Drilled	No Chemistry
992	263723	16	12	56	21	4	42.7						29.3	30.8			1975-11-06		BRUDERHEIM, TOWN OF #11-75	Municipal	New Well	Unknown	Chemistry Exists
993	263728	16	12	56	21	4	42.7						35.7	37.2			1975-10-03		BRUDERHEIM, TOWN OF #9-75	Municipal	New Well	Unknown	Chemistry Exists
994	263729	16	12	56	21	4	42.7						33.8	37.2			1975-11-04		BRUDERHEIM, TOWN OF #10-75	Municipal	New Well	Unknown	Chemistry Exists
995	263738	1	13	56	21	4	43.6	30.8	38.4								1975-07-16		BRUDERHEIM, TOWN OF #6-75 PUM	Municipal	New Well	Unknown	Chemistry Exists
996	263821	5	13	56	21	4	48.8						41.8	43.0			1975-11-11		BRUDERHEIM, TOWN OF #14-75	Municipal	New Well	Unknown	Chemistry Exists
997	263828	16	13	56	21	4	36.6						31.1	32.3			1975-11-10		BRUDERHEIM, TOWN OF #13-75	Municipal	New Well-Decommission	Unknown	Chemistry Exists
998	263912	9	14	56	21	4	49.4										1975-07-16		BRUDERHEIM, TOWN OF	Municipal	New Well	Unknown	No Chemistry
999	264233	15	21	56	21	4	42.7						34.1	35.4			1975-11-07		BRUDERHEIM, TOWN OF #12-75	Municipal	New Well	Unknown	Chemistry Exists
1000	263789	1	13	56	21	4	35.7	34.4	35.7								1975-07-16		BRUDERHEIM, TOWN OF	Municipal & Observation	New Well	Unknown	No Chemistry
1001	1270377	1	27	55	21	4	61.0						36.0	42.1			2016-06-10		INTERCHEM CANADA	Observation	New Well	Combination	No Chemistry
1002	1300177	12	5	56	21	4	43.0						30.5	39.9			2007-04-16		SHELL CANADA/THURBER ENG.	Observation	Piezometer	Rotary	No Chemistry
1003	1420001	NE	10	55	22	4	19.2						16.2	19.2			2005-02-10		AGRIUM PLANT-FORT SASKATCHEW	Observation	New Well	Rotary	No Chemistry
1004	1420003	NW	5	56	21	4	44.2						38.1	44.2			2004-09-24		SHELL CANADA	Observation	New Well	Rotary	No Chemistry
1005	1420007	SW	24	55	22	4	43.9						37.8	43.9			2005-05-15		NCIA	Observation	New Well	Rotary	No Chemistry
1006	1420016	NE	10	55	22	4	17.4						14.3	17.4			2005-02-10		AGRIUM PLANT-FORT SASKATCHEW	Observation	New Well	Rotary	No Chemistry
1007	1420018	NE	3	56	21	4	48.8										2005-01-20	2005-01-20	NCIA	Observation	1st Hole-Decommission	Rotary	No Chemistry
1008	1420020	SE	29	55	21	4	33.5						30.5	33.5			2005-02-03		NCIA	Observation	New Well	Rotary	No Chemistry
1009	1420023	NE	18	55	21	4	38.7						34.1	38.7			2005-01-31		NCIA	Observation	New Well	Rotary	No Chemistry
1010	1420030	NE	32	54	22	4	30.5						21.6	26.2			2005-01-26		NCIA	Observation	New Well	Rotary	No Chemistry
1011	1420050	NW	24	54	23	4	19.8						15.5	19.8			2005-01-24		NCIA	Observation	New Well	Rotary	No Chemistry
1012	1420097	9	10	56	21	4	36.6										2004-03-24	2004-03-24	STANTEC CONSULTING LTD	Observation	1st Hole-Decommission	Unknown	No Chemistry
1013	1420104	SW	10	55	22	4	15.8						12.8	15.8			2005-11-10		AGRIUM	Observation	New Well	Rotary	No Chemistry
1014	1420115	NE	10	55	22	4	24.7						18.6	24.7			2005-02-09		AGRIUM PLANT - FT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
1015	1420135	NE	10	55	22	4	18.3						15.2	18.3			2005-02-10		AGRIUM PLANT	Observation	New Well	Rotary	No Chemistry
1016	1420143	NE	10	55	22	4	19.2						15.2	18.3			2005-02-11		AGRIUM PLANT-FT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
1017	1420152	SW	25	55	22	4	48.8										2005-01-21	2005-02-21	NCIA	Observation	1st Hole-Decommission	Rotary	No Chemistry
1018	1420161	SW	15	55	22	4	36.6										2005-01-18	2005-01-18	NCIA	Observation	ry Hole-Decommission	Rotary	No Chemistry
1019	1420165	NW	4	55	22	4	12.2										2005-01-18	2005-01-18	NCIA	Observation	ry Hole-Decommission	Rotary	No Chemistry
1020	1420173	SW	26	55	22	4	30.5										2005-01-18	2005-01-18	NCIA	Observation	ry Hole-Decommission	Rotary	No Chemistry
1021	1420174	SE	30	55	21	4	47.2										2005-01-19	2005-01-19	NCIA	Observation	ry Hole-Decommission	Rotary	No Chemistry
1022	1420181	SE	36	55	22	4	12.2										2005-01-19	2005-01-19	NCIA	Observation	ry Hole-Decommission	Rotary	No Chemistry
1023	1420197	SW	34	55	21	4	54.9										2005-01-20	2005-01-20	NCIA	Observation	1st Hole-Decommission	Rotary	No Chemistry
1024	1420210	15	9	56	21	4	48.8						32.0	53.3			2004-03-22		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
1025	1420217	13	10	56	21	4	48.8						38.7	44.8			2004-03-23		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
1026	1420224	16	10	56	21	4	48.8						40.2	43.3			2004-03-24		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
1027	1420228	4	10	56	21	4	36.6						33.5	36.6			2004-03-23		STANTEC CONSULTING LTD	Observation	New Well	Rotary	No Chemistry
1028	1420242	NW	15	56	21	4	42.7						36.0	40.5			2005-02-02		NCIA	Observation	New Well	Rotary	No Chemistry
1029	1420259	SE	29	54	22	4	36.6										2005-01-17	2005-01-17	NCIA	Observation	1st Hole-Decommission	Rotary	No Chemistry
1030	1420418	NE	10	55	22	4	25.0						21.9	25.0			2005-02-09		AGRIUM PLANT, FT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
1031	1420419	NE	10	55	22	4	30.5						21.9	25.0			2005-02-09		AGRIUM PLANT, FT SASKATCHEWA	Observation	New Well	Rotary	No Chemistry
1032	1420432	SW	32	55	21	4	17.1						14.0	17.1			2006-09-08		SHELL SCOTTFORD REFINERY	Observation	Piezometer	Rotary	No Chemistry
1033	1420433	SW	32	55	21	4	45.7						38.7	41.8			2006-09-08		SHELL SCOTTFORD REFINERY	Observation	Piezometer	Rotary	No Chemistry

Water Well Records Within the Study Area

WELL ID	LOCATION					WELL DEPTH (m)	PERFORATIONS 1 (m)		PERFORATIONS 2 (m)		PERFORATIONS 3 (m)		SCREENINGS 1 (m)		SCREENINGS 2 (m)		DATE		WELL OWNER	PROPOSED USE	TYPE OF WORK	DRILL METHOD	CHEMISTRY
	LSID	SECTION	TOWNSHIP	RANGE	MERIDIAN		FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	COMPLETED	ABANDONED					
1054	234510	NW	30	56	20	4	51.8										1969-05-12		ALTA ENV #0298E	Observation	Test Hole	Unknown	No Chemistry
1055	234526	SE	30	56	20	4	37.5										1969-05-13		ALTA ENV #0299E	Observation	Test Hole	Unknown	No Chemistry
1056	234530	13	30	56	20	4	10.1						8.5	10.1			1985-03-27		ALTA ENV #2342E	Observation	Test Hole	Rotary	Chemistry Exists
1057	234530	13	30	56	20	4	10.1												ALBERTA ENVIRONMENT	Observation	Old Well-Yield	Unknown	Chemistry Exists
1058	234532	13	30	56	20	4	36.9						35.4	36.9			1985-03-26		ALBERTA ENVIRONMENT	Observation	Test Hole	Rotary	No Chemistry
1059	234538	13	30	56	20	4	10.1												ALBERTA ENVIRONMENT	Observation	Old Well-Yield	Unknown	Chemistry Exists
1060	234538	13	30	56	20	4	10.1						8.5	10.1			1985-03-27		ALBERTA ENVIRONMENT	Observation	Test Hole	Rotary	Chemistry Exists
1061	234545	13	30	56	20	4	48.2						46.3	47.9			1985-03-22		ALBERTA ENVIRONMENT	Observation	Test Hole	Rotary	No Chemistry
1062	234548	13	30	56	20	4	78.9										1985-03-19		ALBERTA ENVIRONMENT	Observation	Test Hole	Rotary	Chemistry Exists
1063	234548	13	30	56	20	4	78.9												ALBERTA ENVIRONMENT	Observation	Old Well-Yield	Unknown	Chemistry Exists
1064	234549	13	30	56	20	4	72.5										1985-03-11		ALTA ENV #2334E	Observation	Test Hole-Decommission	Rotary	No Chemistry
1065	260051	NE	8	54	22	4	38.1						6.4	12.8			1977-04-14		KENNEDY	Observation	New Well	Rotary	No Chemistry
1066	260458	SW	36	54	22	4	13.7										1988-04-07			Observation	Test Hole	Bored	No Chemistry
1067	262034	9	33	54	23	4	56.4										1972-10-06		ALTA ENV #0886E	Observation	Test Hole	Unknown	No Chemistry
1068	263831	SW	1	56	22	4	19.8												ALTA ENV/WATER RES #0293E	Observation	Test Hole	Rotary	No Chemistry
1069	286110	1	28	55	21	4	21.3										1969-06-24		#HOLE 670-H	Observation	Test Hole	Auger	No Chemistry
1070	286112	13	22	55	21	4	30.8										1969-06-24		#HOLE 671-H	Observation	Test Hole	Auger	No Chemistry
1071	286117	13	28	55	21	4	29.3										1969-06-25		#HOLE 669-H	Observation	Test Hole	Auger	No Chemistry
1072	42022	4	14	56	21	4	6.1						3.1	4.6			1991-09-25		ALTA ENV/CHMLAR, W.	Observation	New Well	Rotary	No Chemistry
1073	83369	NE	6	55	21	4	15.2										1988-04-08		ALTA ENV	Observation	Test Hole	Auger	No Chemistry
1074	83370	SW	7	55	21	4	42.7										1976-08-06		ALTA ENV #1619BE	Observation	Test Hole	Rotary	No Chemistry
1075	83472	12	22	55	21	4	30.8										1969-06-24		ALTA AGRICULTURE	Observation	Test Hole	Rotary	No Chemistry
1076	1421047	SW	36	54	22	4	10.1						7.6	9.1			2010-06-25		REPERIO RESOURCES	Other	New Well	Rotary - Mud	No Chemistry
1077	1421611	SW	14	55	22	4	45.7						33.8	38.4	38.4	44.5	2014-07-24		KEYERA ENERGY	Other	New Well	Rotary - Mud	No Chemistry
1078	1421680	SW	14	55	22	4	46.6						33.9	39.3			2014-12-04		KEYERA ENERGY	Other	New Well	Rotary - Mud	No Chemistry
1079	1476845	6	34	55	21	4	119.8										2015-11-04		SKYSTONE ENGINEERING	Other	Other	Unknown	No Chemistry
1080	1476846	6	34	55	21	4	119.8										2015-11-07		SKYSTONE ENGINEERING	Other	Other	Rotary - Mud	No Chemistry
1081	1476847	5	34	55	21	4	94.5										2015-11-08		SKYSTONE ENGINEERING	Other	Other	Rotary - Mud	No Chemistry
1082	1795266	SE	32	56	21	4	3.6										2010-09-29		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Other	No Chemistry
1083	1795267	SE	32	56	21	4	12.5										2010-09-28		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1084	1795268	SE	32	56	21	4	23.7										2010-09-30		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Bored	No Chemistry
1085	1795269	SE	32	56	21	4	14.5										2010-09-30		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1086	1795270	NW	33	56	21	4	13.7										2010-10-01		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1087	1795271	NW	33	56	21	4	14.3										2010-10-01		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1088	1795277	NW	33	56	21	4	14.3										2010-10-04		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1089	1795278	SW	33	56	21	4	8.8						32.0	33.5			2010-10-05		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1090	1795279	SE	33	56	21	4	33.5										2010-10-07		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1091	1795280	NE	33	56	21	4	28.0										2010-10-12		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1092	1795281	NE	34	56	21	4	30.7										2010-10-06		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1093	1795282	SE	4	57	21	4	27.7										2010-10-06		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1094	1795283	NE	33	56	21	4	16.8										2010-10-05		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1095	1795285	SE	28	56	21	4	10.3										2010-10-04		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1096	1795286	15	34	56	21	4	13.3										2010-10-07		TOTAL E & P CANADA LTD.	Other	sting Well-Decommissio	Unknown	No Chemistry
1097	1888893	4	18	56	21	4	48.8						30.5	33.5	33.5	36.6	2009-06-29		ACCESS PIPELINES	Other	New Well	Rotary	No Chemistry
1098	196962	8	22	54	22	4	150.9										1975-05-29		ARC# TH 3-75	Other	Coal Test Hole	Unknown	No Chemistry
1099	261523	12	17	55	22	4	10.7										1935-01-01		NORMANDEAU, J	Other	Federal Well Survey	Hand Dug	No Chemistry
1100	1325000	NE	35	54	22	4	51.8										1973-09-01		SIMMONS, HECTOR	Stock	New Well	Cable Tool	No Chemistry
1101	154375	NE	3	56	22	4	59.4	45.7	57.9								1985-04-17		KUGLER, IRWIN	Stock	New Well	Rotary	No Chemistry
1102	159190	NE	17	55	21	4	82.3										1976-05-28		SCOTFORD COLONY#PUMP HOUSE	Stock	New Well	Rotary	Chemistry Exists
1103	159197	NE	34	55	21	4	54.9	46.6	52.7								1991-09-29		BERG, RON	Stock	New Well	Rotary	No Chemistry
1104	159288	SE	5	55	22	4	13.4	8.2	12.2								1991-07-10		GODBOUT, ROMEO	Stock	Reconditioned	Bored	No Chemistry
1105	167849	NE	17	55	21	4	14.9										1992-07-10		SCOTFORD COLONY	Stock	aw Well-Decommission	Bored	No Chemistry
1106	167850	NE	17	55	21	4	20.4	12.2	13.1	19.5	20.4						1992-07-12		SCOTFORD COLONY	Stock	New Well	Bored	No Chemistry
1107	1690056	NW	9	56	21	4	11.6	3.0	9.1								2002-07-09		GAUMONT, CONARD	Stock	New Well	Bored	No Chemistry
1108	185985	SW	17	56	20	4	67.1	48.8	61.0								1992-10-28		SCHRAM, BARRY	Stock	New Well	Rotary	No Chemistry
1109	1912209	SW	8	56	20	4	85.3										2013-10-09		SCHRAM, BARRY	Stock	ry Hole-Decommission	Rotary - Mud	No Chemistry
1110	1912211	SW	8	56	20	4	97.5	91.4	97.5								2013-10-13		SCHRAM, BARRY	Stock	New Well	Rotary - Mud	No Chemistry
1111	1912296	SW	17	56	20	4	91.4	79.2	85.3								2014-11-05		SCHRAM, BARRY	Stock	New Well	Rotary - Mud	No Chemistry
1112	260183	NW	18	54	22	4	36.6										1974-02-01		SMITH, HARRY	Stock	New Well	Cable Tool	No Chemistry
1113	260184	SE	19	54	22	4	28.3						26.5	28.0			1968-04-27		GALLOWAY, R.	Stock	New Well	Drilled	No Chemistry
1114	260190	SE	19	54	22	4	28.7										1925-01-01		LOREN, J.	Stock	New Well	Combination	No Chemistry
1115	260222	SW	26	54	22	4	54.9										1978-06-08		GALLOWAY, ED	Stock	New Well	Rotary	No Chemistry
1116	261227	9	7	55	22	4	7.9										1930-01-01		VILLENEUVE, E.	Stock	Federal Well Survey	Hand Dug	No Chemistry
1117	261236	3	8	55	22	4	105.5										1924-01-01		HOULE, O.	Stock	Federal Well Survey	Drilled	No Chemistry
1118	261456	16	13	55	22	4	103.6										1924-01-01		KREPS, J.	Stock	Federal Well Survey	Drilled	No Chemistry
1119	261550	4	18	55	22	4	118.9										1930-01-01		VILLENEUVE, M	Stock	Federal Well Survey	Drilled	No Chemistry
1120	261611	8	19	55	22	4	5.6										1931-01-01		ROCK, L.C.	Stock	Federal Well Survey	Hand Dug	No Chemistry
1121	261753	8	29	55	22	4	22.9										1933-01-01		LANGLOIS, L	Stock	Federal Well Survey	Bored	No Chemistry
1122	261833	NE	14	56	21	4	11.3										1989-04-19		HODGSON, GEORGE	Stock	Deepened	Bored	No Chemistry
1123	262001	2	33	54	23	4	152.4										1931-01-01		DORLAND	Stock	Federal Well Survey	Drilled	No Chemistry
1124	262022	16	33	54	23	4	15.2										1916-01-01		WILSON	Stock	Federal Well Survey	Bored	No Chemistry</

Water Well Records Within the Study Area

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Water Well 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							
1297	260374	NW	29	54	22	4	35.1												VAN DEN BERG	Unknown	Chemistry	Unknown	Chemistry Exists		
1298	260381		29	54	22	4	15.5											1965-05-01	HANFORD, R.M.	Unknown	New Well	Bored	No Chemistry		
1299	260385	SE	30	54	22	4	67.1												LAINPRECHT, H.	Unknown	Chemistry	Unknown	Chemistry Exists		
1300	260389	NW	31	54	22	4	18.9												#TH 1	Unknown	Test Hole	Unknown	No Chemistry		
1301	260391	NW	31	54	22	4	16.2												#TH 2	Unknown	Test Hole	Unknown	No Chemistry		
1302	260392	NW	31	54	22	4	16.8												#TH 3	Unknown	Test Hole	Unknown	No Chemistry		
1303	260394	NW	31	54	22	4	15.8												#TH 4	Unknown	Test Hole	Unknown	No Chemistry		
1304	260395	NW	31	54	22	4	23.2												#TH 5	Unknown	Test Hole	Unknown	No Chemistry		
1305	260398	SW	32	54	22	4	71.6												SEWCHUK, S.	Unknown	Chemistry	Unknown	Chemistry Exists		
1306	260399	SW	32	54	22	4	0.0												SCOTFORD COLONY	Unknown	Chemistry	Unknown	No Chemistry		
1307	260400	SW	32	54	22	4	9.1												KOHUT, WM	Unknown	Chemistry	Drilled	Chemistry Exists		
1308	260401	SW	32	54	22	4	12.8												DONALDSON, ARTHUR	Unknown	Chemistry	Unknown	Chemistry Exists		
1309	260405	NW	32	54	22	4	15.8											1927-01-01	HOPPER#N SASK RIVER	Unknown	New Well	Drilled	No Chemistry		
1310	260413	NW	32	54	22	4	0.0												WALKER, L.	Unknown	Chemistry	Unknown	No Chemistry		
1311	260415	NW	32	54	22	4	0.0												SHERITT GORDON MINES	Unknown	Chemistry	Unknown	No Chemistry		
1312	260431	SW	34	54	22	4	49.4													Unknown	New Well	Drilled	No Chemistry		
1313	260436	SW	34	54	22	4	0.0												EMONTS, GERALD	Unknown	Chemistry	Unknown	No Chemistry		
1314	260462	EH	36	54	22	4	12.3												LAMOUREUX, JIM	Unknown	Chemistry	Unknown	No Chemistry		
1315	260942	NW	13	54	23	4	69.5												ARMSTRONG, E.	Unknown	Other	Drilled	No Chemistry		
1316	261035	SE	1	55	22	4	69.5												ATKINSON, H	Unknown	Well Inventory	Unknown	No Chemistry		
1317	261038	SE	1	55	22	4	54.9												HANSEN, P E	Unknown	New Well	Unknown	No Chemistry		
1318	261055	NW	28	54	22	4	36.0													Unknown	New Well	Drilled	No Chemistry		
1319	261166	NW	6	55	22	4	57.9												JESKE, O	Unknown	Test Hole	Rotary	No Chemistry		
1320	261432	SE	13	55	22	4	56.4												TATHAM, J	Unknown	New Well	Unknown	No Chemistry		
1321	261583	SW	25	54	23	4	39.6												1963-10-12	HANES, A	Unknown	New Well	Rotary	No Chemistry	
1322	261596	16	18	55	22	4	12.5												1964-10-23	LAMOUREUX, J A	Unknown	New Well	Bored	No Chemistry	
1323	261749	SE	1	55	23	4	4.6													Unknown	Unknown	Unknown	No Chemistry		
1324	261751	SE	1	55	23	4	29.6												1984-08-28	1984-08-28	SERNA, VICTOR	Unknown	sw Well-Decommission	Bored	No Chemistry
1325	262042	SE	34	54	23	4	81.4	24.4	42.7										1974-10-28	BELYEA, A.F.	Unknown	New Well	Unknown	Chemistry Exists	
1326	262078	NW	34	54	23	4	81.1												1954-07-01	SPEER, A.	Unknown	New Well	Drilled	No Chemistry	
1327	262257	SW	35	54	23	4	21.0												1977-11-12	1977-11-12	YUSKIW, N	Unknown	sting Well-Decommissio	Bored	No Chemistry
1328	262433	1	3	55	23	4	15.2													Unknown	Federal Well Survey	Bored	No Chemistry		
1329	263525	NE	5	56	21	4													2007-10-19	SHELL CANAD LIMITED	Unknown	sting Well-Decommissio	Unknown	Chemistry Exists	
1330	263554	NW	7	56	21	4	56.7													Unknown	Unknown	Unknown	No Chemistry		
1331	263560	SW	8	56	21	4													2007-11-01	SHELL CANADA - OIL SANDS	Unknown	sting Well-Decommissio	Unknown	Chemistry Exists	
1332	263661	9	11	56	21	4	66.4	32.9	36.0	36.9	37.8								1973-08-31	ANURATIL, J.	Unknown	Unknown	Unknown	No Chemistry	
1333	263852	SW	2	56	22	4														2010-12-07	NOEL, MAURICE	Unknown	sting Well-Decommissio	Unknown	Chemistry Exists
1334	263867	SW	3	56	22	4	54.9													2008-07-24	MELENKA, ALEX	Unknown	sting Well-Decommissio	Unknown	Chemistry Exists
1335	263992	SW	19	56	21	4	18.1													2016-06-08	NORTH WEST REDWATER PTR	Unknown	sting Well-Decommissio	Not Applicable	No Chemistry
1336	264091	SE	11	56	22	4	64.0	51.8	64.0										1973-10-10	SERINK, MIKE	Unknown	New Well	Rotary	Chemistry Exists	
1337	264141	SE	12	56	22	4	61.0													Unknown	Chemistry	Unknown	Unknown	Chemistry Exists	
1338	264168	SE	13	56	22	4	61.0													Unknown	Chemistry	Unknown	Unknown	Chemistry Exists	
1339	264193	NE	13	56	22	4	50.3													Unknown	Chemistry	Unknown	Unknown	Chemistry Exists	
1340	264390	SW	29	56	21	4	0.0													Unknown	Chemistry	Unknown	Unknown	Chemistry Exists	
1341	268135	SE	1	55	23	4	4.6													Unknown	Unknown	Unknown	Unknown	No Chemistry	
1342	268141	SE	1	55	23	4	4.6													Unknown	Unknown	Unknown	Unknown	No Chemistry	
1343	297410	SW	30	56	20	4														2015-07-28	SHILOH YOUTH RANCH	Unknown	sting Well-Decommissio	Unknown	No Chemistry
1344	297411	SW	30	56	20	4														2015-07-28	SHILOH YOUTH RANCH	Unknown	sting Well-Decommissio	Unknown	No Chemistry
1345	298285	NE	19	55	21	4	0.0														Unknown	sting Well-Decommissio	Not Applicable	No Chemistry	
1346	42021	13	24	56	21	4	4.6													1994-03-04	ALBERTA ENVIRONMENT	Unknown	Old Well-Yield	Unknown	No Chemistry
1347	42022	4	14	56	21	4	5.5														Unknown	Other	Unknown	Unknown	No Chemistry
1348	83442	SW	19	55	21	4	5.2													2008-11-03	WING, H.S.	Unknown	sting Well-Decommissio	Unknown	Chemistry Exists
1349	83445	SW	19	55	21	4	0.0														Unknown	Chemistry	Unknown	Unknown	No Chemistry
1350	83446	SW	19	55	21	4	3.7														Unknown	Chemistry	Unknown	Unknown	No Chemistry
1351	83468	5	22	55	21	4														2002-12-20	DZURNY, E.	Unknown	Chemistry	Unknown	No Chemistry
1352	83504	16	27	55	21	4	27.4													2012-10-30	ROCQUE, SHANE	Unknown	sting Well-Decommissio	Unknown	No Chemistry
1353	83507	1	28	55	21	4	21.3													2009-07-02	HEINRICH, S & D	Unknown	sting Well-Decommissio	Unknown	Chemistry Exists
1354	83508	13	28	55	21	4	29.3													1969-06-24	ALTA AGRICULTURE #670H	Unknown	Test Hole	Rotary	No Chemistry
1355	83529	NW	30	55	21	4														1969-06-25	ALTA AGRICULTURE #669H	Unknown	Test Hole	Rotary	No Chemistry
1356	83564	NE	35	55	21	4	11.0													2007-11-02	SHELL CANADA LIMITED	Unknown	sting Well-Decommissio	Unknown	No Chemistry
1357	83574	12	36	55	21	4	12.2													2009-07-01	CHICHAK, L.	Unknown	sting Well-Decommissio	Unknown	Chemistry Exists
1358	91497	4	6	56	20	4	7.0													1975-07-17	PROKOPCZAK, B.	Unknown	Test Hole	Auger	No Chemistry
1359	91501	1	7	56	20	4	27.4													1975-07-17	HYDROGEOLOGICAL CONSULT LTD	Unknown	Test Hole	Auger	No Chemistry
1360	9676120	2	34	54	23	4															Unknown	R3-DECONSTRUCTION	sting Well-Decommissio	Not Applicable	No Chemistry

* Data Source: Alberta Groundwater Information Centre, Alberta Water Well Information Database. Retrieved January 17, 2024, via Alberta Groundwater Information Centre web site.

* Date of Search: January 23, 2024

Appendix 2. Borehole Logs


Advisian

WorleyParsons Group

Borehole # MW-02B
PROJECT # 307075-01608-200
Project Name: 2016 Beverly Channel Groundwater Monitoring

Client: Northwest Capital Industry Association

Drilled by: Lakeland Drilling

Drilling Method: Mud-Rotary

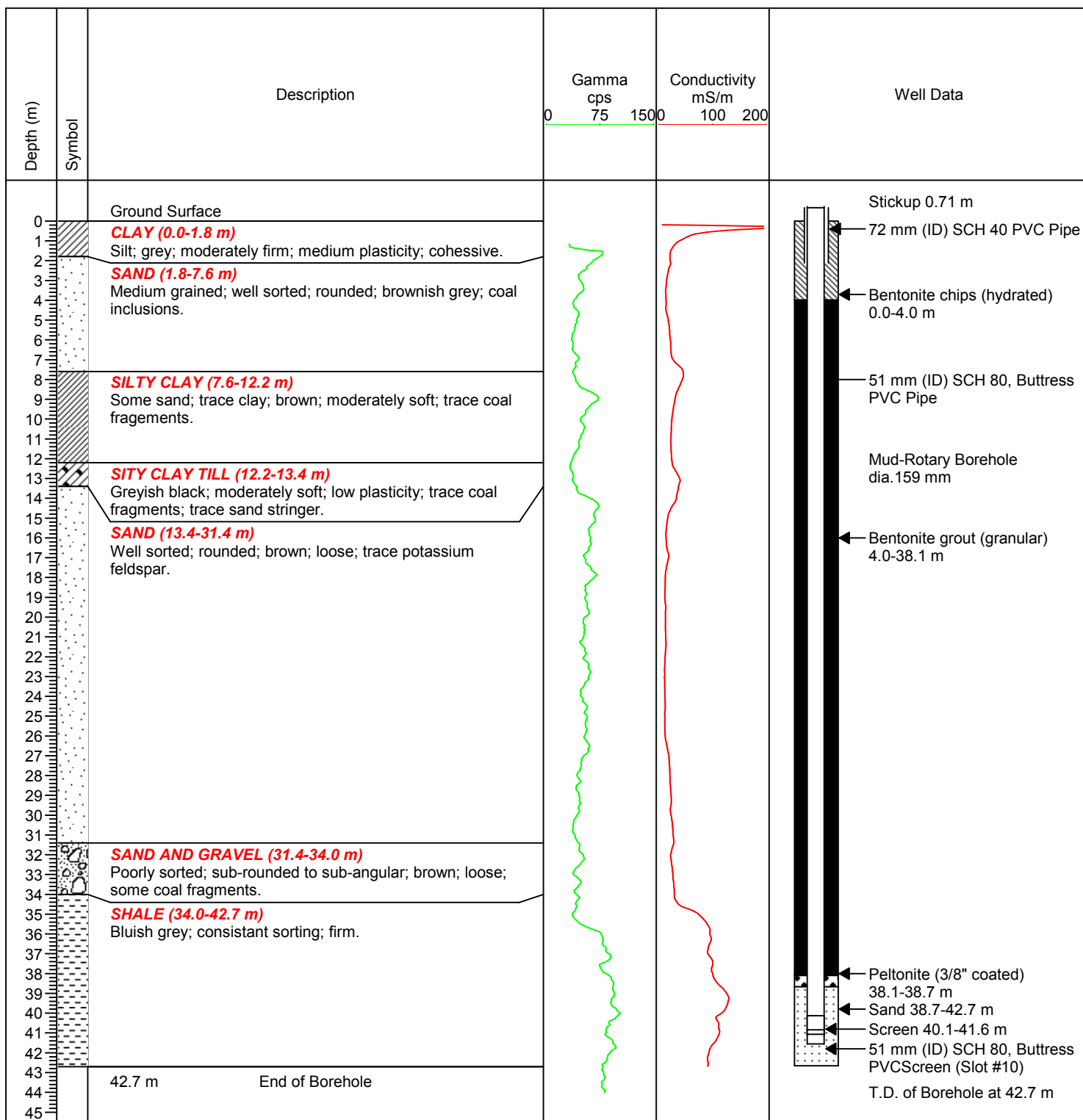
Drill Date: 02-Sep-2016

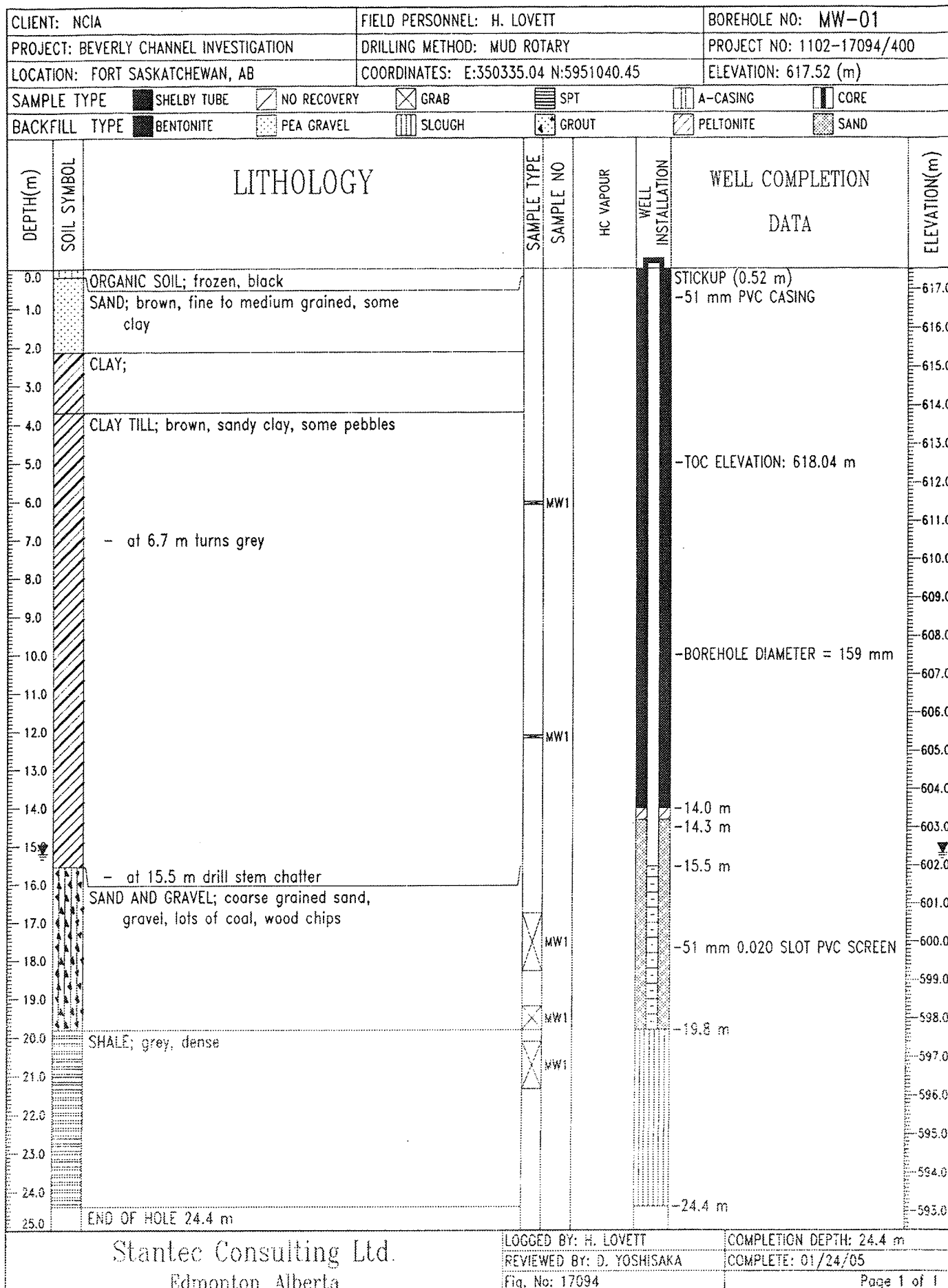
Logged by: Josh Malkin

Location: 14-19-054-22 W4M

Northing: 5950323.21 m

Easting: 50604.05 m

Elevation: 630.67 masl




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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ 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	629.0
2.0							-TOC ELEVATION: 631.31 m	628.0
3.0							-BOREHOLE DIAMETER = 159 mm	627.0
4.0								626.0
5.0								625.0
6.0								624.0
7.0		CLAY TILL; brown, sandy clay, silty, some pebbles, coal chips						623.0
8.0								622.0
9.0								621.0
10.0								620.0
11.0								619.0
12.0								618.0
13.0								617.0
14.0		SAND; brown, grey, speckled medium grained sand						616.0
15.0								615.0
16.0								614.0
17.0		CLAY; brown, sandy						613.0
18.0		SAND; grey, medium speckled sand						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								605.0

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

CLIENT: NCIA		FIELD PERSONNEL: H. LOVETT		BOREHOLE NO: MW-02	
PROJECT: BEVERLY CHANNEL INVESTIGATION		DRILLING METHOD: MUD ROTARY		PROJECT NO: 1102-17094/400	
LOCATION: FORT SASKATCHEWAN, AB		COORDINATES: E:352457.80 N:5950583.37		ELEVATION: 630.71 (m)	
SAMPLE TYPE		☒ SHELBY TUBE	☐ NO RECOVERY	☒ GRAB	☐ SPT
BACKFILL TYPE		☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT
		☐ A-CASING	☐ CORE	☐ 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								604.0
27.0		SAND AND GRAVEL; coarse grained sand and gravel, coal chips, wood						603.0
28.0								602.0
29.0		- at 29.0 m lots of chatter on drill stem						601.0
30.0			X	MW2				600.0
31.0							-51 mm 0.020 SLOT PVC SCREEN	599.0
32.0								598.0
33.0								597.0
34.0		SHALE; grey, dense						596.0
35.0								595.0
36.0			X	MW2				594.0
37.0								593.0
38.0		END OF HOLE 38.1 m						592.0
39.0								591.0
40.0								590.0
41.0								589.0
42.0								588.0
43.0								587.0
44.0								586.0
45.0								585.0
46.0								584.0
47.0								583.0
48.0								582.0
49.0								581.0
50.0								580.0

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


Advisian

WorleyParsons Group

Borehole # MW-02B
PROJECT # 307075-01608-200
Project Name: 2016 Beverly Channel Groundwater Monitoring

Client: Northwest Capital Industry Association

Drilled by: Lakeland Drilling

Drilling Method: Mud-Rotary

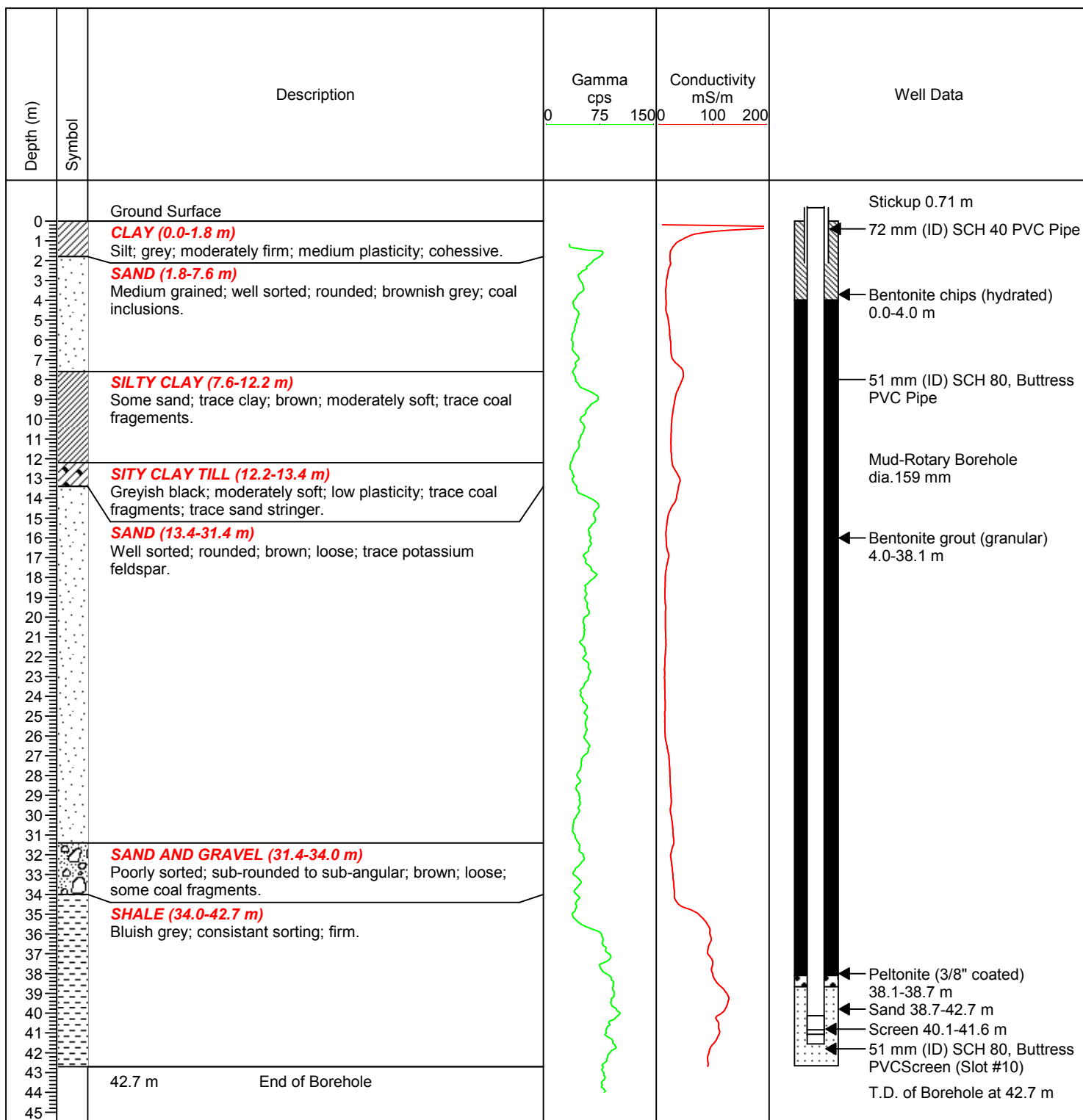
Drill Date: 02-Sep-2016

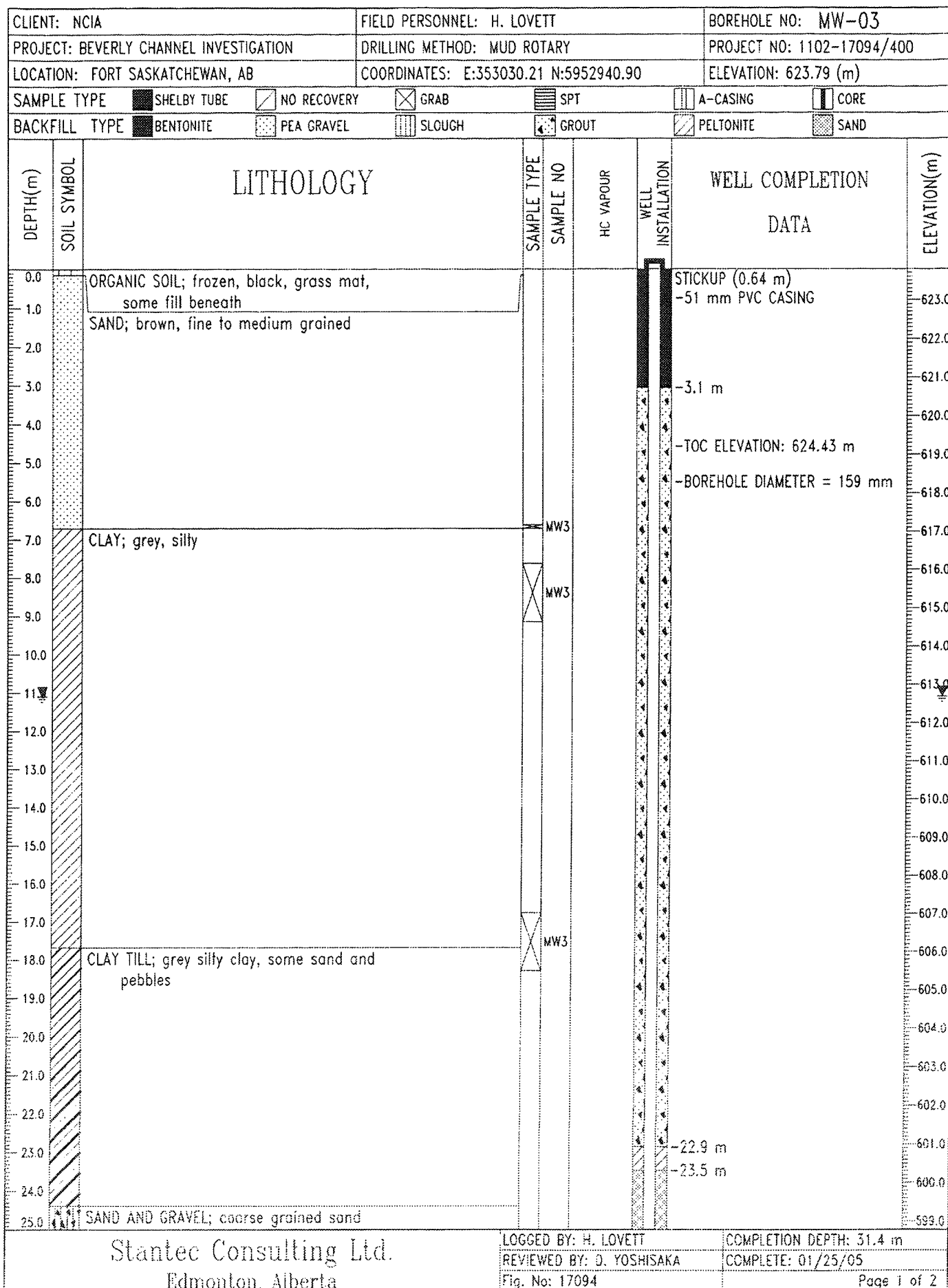
Logged by: Josh Malkin

Location: 14-19-054-22 W4M

Northing: 5950323.21 m

Easting: 50604.05 m

Elevation: 630.67 masl




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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ SAND

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

Stantec Consulting Ltd. Edmonton, Alberta		LOGGED BY: H. LOVETT REVIEWED BY: D. YOSHISAKA Fig. No: 17094	COMPLETION DEPTH: 31.4 m COMPLETE: 01/25/05 Page 2 of 2
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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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ SAND

DEPTH(m)	SOIL SYMBOL	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								602.0
19.0		- at 18.3 m back to medium to coarse grained grey/brown sand						601.0
20.0								600.0
21.0		SHALE; grey, clay		MW4				599.0
22.0		SAND; grey, medium to coarse grained		MW4				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	

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

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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0								-595.0
26.0		SHALE; grey					-26.2 m	-594.0
27.0								-593.0
28.0								-592.0
29.0								-591.0
30.0			☒	MW4				-590.0
31.0		END OF HOLE 30.5 m					-30.5 m	-589.0
32.0								-588.0
33.0								-587.0
34.0								-586.0
35.0								-585.0
36.0								-584.0
37.0								-583.0
38.0								-582.0
39.0								-581.0
40.0								-580.0
41.0								-579.0
42.0								-578.0
43.0								-577.0
44.0								-576.0
45.0								-575.0
46.0								-574.0
47.0								-573.0
48.0								-572.0
49.0								-571.0
50.0								

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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ 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								617.0
8.0		- from 7.3 to 10.7 m blue, silty clay						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 fill						605.0
20.0								604.0
21.0								603.0
22.0								602.0
23.0							-22.6 m	601.0
24.0		- well cemented from 23.2 to 25.0 m					-23.2 m	600.0
25.0								600.0

Stantec Consulting Ltd. Edmonton, Alberta		LOGGED BY: H. LOVETT REVIEWED BY: D. YGSHISAKA Fig. No: 17094	COMPLETION DEPTH: 37.5 m COMPLETE: 02/03/05
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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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0			X	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 aiot	X	MW				596.0
29.0							-28.4 m	595.0
30.0							-51 mm 0.020 SLOT PVC SCREEN	594.0
31.0								593.0
32.0		SHALE; grey, dense					-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		END OF HOLE 37.5 m					-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								

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

CLIENT: NCIA		FIELD PERSONNEL: H. LOVETT		BOREHOLE NO: MW-06	
PROJECT: BEVERLY CHANNEL INVESTIGATION		DRILLING METHOD: MUD ROTARY		PROJECT NO: 1102-17094/400	
LOCATION: FORT SASKATCHEWAN, AB		COORDINATES: E:361559.34 N:5958812.22		ELEVATION: 629.61 (m)	
SAMPLE TYPE		☒ SHELBY TUBE	☐ NO RECOVERY	☒ GRAB	☐ SPT
BACKFILL TYPE		☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT
		☐ A-CASING	☐ CORE		
		☐ 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	628.0
2.0								627.0
3.0		- at 3.1 m turns grey, silty					-3.1 m	626.0
4.0				MW6			-TOC ELEVATION: 630.28 m	625.0
5.0							-BOREHOLE DIAMETER = 159 mm	624.0
6.0								623.0
7.0				MW6				622.0
8.0		CLAY TILL; grey, silty, clay, some rocks and pebbles						621.0
9.0								620.0
10.0								619.0
11.0								618.0
12.0								617.0
13.0								616.0
14.0		- at 13.7 m becomes more sandy, firm						615.0
15.0								614.0
16.0								613.0
17.0								612.0
18.0								611.0
19.0								610.0
20.0								609.0
21.0								608.0
22.0								607.0
23.0		SAND; gray, black speckled, medium grained, some silt						606.0
24.0		CLAY; grey, sandy, silty						605.0
25.0		SAND;		MW6				605.0

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

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

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

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

CLIENT: NCIA		FIELD PERSONNEL: H. LOVETT		BOREHOLE NO: MW-07	
PROJECT: BEVERLY CHANNEL INVESTIGATION		DRILLING METHOD: MUD ROTARY		PROJECT NO: 1102-17094/400	
LOCATION: FORT SASKATCHEWAN, AB		COORDINATES: E:359089.70 N:5959604.24		ELEVATION: 630.41 (m)	
SAMPLE TYPE	☒ SHELBY TUBE	☐ NO RECOVERY	☒ GRAB	☐ SPT	☐ A-CASING
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ 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								605.0

Stantec Consulting Ltd. Edmonton, Alberta		LOGGED BY: H. LOVETT REVIEWED BY: D. YOSHISAKA Fig. No: 17094	COMPLETION DEPTH: 49.7 m COMPLETE: 02/14/05 Page 1 of 2
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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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ SAND

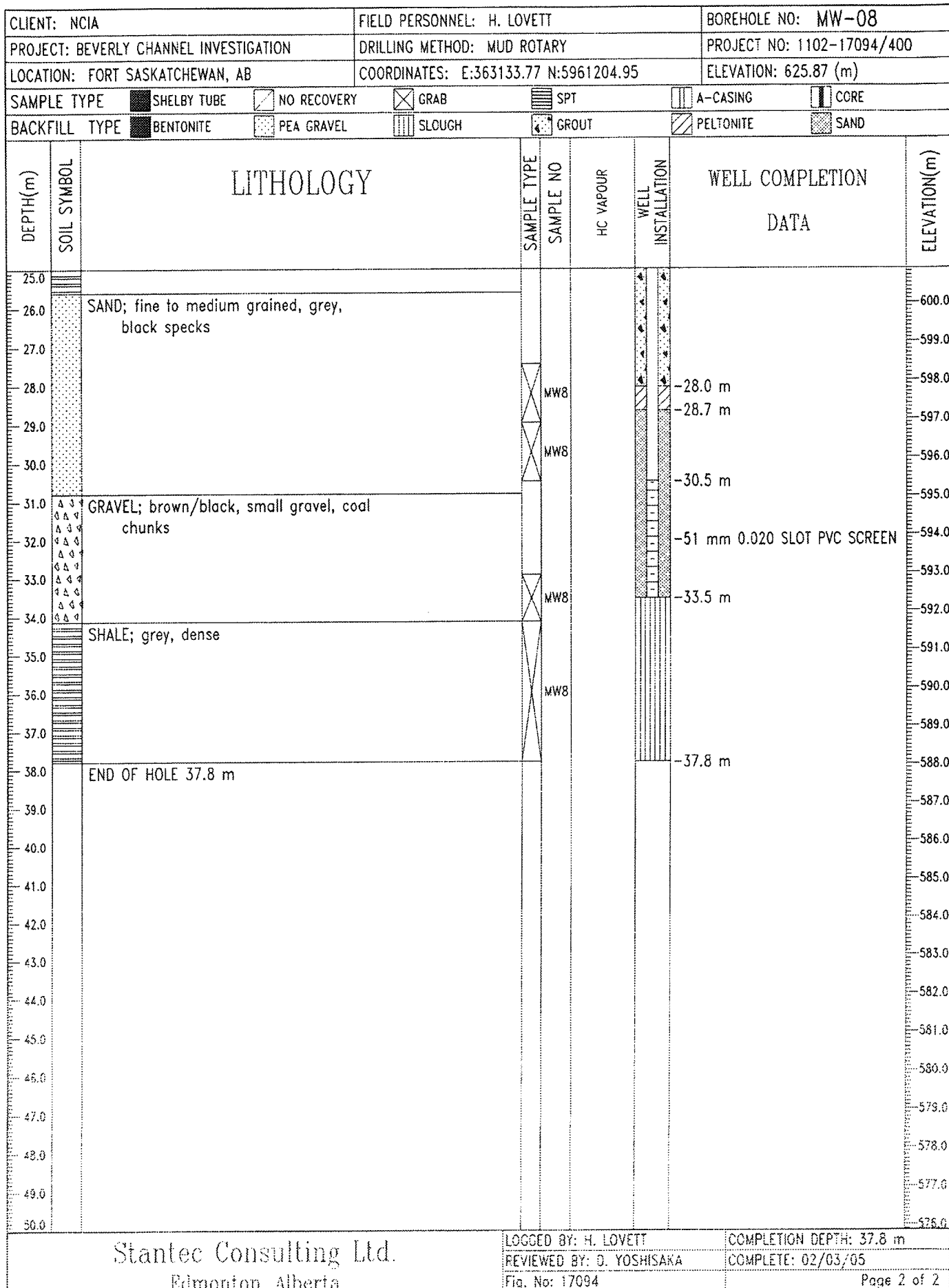
DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0								605.0
26.0								604.0
27.0								603.0
28.0								602.0
29.0								601.0
30.0								600.0
31.0								599.0
32.0								598.0
33.0								597.0
34.0								596.0
35.0								595.0
36.0								594.0
37.0		SAND; grey, fine to medium grained, black speckled						593.0
38.0		SAND AND GRAVEL; coarse sand and gravel, coal						592.0
39.0								591.0
40.0								590.0
41.0								589.0
42.0								588.0
43.0								587.0
44.0								586.0
45.0		SHALE; weathered						585.0
46.0		SHALE; grey, dense						584.0
47.0								583.0
48.0								582.0
49.0		SANDSTONE; light brown, grey						581.0
50.0		SHALE; grey, dense						580.0

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

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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ SAND

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
0.0		TOPSOIL; black, roots, grasses					STICKUP (0.57 m)	
1.0		SAND; brown/black grains, fine to medium grained					-51 mm PVC CASING	625.0
2.0		CLAY; brown/grey, silty						624.0
3.0							-3.1 m	623.0
4.0							-TOC ELEVATION: 626.44 m	622.0
5.0		SAND; silty, brown, very fine grained					-BOREHOLE DIAMETER = 159 mm	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								604.0
23.0								603.0
24.0		SHALE; rafted						602.0
25.0								601.0

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



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

Stantec Consulting Ltd.		LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
Edmonton, Alberta		REVIEWED BY: O. YOSHISAKA	COMPLETE: 01/28/05
		Fig. No: 17094	Page 1 of 2

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

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0								599.0
26.0								598.0
27.0		SAND; grey, medium grained, some clay, black coal speckles						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	594.0
31.0							-30.5 m	593.0
32.0		SAND AND GRAVEL; coarse sand and coal with gravel		MW9			-32.0 m	592.0
33.0								591.0
34.0		GRAVEL; gravel with coarse sand and coal					-51 mm 0.020 SLOT PVC SCREEN	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								581.0
44.0		END OF HOLE 43.6 m					-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								

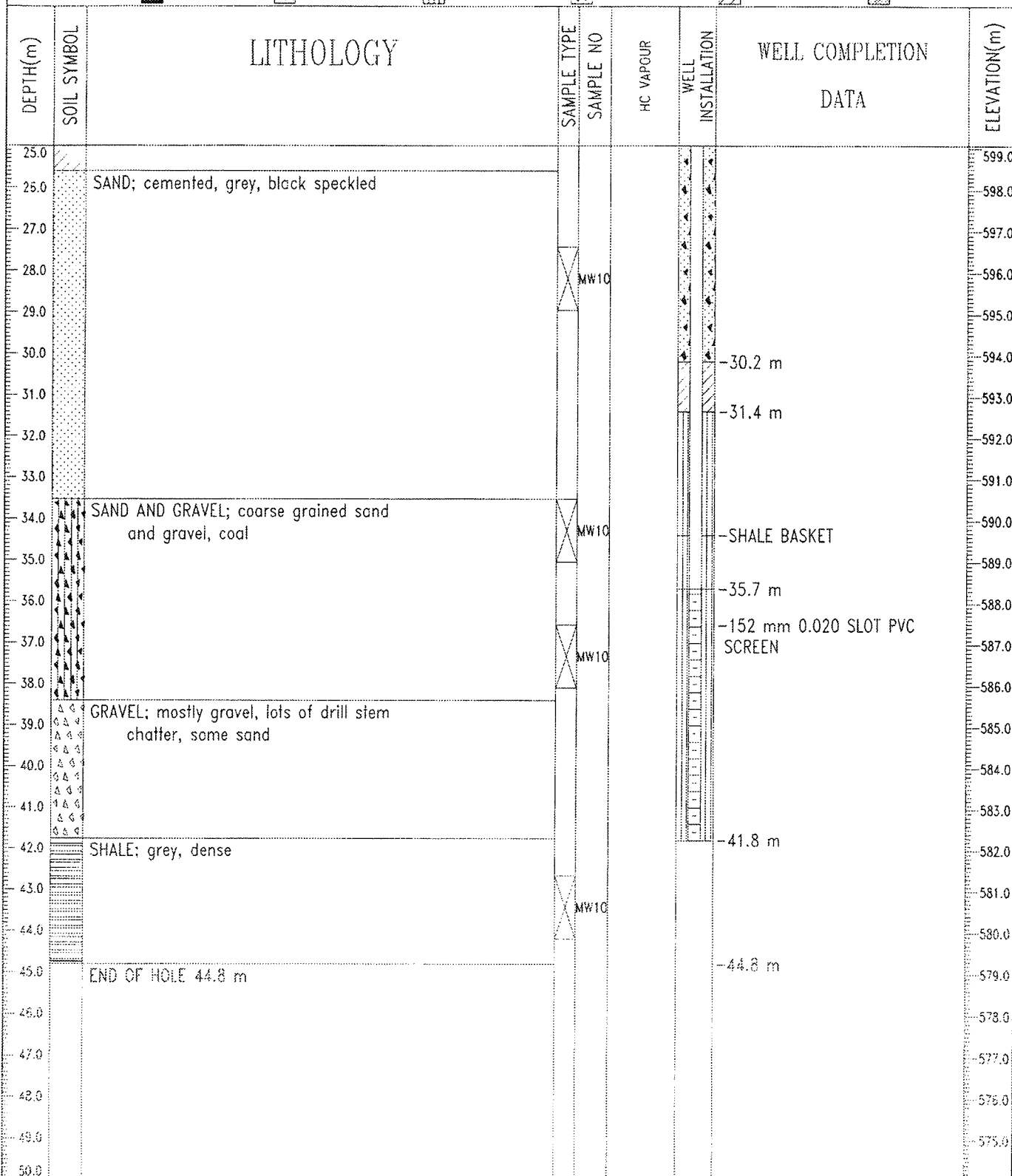
Stantec Consulting Ltd. Edmonton, Alberta		LOGGED BY: H. LOVETT REVIEWED BY: O. YOSHISAKA Fig. No: 17094	COMPLETION DEPTH: 43.6 m COMPLETE: 01/28/05 Page 2 of 2
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CLIENT: NCIA		FIELD PERSONNEL: H. LOVETT		BOREHOLE NO: MW-10	
PROJECT: BEVERLY CHANNEL 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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☒ CORE
					☐ 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						

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

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



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Edmonton, Alberta

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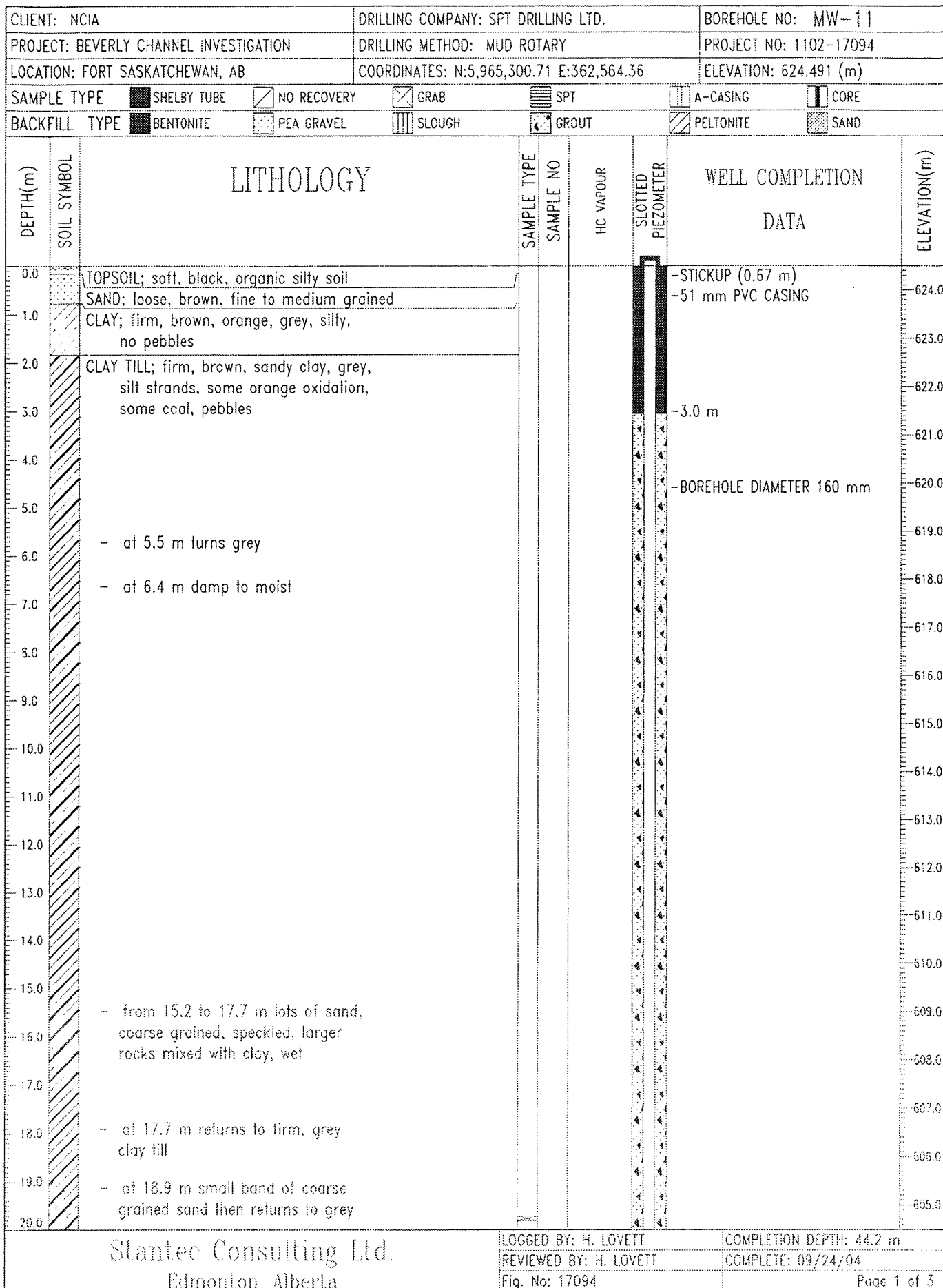
REVIEWED BY: D. YOSHISAKA

Fig. No: 17094

COMPLETION DEPTH: 44.8 m

COMPLETE: 01/26/05

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

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	SLOTTED PIEZOMETER	WELL COMPLETION DATA	ELEVATION(m)		
20.0		clay fill						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						589.0				
36.0						588.0				
37.0		SAND AND GRAVEL; loose, grey, wet, large gravel				587.0				
38.0						586.0				
39.0						585.0				
40.0						584.0				

Stantec Consulting Ltd.		LOGGED BY: H. LOVETT	COMPLETION DEPTH: 44.2 m
Edmonton, Alberta		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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLCUGH	☒ GROUT	☐ PELTONITE
					☐ CORE
					☐ 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						576.0
49.0		NOTE: ON COMPLETION -backfill borehole with 10/20 grade sand to 44.2 mBGL						575.0
50.0		MONITOR WELL INSTALLED -blue steel casing protector with lock added						574.0
51.0		-above ground PVC stickup (0.67 mAGL)						573.0
52.0		ON SEPTEMBER 24, 2004 -water level at 29.84 mBGL						572.0
53.0		ON SEPTEMBER 28, 2004 -water level at 29.83 mBGL						571.0
54.0		LOCAL COORDINATES: N:5242.77 E:2786.27						570.0
55.0		NOTE: -Originally installed for Shell Scotford Upgrader 04-10-44						569.0
56.0								568.0
57.0								567.0
58.0								566.0
59.0								565.0
60.0								

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

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
BACKFILL TYPE	☒ BENTONITE	☒ PEA GRAVEL	☒ SLOUGH	☒ GROUT	☒ PELTONITE
					☒ CORE
					☒ 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						617.0
9.0		SILT; grey						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.		LOGGED BY: H. LOVETT	COMPLETION DEPTH: 42.7 m
Edmonton, Alberta		REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
		Fig. No: 17094	Page 1 of 2

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
BACKFILL TYPE	☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT	☐ PELTONITE
					☐ CORE
					☐ 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								599.0
27.0								598.0
28.0								597.0
29.0		SAND; grey, medium grained, black speckled		MW12				596.0
30.0								595.0
31.0								594.0
32.0								593.0
33.0								592.0
34.0								591.0
35.0								590.0
36.0								589.0
37.0		SAND AND GRAVEL; coarse sand and gravel, coal					-51 mm 0.020 SLOT PVC SCREEN	588.0
38.0								587.0
39.0		SHALE; grey, dense		MW12				586.0
40.0		- brown, soft shale						585.0
41.0		- grey, dense						584.0
42.0				MW12				583.0
43.0		END OF HOLE 42.7 m						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								

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

CLIENT: NCIA		FIELD PERSONNEL: H. LOVETT		BOREHOLE NO: MW-13	
PROJECT: BEVERLY CHANNEL INVESTIGATION		DRILLING METHOD: MUD ROTARY		PROJECT NO: 1102-17094/400	
LOCATION: FORT SASKATCHEWAN, AB		COORDINATES: E:365292.72 N:5968147.12		ELEVATION: 625.65 (m)	
SAMPLE TYPE		☒ SHELBY TUBE	☐ NO RECOVERY	☒ GRAB	☐ SPT
BACKFILL TYPE		☒ BENTONITE	☐ PEA GRAVEL	☐ SLOUGH	☐ GROUT
		☐ A-CASING	☐ CORE	☐ 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								616.0
10.0		SAND; brown, grey, fine to medium grained, some clay						615.0
11.0		CLAY; grey, silty						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						605.0
21.0		- of 19.8 m rock						604.0
22.0								603.0
23.0								602.0
24.0								601.0
25.0								

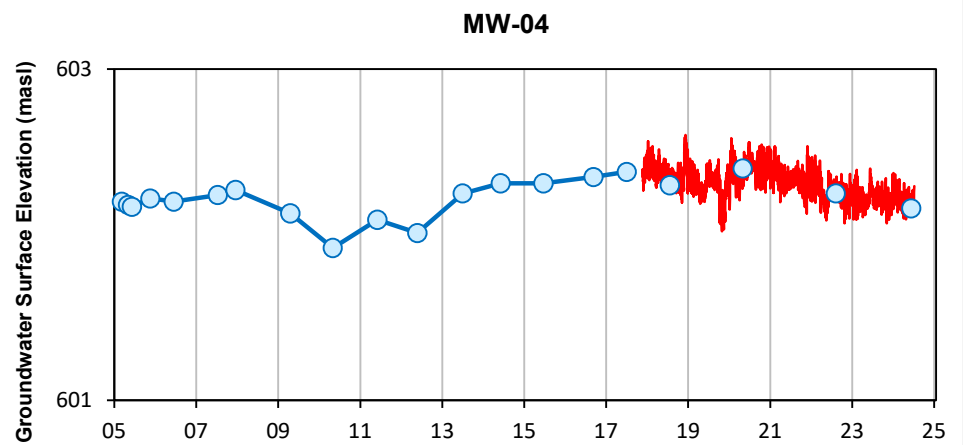
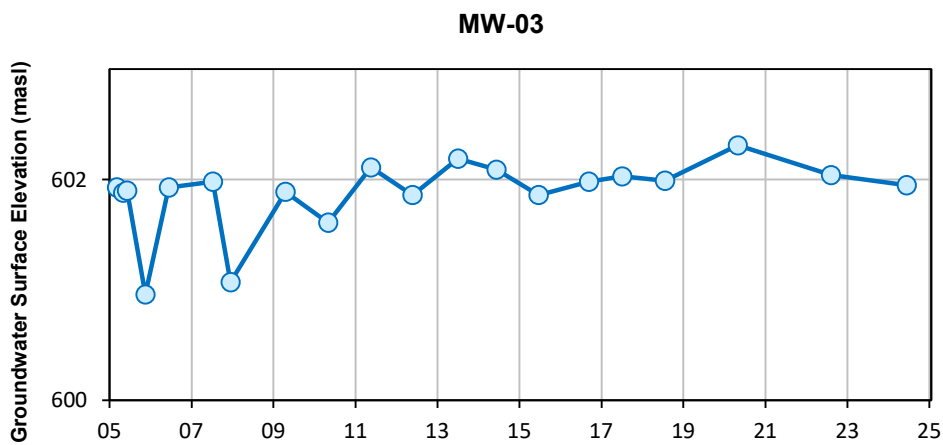
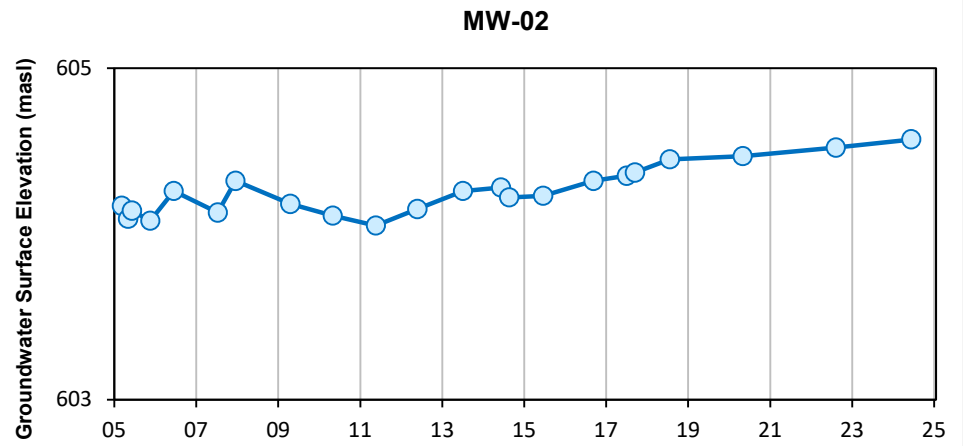
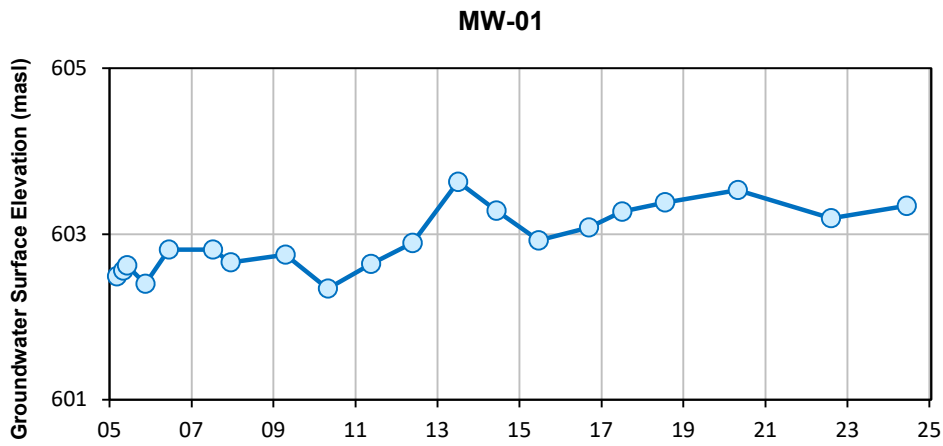
Stantec Consulting Ltd.		LOGGED BY: H. LOVETT	COMPLETION DEPTH: 43.6 m
Edmonton, Alberta		REVIEWED BY: D. YOSHISAKA	COMPLETE: 01/02/05
		Fig. No: 17094	Page 1 of 2

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

DEPTH(m)	SOIL SYMBOL	LITHOLOGY	SAMPLE TYPE	SAMPLE NO	HC VAPOUR	WELL INSTALLATION	WELL COMPLETION DATA	ELEVATION(m)
25.0		SAND; cemented, grey, black speckled medium grained						600.0
26.0								599.0
27.0								598.0
28.0								597.0
29.0								596.0
30.0								595.0
31.0								594.0
32.0								593.0
33.0								592.0
34.0								591.0
35.0								590.0
36.0								589.0
37.0		- at 36.3 m coarse grained sand						588.0
38.0		GRAVEL; coarse sand - at 37.5 m drill stem chatter						587.0
39.0								586.0
40.0								585.0
41.0								584.0
42.0								583.0
43.0		SHALE; grey, dense						582.0
44.0		END OF HOLE 43.6 m						581.0
45.0								580.0
46.0								579.0
47.0								578.0
48.0								577.0
49.0								576.0
50.0								575.0

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 2 of 2

Appendix 3. Groundwater Hydrographs



Notes:

- Filled symbols denote measurable values; unfilled symbols denote dry wells
- Dashed line between data points indicates data gap of more than two years
- Red line between data points indicates available logger data

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS

GROUNDWATER HYDROGRAPHS MW-01, MW-02, MW-03, AND MW-04



Date: **04-Sep-24**

Drawn by: **DS**

Edited by: **RM**

App'd by:



WorleyParsons Project No.

317085-55576-24000

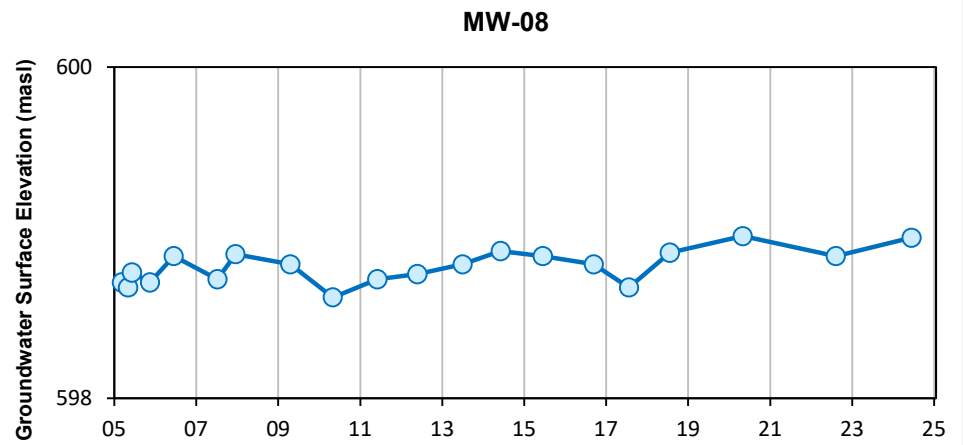
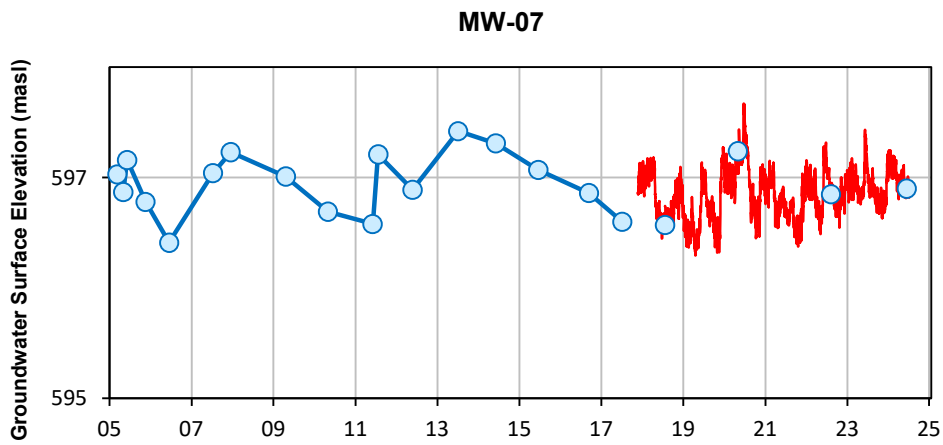
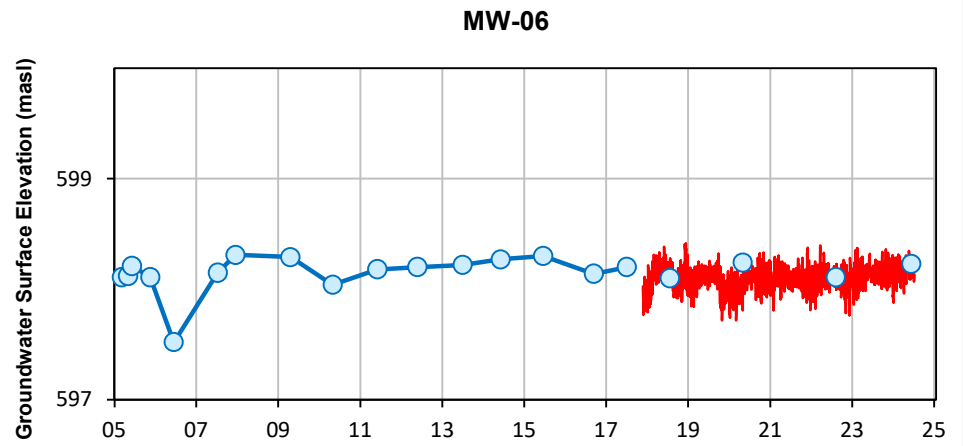
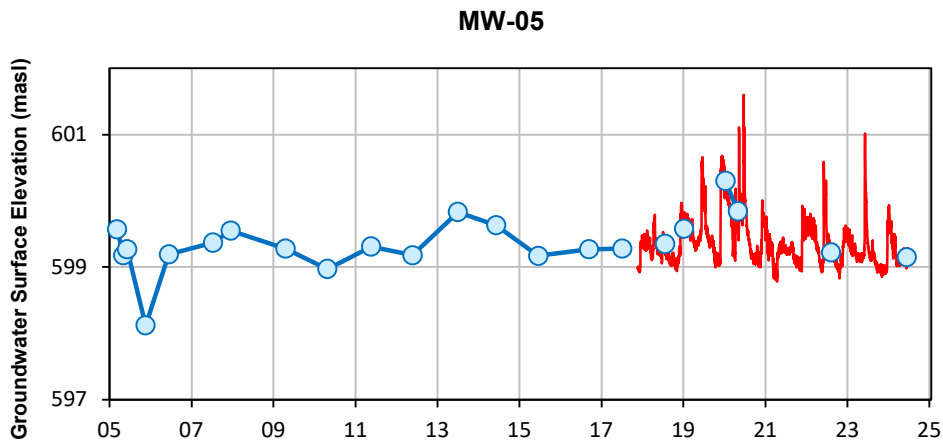
FIG No.

A3-1

REV

A

* This drawing is prepared solely for the use of our customer as specified in the accompanying report.
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Notes:

- Filled symbols denote measurable values; unfilled symbols denote dry wells
- Dashed line between data points indicates data gap of more than two years
- Red line between data points indicates available logger data

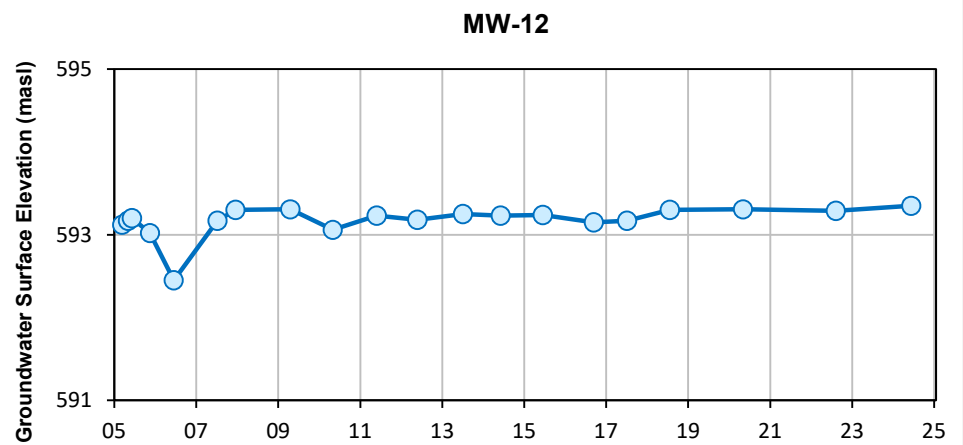
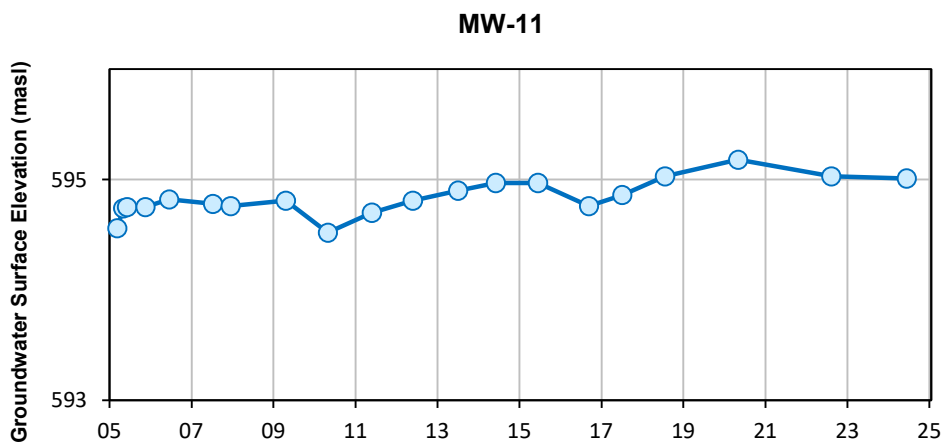
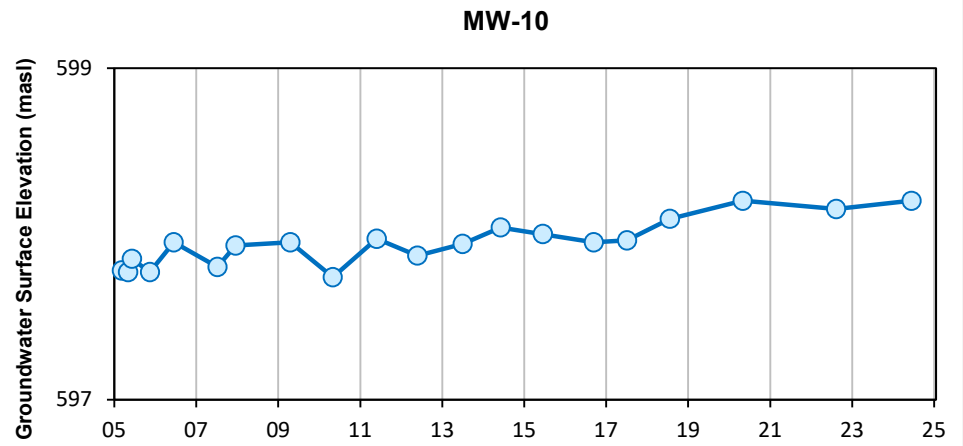
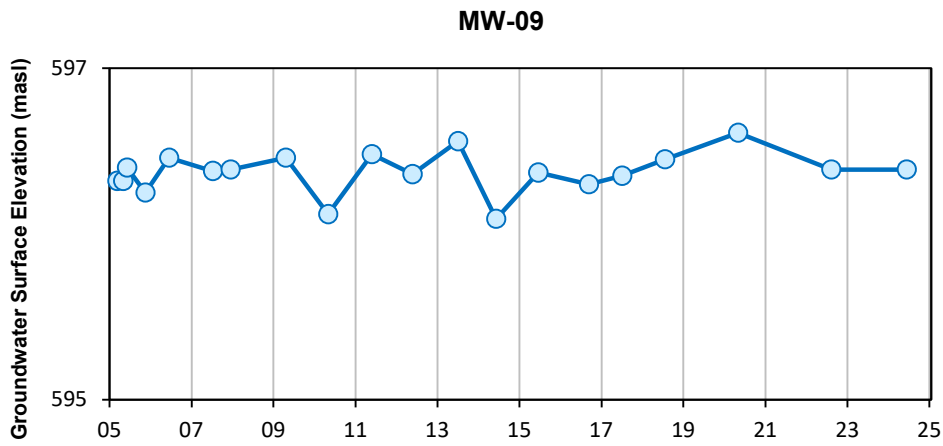
NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS

GROUNDWATER HYDROGRAPHS MW-05, MW-06, MW-07, AND MW-08



Date: 04-Sep-24	Drawn by: DS	Edited by: RM	App'd by:
WorleyParsons Project No. 317085-55576-24000			
FIG No. A3-2			REV A

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Notes:

- Filled symbols denote measurable values; unfilled symbols denote dry wells
- Dashed line between data points indicates data gap of more than two years

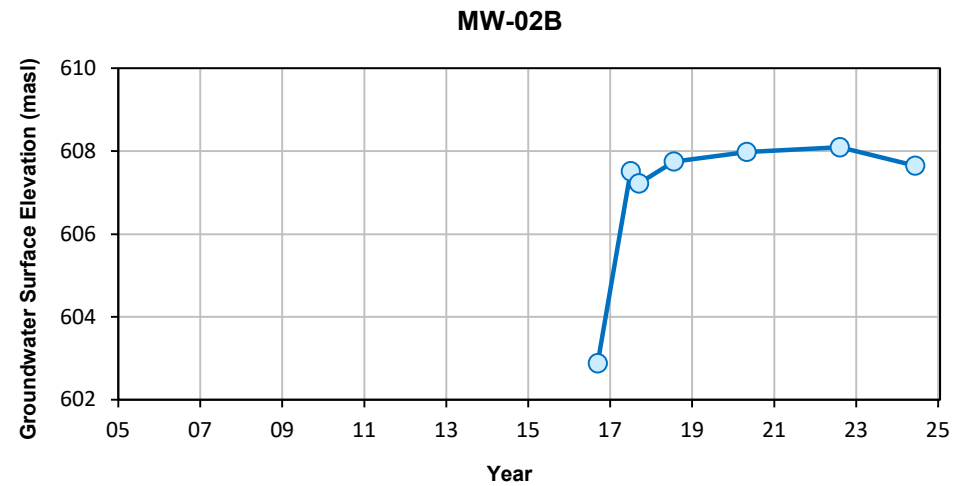
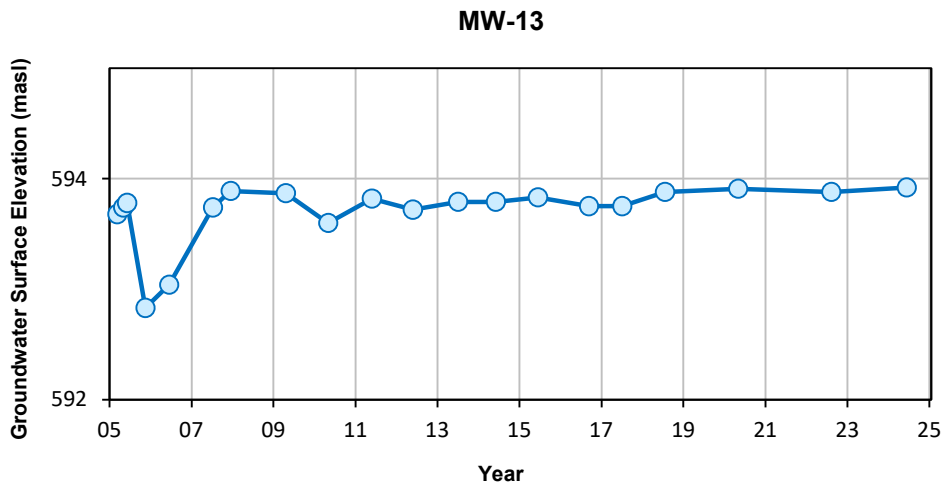
**NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS**

**GROUNDWATER HYDROGRAPHS
MW-09, MW-10, MW-11, AND MW-12**



Date: 04-Sep-24	Drawn by: DS	Edited by: RM	App'd by:
WorleyParsons Project No. 317085-55576-24000			
FIG No. A3-3			REV A

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Notes:

- Filled symbols denote measurable values; unfilled symbols denote dry wells
- Dashed line between data points indicates data gap of more than two years

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS				
GROUNDWATER HYDROGRAPHS MW-13 AND MW-02B				
 NCIA Northeast Capital Industrial Association	Date: 04-Sep-24	Drawn by: DS	Edited by: RM	App'd by:
	WorleyParsons Project No.			
	317085-55576-24000			
	FIG No.		REV	
A3-4		A		
* This drawing is prepared solely for the use of our customer as specified in the accompanying report. WorleyParsons Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*				

Appendix 4. Laboratory Analytical Data

CERTIFICATE OF ANALYSIS

Work Order : **EO2405230**
Client : **Worley Canada Services Ltd.**
Contact : Rylee Machula
Address : 200 - 8615 51 Ave NW
Edmonton AB Canada T6E 6A8
Telephone : 780.919.2746
Project : ----
PO : ----
C-O-C number : 20-1057903,04
Sampler : RM
Site : ----
Quote number : EO24-WORL100-0010 NCIA
No. of samples received : 15
No. of samples analysed : 15

Page : 1 of 11
Laboratory : ALS Environmental - Edmonton
Account Manager : Dana Brown
Address : 9450 - 17 Avenue NW
Edmonton AB Canada T6N 1M9
Telephone : 7804136472
Date Samples Received : 28-Jun-2024 13:42
Date Analysis Commenced : 29-Jun-2024
Issue Date : 09-Jul-2024 10:57

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Amanda Powell	Account Manager	External Subcontracting, Edmonton, Alberta
Brayden Ginther	Laboratory Analyst	Inorganics, Edmonton, Alberta
Dan Nguyen	Team Leader - Inorganics	Metals, Edmonton, Alberta
Daniel Nguyen	Laboratory Analyst	Metals, Edmonton, Alberta
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
Jing Liu	Laboratory Analyst	Inorganics, Edmonton, Alberta
Kari Mulroy	Lab Supervisor - Environmental	Organics, Edmonton, Alberta
Logan Carroll	Laboratory Analyst	Inorganics, Edmonton, Alberta
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Yan Zhang	Team Leader - Organics	Organics, Edmonton, Alberta



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	Description
-	no units
%	percent
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
‰ VSMOW	parts per thousand Vienna Standard Mean Ocean Water
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

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

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
SHMI	Surrogate recovery was outside ALS DQO (High) due to Matrix Interference
SP	Sample was preserved at the laboratory.



Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					MW-01	MW-02	MW-02B	MW-03	MW-04
Client sampling date / time					29-Jun-2024 10:34	27-Jun-2024 14:55	26-Jun-2024 09:35	26-Jun-2024 11:19	26-Jun-2024 12:32
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-001	EO2405230-002	EO2405230-003	EO2405230-004	EO2405230-005
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/EO	1.0	mg/L	411	624	440	446	443
Alkalinity, carbonate (as CO3)	3812-32-6	E290/EO	1.0	mg/L	<1.0	<1.0	2.8	<1.0	<1.0
Alkalinity, hydroxide (as OH)	14280-30-9	E290/EO	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/EO	1.0	mg/L	337	511	366	366	363
Conductivity	----	E100/EO	1.0	µS/cm	744	1310	3440	1020	1290
Hardness (as CaCO3), dissolved	----	EC100/EO	0.50	mg/L	331	459	114	442	508
pH	----	E108/EO	0.10	pH units	8.15	7.98	8.33	8.12	8.13
Solids, total dissolved [TDS]	----	E162/EO	10	mg/L	431	770	1800	622	781
Solids, total dissolved [TDS], calculated	----	EC103/EO	1.0	mg/L	465	860	1940	656	792
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L	0.248 ^{SP}	0.567 ^{SP}	1.38 ^{SP}	0.380 ^{SP}	<0.0050 ^{SP}
Chloride	16887-00-6	E235.Cl/EO	0.50	mg/L	36.6	82.4	936 ^{DLDS}	73.5	168
Fluoride	16984-48-8	E235.F/EO	0.020	mg/L	0.145	0.118	0.636 ^{DLDS}	0.105	0.116
Nitrate (as N)	14797-55-8	E235.NO3/EO	0.020	mg/L	<0.020	<0.020	<0.100 ^{DLDS}	<0.020	0.263
Nitrate + Nitrite (as N)	----	EC235.N+N/E O	0.0032	mg/L	<0.0224	<0.0224	<0.112	<0.0224	0.263
Nitrite (as N)	14797-65-0	E235.NO2/EO	0.010	mg/L	<0.010	<0.010	<0.050 ^{DLDS}	<0.010	<0.010
Sulfate (as SO4)	14808-79-8	E235.SO4/EO	0.30	mg/L	48.3	158	<1.50 ^{DLDS}	124	121
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L	2.70	5.23	6.74	3.07	3.77
Ion Balance									
Ion balance (cations/anions)	----	EC101/EO	0.010	%	94.5	92.4	99.7	95.0	95.2
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/EO	0.0010	mg/L	<0.0010	0.0020	0.0030	0.0272	<0.0010
Antimony, dissolved	7440-36-0	E421/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00020 ^{DLDS}	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/EO	0.00010	mg/L	0.00094	0.00217	0.00857	0.00158	0.00043
Barium, dissolved	7440-39-3	E421/EO	0.00010	mg/L	0.121	0.150	0.870	0.0416	0.102
Beryllium, dissolved	7440-41-7	E421/EO	0.000020	mg/L	<0.000020	<0.000020	<0.000040 ^{DLDS}	<0.000020	<0.000020
Boron, dissolved	7440-42-8	E421/EO	0.010	mg/L	0.057	0.248	0.883	0.132	0.103



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-01	MW-02	MW-02B	MW-03	MW-04
(Matrix: Water)										
Client sampling date / time					29-Jun-2024 10:34	27-Jun-2024 14:55	26-Jun-2024 09:35	26-Jun-2024 11:19	26-Jun-2024 12:32	
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-001	EO2405230-002	EO2405230-003	EO2405230-004	EO2405230-005	
					Result	Result	Result	Result	Result	
Dissolved Metals										
Cadmium, dissolved	7440-43-9	E421/EO	0.000050	mg/L	<0.000050	<0.000050	<0.0000100 ^{DLDS}	<0.000050	0.000077	
Calcium, dissolved	7440-70-2	E421/EO	0.050	mg/L	89.6	114	34.9	112	136	
Chromium, dissolved	7440-47-3	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00100 ^{DLDS}	0.00059	<0.00050	
Cobalt, dissolved	7440-48-4	E421/EO	0.00010	mg/L	0.00068	0.00028	<0.00020 ^{DLDS}	0.00074	0.00020	
Copper, dissolved	7440-50-8	E421/EO	0.00020	mg/L	0.00039	<0.00020	0.00138	0.00061	0.00074	
Iron, dissolved	7439-89-6	E421/EO	0.010	mg/L	1.93	4.84	0.684	5.55	0.910	
Lead, dissolved	7439-92-1	E421/EO	0.000050	mg/L	<0.000050	<0.000050	<0.000100 ^{DLDS}	<0.000050	<0.000050	
Magnesium, dissolved	7439-95-4	E421/EO	0.0050	mg/L	26.1	42.3	6.60	39.3	40.9	
Manganese, dissolved	7439-96-5	E421/EO	0.00010	mg/L	0.686	0.326	0.0567	0.286	0.267	
Mercury, dissolved	7439-97-6	E509/EO	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, dissolved	7439-98-7	E421/EO	0.000050	mg/L	0.000312	0.000409	0.00490	0.000652	0.000359	
Nickel, dissolved	7440-02-0	E421/EO	0.00050	mg/L	0.00055	<0.00050	<0.00100 ^{DLDS}	0.00085	0.00147	
Potassium, dissolved	7440-09-7	E421/EO	0.050	mg/L	2.67	4.93	3.91	3.31	10.4	
Selenium, dissolved	7782-49-2	E421/EO	0.000050	mg/L	<0.000050	0.000126	<0.000100 ^{DLDS}	<0.000050	<0.000050	
Silver, dissolved	7440-22-4	E421/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000020 ^{DLDS}	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5	E421/EO	0.050	mg/L	34.6	118	717	51.3	78.2	
Thallium, dissolved	7440-28-0	E421/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000020 ^{DLDS}	<0.000010	<0.000010	
Titanium, dissolved	7440-32-6	E421/EO	0.00030	mg/L	<0.00030	<0.00030	<0.00060 ^{DLDS}	0.00068	<0.00030	
Uranium, dissolved	7440-61-1	E421/EO	0.000010	mg/L	0.00154	0.000998	0.000237	0.000549	0.00308	
Vanadium, dissolved	7440-62-2	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00100 ^{DLDS}	<0.00050	<0.00050	
Zinc, dissolved	7440-66-6	E421/EO	0.0010	mg/L	0.0015	<0.0010	0.0025	0.0014	0.0015	
Dissolved mercury filtration location	-----	EP509/EO	-	-	Field	Field	Field	Field	Field	
Dissolved metals filtration location	-----	EP421/EO	-	-	Field	Field	Field	Field	Field	
Volatile Organic Compounds										
Benzene	71-43-2	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Ethylbenzene	100-41-4	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Toluene	108-88-3	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Xylene, m+p-	179601-23-1	E611A/EO	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	
Xylene, o-	95-47-6	E611A/EO	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Xylenes, total	1330-20-7	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-01	MW-02	MW-02B	MW-03	MW-04
(Matrix: Water)										
					Client sampling date / time	29-Jun-2024 10:34	27-Jun-2024 14:55	26-Jun-2024 09:35	26-Jun-2024 11:19	26-Jun-2024 12:32
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-001	EO2405230-002	EO2405230-003	EO2405230-004	EO2405230-005	
					Result	Result	Result	Result	Result	
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/EO	100	µg/L	<100	<100	<100	<100	<100	
F1-BTEX	----	EC580/EO	25	µg/L	<100	<100	<100	<100	<100	
F2 (C10-C16)	----	E601/EO	100	µg/L	<100	<100	<100	<100	<100	
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/EO	1.0	%	106	105	106	107	109	
Dichlorotoluene, 3,4-	95-75-0	E581.F1/EO	1.0	%	159 ^{SHMI}	155 ^{SHMI}	158 ^{SHMI}	136 ^{SHMI}	155 ^{SHMI}	
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/EO	1.0	%	78.8	79.6	80.7	75.7	77.3	
Difluorobenzene, 1,4-	540-36-3	E611A/EO	1.0	%	90.2	89.2	89.7	92.0	90.8	
Stable Isotope										
delta-Oxygen-18	n/a	H-2+O-18/2D	-	‰ VSMOW	See attached	See attached	See attached	See attached	See attached	
delta-Hydrogen-2	n/a	H-2+O-18/2D	-	‰ VSMOW	See attached	See attached	See attached	See attached	See attached	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-05	MW-06	MW-07	MW-08	MW-09
(Matrix: Water)										
Client sampling date / time					26-Jun-2024 14:27	26-Jun-2024 18:40	27-Jun-2024 14:08	27-Jun-2024 11:15	26-Jun-2024 17:53	
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-006	EO2405230-007	EO2405230-008	EO2405230-009	EO2405230-010	
					Result	Result	Result	Result	Result	
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/EO	1.0	mg/L	462	648	716	627	670	
Alkalinity, carbonate (as CO3)	3812-32-6	E290/EO	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Alkalinity, hydroxide (as OH)	14280-30-9	E290/EO	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Alkalinity, total (as CaCO3)	----	E290/EO	1.0	mg/L	379	532	587	514	549	
Conductivity	----	E100/EO	1.0	µS/cm	991	1650	2620	1430	1470	
Hardness (as CaCO3), dissolved	----	EC100/EO	0.50	mg/L	446	634	1020	569	323	
pH	----	E108/EO	0.10	pH units	8.04	8.07	7.82	8.12	8.25	
Solids, total dissolved [TDS]	----	E162/EO	10	mg/L	570	1130	2040	982	956	
Solids, total dissolved [TDS], calculated	----	EC103/EO	1.0	mg/L	638	1240	2110	1050	1040	
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L	0.236 ^{SP}	1.78 ^{SP}	2.68 ^{SP}	2.16 ^{SP}	2.15 ^{SP}	
Chloride	16887-00-6	E235.Cl/EO	0.50	mg/L	61.0	7.18 ^{DLDS}	14.8 ^{DLDS}	1.38	5.46	
Fluoride	16984-48-8	E235.F/EO	0.020	mg/L	0.099	0.136 ^{DLDS}	<0.100 ^{DLDS}	0.119	0.233	
Nitrate (as N)	14797-55-8	E235.NO3/EO	0.020	mg/L	<0.020	<0.100 ^{DLDS}	<0.100 ^{DLDS}	<0.020	0.023	
Nitrate + Nitrite (as N)	----	EC235.N+N/E O	0.0032	mg/L	<0.0224	<0.112	<0.112	<0.0224	0.0230	
Nitrite (as N)	14797-65-0	E235.NO2/EO	0.010	mg/L	<0.010	<0.050 ^{DLDS}	<0.050 ^{DLDS}	<0.010	<0.010	
Sulfate (as SO4)	14808-79-8	E235.SO4/EO	0.30	mg/L	117	498 ^{DLDS}	1080 ^{DLDS}	364	323	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L	3.90	7.48	6.42	6.13	6.58	
Ion Balance										
Ion balance (cations/anions)	----	EC101/EO	0.010	%	95.7	93.9	94.5	98.9	93.8	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/EO	0.0010	mg/L	0.0018	0.0037	<0.0020 ^{DLDS}	<0.0010	<0.0010	
Antimony, dissolved	7440-36-0	E421/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00020 ^{DLDS}	<0.00010	<0.00010	
Arsenic, dissolved	7440-38-2	E421/EO	0.00010	mg/L	0.00203	0.00634	0.00391	0.00525	0.00263	
Barium, dissolved	7440-39-3	E421/EO	0.00010	mg/L	0.0500	0.0263	0.0415	0.0252	0.0194	
Beryllium, dissolved	7440-41-7	E421/EO	0.000020	mg/L	<0.000020	<0.000020	<0.000040 ^{DLDS}	<0.000020	<0.000020	
Boron, dissolved	7440-42-8	E421/EO	0.010	mg/L	0.068	0.174	0.344	0.231	0.314	
Cadmium, dissolved	7440-43-9	E421/EO	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000100 ^{DLDS}	<0.0000050	<0.0000050	



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-05	MW-06	MW-07	MW-08	MW-09
(Matrix: Water)										
Client sampling date / time					26-Jun-2024 14:27	26-Jun-2024 18:40	27-Jun-2024 14:08	27-Jun-2024 11:15	26-Jun-2024 17:53	
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-006	EO2405230-007	EO2405230-008	EO2405230-009	EO2405230-010	
					Result	Result	Result	Result	Result	
Dissolved Metals										
Calcium, dissolved	7440-70-2	E421/EO	0.050	mg/L	119	158	257	155	86.6	
Chromium, dissolved	7440-47-3	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00100 ^{DLDS}	<0.00050	<0.00050	
Cobalt, dissolved	7440-48-4	E421/EO	0.00010	mg/L	0.00092	0.00022	0.00105	0.00017	0.00144	
Copper, dissolved	7440-50-8	E421/EO	0.00020	mg/L	<0.00020	<0.00020	0.00093	0.00072	<0.00020	
Iron, dissolved	7439-89-6	E421/EO	0.010	mg/L	4.37	5.83	12.5	8.00	1.91	
Lead, dissolved	7439-92-1	E421/EO	0.000050	mg/L	<0.000050	<0.000050	<0.000100 ^{DLDS}	<0.000050	<0.000050	
Magnesium, dissolved	7439-95-4	E421/EO	0.0050	mg/L	36.2	58.2	91.6	44.2	26.0	
Manganese, dissolved	7439-96-5	E421/EO	0.00010	mg/L	0.705	1.63	1.94	0.512	0.807	
Mercury, dissolved	7439-97-6	E509/EO	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, dissolved	7439-98-7	E421/EO	0.000050	mg/L	0.000428	0.000727	0.000748	0.000844	0.00136	
Nickel, dissolved	7440-02-0	E421/EO	0.00050	mg/L	0.00068	<0.00050	<0.00100 ^{DLDS}	<0.00050	<0.00050	
Potassium, dissolved	7440-09-7	E421/EO	0.050	mg/L	8.26	5.52	6.00	6.32	4.12	
Selenium, dissolved	7782-49-2	E421/EO	0.000050	mg/L	<0.000050	0.000051	<0.000100 ^{DLDS}	<0.000050	<0.000050	
Silver, dissolved	7440-22-4	E421/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000020 ^{DLDS}	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5	E421/EO	0.050	mg/L	43.3	154	264	132	230	
Thallium, dissolved	7440-28-0	E421/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000020 ^{DLDS}	<0.000010	<0.000010	
Titanium, dissolved	7440-32-6	E421/EO	0.00030	mg/L	<0.00030	<0.00030	<0.00060 ^{DLDS}	<0.00030	<0.00030	
Uranium, dissolved	7440-61-1	E421/EO	0.000010	mg/L	0.000654	0.00163	0.00156	0.000822	0.00123	
Vanadium, dissolved	7440-62-2	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00100 ^{DLDS}	<0.00050	<0.00050	
Zinc, dissolved	7440-66-6	E421/EO	0.0010	mg/L	<0.0010	<0.0010	<0.0020 ^{DLDS}	<0.0010	<0.0010	
Dissolved mercury filtration location	----	EP509/EO	-	-	Field	Field	Field	Field	Field	
Dissolved metals filtration location	----	EP421/EO	-	-	Field	Field	Field	Field	Field	
Volatile Organic Compounds										
Benzene	71-43-2	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Ethylbenzene	100-41-4	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Toluene	108-88-3	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Xylene, m+p-	179601-23-1	E611A/EO	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	
Xylene, o-	95-47-6	E611A/EO	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Xylenes, total	1330-20-7	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Hydrocarbons										



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-05	MW-06	MW-07	MW-08	MW-09
(Matrix: Water)										
					Client sampling date / time	26-Jun-2024 14:27	26-Jun-2024 18:40	27-Jun-2024 14:08	27-Jun-2024 11:15	26-Jun-2024 17:53
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-006	EO2405230-007	EO2405230-008	EO2405230-009	EO2405230-010	
					Result	Result	Result	Result	Result	
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/EO	100	µg/L	<100	<100	<100	<100	<100	
F1-BTEX	----	EC580/EO	25	µg/L	<100	<100	<100	<100	<100	
F2 (C10-C16)	----	E601/EO	100	µg/L	<100	<100	<100	<100	<100	
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/EO	1.0	%	109	107	108	106	109	
Dichlorotoluene, 3,4-	95-75-0	E581.F1/EO	1.0	%	121	121	119	122	167 ^{SHMI}	
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/EO	1.0	%	73.3	76.6	76.2	74.8	75.3	
Difluorobenzene, 1,4-	540-36-3	E611A/EO	1.0	%	90.9	92.2	90.7	90.8	91.4	
Stable Isotope										
delta-Oxygen-18	n/a	H-2+O-18/2D	-	‰ VSMOW	See attached	See attached	See attached	See attached	See attached	
delta-Hydrogen-2	n/a	H-2+O-18/2D	-	‰ VSMOW	See attached	See attached	See attached	See attached	See attached	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-10	MW-11	MW-12	MW-13	D24-1
(Matrix: Water)										
Client sampling date / time					27-Jun-2024 15:53	27-Jun-2024 10:18	26-Jun-2024 16:24	26-Jun-2024 15:46	26-Jun-2024 12:35	
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-011	EO2405230-012	EO2405230-013	EO2405230-014	EO2405230-015	
					Result	Result	Result	Result	Result	
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/EO	1.0	mg/L	671	667	698	506	442	
Alkalinity, carbonate (as CO3)	3812-32-6	E290/EO	1.0	mg/L	<1.0	<1.0	<1.0	5.5	<1.0	
Alkalinity, hydroxide (as OH)	14280-30-9	E290/EO	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Alkalinity, total (as CaCO3)	----	E290/EO	1.0	mg/L	550	547	572	424	362	
Conductivity	----	E100/EO	1.0	µS/cm	1210	1230	968	712	1290	
Hardness (as CaCO3), dissolved	----	EC100/EO	0.50	mg/L	444	508	336	174	505	
pH	----	E108/EO	0.10	pH units	8.11	8.13	8.21	8.38	8.20	
Solids, total dissolved [TDS]	----	E162/EO	10	mg/L	774	798	578	420	765	
Solids, total dissolved [TDS], calculated	----	EC103/EO	1.0	mg/L	846	870	641	464	785	
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L	2.01 ^{SP}	1.77 ^{SP}	1.46 ^{SP}	1.43 ^{SP}	<0.0050 ^{SP}	
Chloride	16887-00-6	E235.Cl/EO	0.50	mg/L	0.77	11.2	6.20	2.03	165	
Fluoride	16984-48-8	E235.F/EO	0.020	mg/L	0.159	0.112	0.095	0.155	0.110	
Nitrate (as N)	14797-55-8	E235.NO3/EO	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	0.322	
Nitrate + Nitrite (as N)	----	EC235.N+N/E O	0.0032	mg/L	<0.0224	<0.0224	<0.0224	<0.0224	0.322	
Nitrite (as N)	14797-65-0	E235.NO2/EO	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Sulfate (as SO4)	14808-79-8	E235.SO4/EO	0.30	mg/L	207	218	39.2	10.5	120	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L	5.98	6.59	7.08	4.58	3.72	
Ion Balance										
Ion balance (cations/anions)	----	EC101/EO	0.010	%	92.8	92.4	89.5	96.2	95.1	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/EO	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0215	<0.0010	
Antimony, dissolved	7440-36-0	E421/EO	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Arsenic, dissolved	7440-38-2	E421/EO	0.00010	mg/L	0.00492	0.00255	0.00280	0.00171	0.00040	
Barium, dissolved	7440-39-3	E421/EO	0.00010	mg/L	0.0277	0.0375	0.112	0.380	0.0998	
Beryllium, dissolved	7440-41-7	E421/EO	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
Boron, dissolved	7440-42-8	E421/EO	0.010	mg/L	0.210	0.236	0.269	0.284	0.105	
Cadmium, dissolved	7440-43-9	E421/EO	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000069	



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-10	MW-11	MW-12	MW-13	D24-1
(Matrix: Water)										
Client sampling date / time					27-Jun-2024 15:53	27-Jun-2024 10:18	26-Jun-2024 16:24	26-Jun-2024 15:46	26-Jun-2024 12:35	
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-011	EO2405230-012	EO2405230-013	EO2405230-014	EO2405230-015	
					Result	Result	Result	Result	Result	
Dissolved Metals										
Calcium, dissolved	7440-70-2	E421/EO	0.050	mg/L	123	138	87.8	44.8	137	
Chromium, dissolved	7440-47-3	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt, dissolved	7440-48-4	E421/EO	0.00010	mg/L	0.00031	0.00026	0.00042	0.00066	0.00021	
Copper, dissolved	7440-50-8	E421/EO	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00088	
Iron, dissolved	7439-89-6	E421/EO	0.010	mg/L	5.54	6.59	4.47	1.35	0.897	
Lead, dissolved	7439-92-1	E421/EO	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Magnesium, dissolved	7439-95-4	E421/EO	0.0050	mg/L	33.2	39.8	28.4	15.0	39.6	
Manganese, dissolved	7439-96-5	E421/EO	0.00010	mg/L	0.658	0.591	0.439	0.234	0.266	
Mercury, dissolved	7439-97-6	E509/EO	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, dissolved	7439-98-7	E421/EO	0.000050	mg/L	0.000882	0.000603	0.000915	0.00200	0.000349	
Nickel, dissolved	7440-02-0	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00125	
Potassium, dissolved	7440-09-7	E421/EO	0.050	mg/L	5.52	4.76	4.90	3.86	10.1	
Selenium, dissolved	7782-49-2	E421/EO	0.000050	mg/L	0.000061	<0.000050	<0.000050	<0.000050	<0.000050	
Silver, dissolved	7440-22-4	E421/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5	E421/EO	0.050	mg/L	112	91.6	92.2	108	75.9	
Thallium, dissolved	7440-28-0	E421/EO	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Titanium, dissolved	7440-32-6	E421/EO	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	
Uranium, dissolved	7440-61-1	E421/EO	0.000010	mg/L	0.00108	0.00101	0.000780	0.000598	0.00313	
Vanadium, dissolved	7440-62-2	E421/EO	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc, dissolved	7440-66-6	E421/EO	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0018	
Dissolved mercury filtration location	----	EP509/EO	-	-	Field	Field	Field	Field	Field	
Dissolved metals filtration location	----	EP421/EO	-	-	Field	Field	Field	Field	Field	
Volatile Organic Compounds										
Benzene	71-43-2	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Ethylbenzene	100-41-4	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Toluene	108-88-3	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Xylene, m+p-	179601-23-1	E611A/EO	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	
Xylene, o-	95-47-6	E611A/EO	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Xylenes, total	1330-20-7	E611A/EO	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Hydrocarbons										



Analytical Results

Sub-Matrix: Water					Client sample ID	MW-10	MW-11	MW-12	MW-13	D24-1
(Matrix: Water)										
					Client sampling date / time	27-Jun-2024 15:53	27-Jun-2024 10:18	26-Jun-2024 16:24	26-Jun-2024 15:46	26-Jun-2024 12:35
Analyte	CAS Number	Method/Lab	LOR	Unit	EO2405230-011	EO2405230-012	EO2405230-013	EO2405230-014	EO2405230-015	
					Result	Result	Result	Result	Result	
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/EO	100	µg/L	<100	<100	<100	<100	<100	
F1-BTEX	----	EC580/EO	25	µg/L	<100	<100	<100	<100	<100	
F2 (C10-C16)	----	E601/EO	100	µg/L	<100	<100	<100	<100	<100	
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/EO	1.0	%	104	102	102	104	102	
Dichlorotoluene, 3,4-	95-75-0	E581.F1/EO	1.0	%	154 ^{SHMI}	156 ^{SHMI}	147 ^{SHMI}	157 ^{SHMI}	164 ^{SHMI}	
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/EO	1.0	%	75.2	79.1	77.6	73.9	78.1	
Difluorobenzene, 1,4-	540-36-3	E611A/EO	1.0	%	90.2	92.0	91.6	90.9	90.8	
Stable Isotope										
delta-Oxygen-18	n/a	H-2+O-18/2D	-	‰ VSMOW	See attached	See attached	See attached	See attached	See attached	
delta-Hydrogen-2	n/a	H-2+O-18/2D	-	‰ VSMOW	See attached	See attached	See attached	See attached	See attached	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: EO2405230	Page	: 1 of 38
Client	: Worley Canada Services Ltd.	Laboratory	: ALS Environmental - Edmonton
Contact	: Rylee Machula	Account Manager	: Dana Brown
Address	: 200 - 8615 51 Ave NW Edmonton AB Canada T6E 6A8	Address	: 9450 - 17 Avenue NW Edmonton, Alberta Canada T6N 1M9
Telephone	: 780.919.2746	Telephone	: 7804136472
Project	: ----	Date Samples Received	: 28-Jun-2024 13:42
PO	: ----	Issue Date	: 09-Jul-2024 10:58
C-O-C number	: 20-1057903,04		
Sampler	: RM		
Site	: ----		
Quote number	: EO24-WORL100-0010 NCIA		
No. of samples received	: 15		
No. of samples analysed	: 15		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Regular Sample Surrogates

Sub-Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Hydrocarbons Surrogates	EO2405230-010	MW-09	Dichlorotoluene, 3,4-	95-75-0	167 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-011	MW-10	Dichlorotoluene, 3,4-	95-75-0	154 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-012	MW-11	Dichlorotoluene, 3,4-	95-75-0	156 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-013	MW-12	Dichlorotoluene, 3,4-	95-75-0	147 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-014	MW-13	Dichlorotoluene, 3,4-	95-75-0	157 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-001	MW-01	Dichlorotoluene, 3,4-	95-75-0	159 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-015	D24-1	Dichlorotoluene, 3,4-	95-75-0	164 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-002	MW-02	Dichlorotoluene, 3,4-	95-75-0	155 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-003	MW-02B	Dichlorotoluene, 3,4-	95-75-0	158 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-004	MW-03	Dichlorotoluene, 3,4-	95-75-0	136 %	70.0-130 %	Recovery greater than upper data quality objective
Hydrocarbons Surrogates	EO2405230-005	MW-04	Dichlorotoluene, 3,4-	95-75-0	155 %	70.0-130 %	Recovery greater than upper data quality objective



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-02	E298	27-Jun-2024	03-Jul-2024	3 days	5 days	✖ EHT	04-Jul-2024	28 days	1 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-10	E298	27-Jun-2024	04-Jul-2024	3 days	6 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-03	E298	26-Jun-2024	03-Jul-2024	3 days	6 days	✖ EHT	04-Jul-2024	28 days	1 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-04	E298	26-Jun-2024	03-Jul-2024	3 days	6 days	✖ EHT	04-Jul-2024	28 days	1 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-05	E298	26-Jun-2024	03-Jul-2024	3 days	6 days	✖ EHT	04-Jul-2024	28 days	1 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-06	E298	26-Jun-2024	04-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-07	E298	27-Jun-2024	04-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	0 days	✔



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-08	E298	27-Jun-2024	04-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-09	E298	26-Jun-2024	04-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-11	E298	27-Jun-2024	04-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-12	E298	26-Jun-2024	04-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-13	E298	26-Jun-2024	04-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-02B	E298	26-Jun-2024	03-Jul-2024	3 days	7 days	✖ EHT	04-Jul-2024	28 days	1 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE D24-1	E298	26-Jun-2024	04-Jul-2024	3 days	8 days	✖ EHT	04-Jul-2024	28 days	0 days	✔
Anions and Nutrients : Ammonia by Fluorescence										
HDPE MW-01	E298	29-Jun-2024	03-Jul-2024	4 days	4 days	✔	04-Jul-2024	28 days	1 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-02	E235.Cl	27-Jun-2024	29-Jun-2024	28 days	2 days	✔	29-Jun-2024	28 days	2 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-07	E235.Cl	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-08	E235.Cl	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-10	E235.Cl	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-11	E235.Cl	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE D24-1	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-02B	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-03	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-04	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-05	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-06	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-09	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-12	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-13	E235.Cl	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-01	E235.Cl	29-Jun-2024	29-Jun-2024	29 days	1 days	✓	29-Jun-2024	29 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-02	E235.F	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-07	E235.F	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-08	E235.F	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-10	E235.F	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-11	E235.F	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE D24-1	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-02B	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-03	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-04	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-05	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-06	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-09	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-12	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-13	E235.F	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-01	E235.F	29-Jun-2024	29-Jun-2024	29 days	1 days	✓	29-Jun-2024	29 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-02	E235.NO3	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-07	E235.NO3	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-08	E235.NO3	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-10	E235.NO3	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-11	E235.NO3	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE D24-1	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-02B	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-03	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-04	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-05	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-06	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-09	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-12	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-13	E235.NO3	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE MW-01	E235.NO3	29-Jun-2024	29-Jun-2024	4 days	1 days	✓	29-Jun-2024	4 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-02	E235.NO2	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-07	E235.NO2	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-08	E235.NO2	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-10	E235.NO2	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-11	E235.NO2	27-Jun-2024	29-Jun-2024	3 days	2 days	✓	29-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE D24-1	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-02B	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-03	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-04	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-05	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-06	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-09	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-12	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-13	E235.NO2	26-Jun-2024	29-Jun-2024	3 days	3 days	✓	29-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE MW-01	E235.NO2	29-Jun-2024	29-Jun-2024	4 days	1 days	✓	29-Jun-2024	4 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-02	E235.SO4	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-07	E235.SO4	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-08	E235.SO4	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-10	E235.SO4	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-11	E235.SO4	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE D24-1	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-02B	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-03	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-04	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-05	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-06	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-09	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-12	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-13	E235.SO4	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-01	E235.SO4	29-Jun-2024	29-Jun-2024	29 days	1 days	✓	29-Jun-2024	29 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-02	E509	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-07	E509	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-08	E509	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-10	E509	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-11	E509	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) D24-1	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-02B	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-03	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-04	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-05	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-06	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-09	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-12	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-13	E509	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-01	E509	29-Jun-2024	03-Jul-2024	29 days	5 days	✓	03-Jul-2024	29 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-02	E421	27-Jun-2024	03-Jul-2024	180 days	6 days	✓	03-Jul-2024	180 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-07	E421	27-Jun-2024	03-Jul-2024	180 days	6 days	✓	03-Jul-2024	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-08	E421	27-Jun-2024	03-Jul-2024	180 days	6 days	✓	03-Jul-2024	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-10	E421	27-Jun-2024	03-Jul-2024	180 days	6 days	✓	03-Jul-2024	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-11	E421	27-Jun-2024	03-Jul-2024	180 days	6 days	✓	03-Jul-2024	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) D24-1	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-02B	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-03	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-04	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-05	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-06	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-09	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-12	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-13	E421	26-Jun-2024	03-Jul-2024	180 days	7 days	✓	03-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-01	E421	29-Jun-2024	03-Jul-2024	181 days	5 days	✓	03-Jul-2024	181 days	4 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-02	E581.F1	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-07	E581.F1	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-08	E581.F1	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-02B	E581.F1	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓



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Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-03	E581.F1	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-04	E581.F1	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-05	E581.F1	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-06	E581.F1	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-10	E581.F1	27-Jun-2024	03-Jul-2024	14 days	6 days	✓	03-Jul-2024	14 days	6 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-11	E581.F1	27-Jun-2024	03-Jul-2024	14 days	6 days	✓	03-Jul-2024	14 days	6 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) D24-1	E581.F1	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-09	E581.F1	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-12	E581.F1	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-13	E581.F1	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MW-01	E581.F1	29-Jun-2024	02-Jul-2024	15 days	4 days	✓	02-Jul-2024	15 days	3 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-02	E601	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-07	E601	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-08	E601	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-02B	E601	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-03	E601	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-04	E601	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-05	E601	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	40 days	0 days	✓



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Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-06	E601	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-09	E601	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-10	E601	27-Jun-2024	03-Jul-2024	14 days	6 days	✓	03-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-11	E601	27-Jun-2024	03-Jul-2024	14 days	6 days	✓	03-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) D24-1	E601	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-12	E601	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-13	E601	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MW-01	E601	29-Jun-2024	02-Jul-2024	15 days	4 days	✓	02-Jul-2024	40 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-02	E358-L	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓



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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-07	E358-L	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-08	E358-L	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-10	E358-L	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-11	E358-L	27-Jun-2024	03-Jul-2024	28 days	6 days	✓	03-Jul-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) D24-1	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-02B	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-03	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-04	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-05	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-06	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-09	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-12	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-13	E358-L	26-Jun-2024	03-Jul-2024	28 days	7 days	✓	03-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) MW-01	E358-L	29-Jun-2024	03-Jul-2024	29 days	5 days	✓	03-Jul-2024	29 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-02	E290	27-Jun-2024	29-Jun-2024	14 days	2 days	✓	29-Jun-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-07	E290	27-Jun-2024	29-Jun-2024	14 days	2 days	✓	29-Jun-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-08	E290	27-Jun-2024	29-Jun-2024	14 days	2 days	✓	29-Jun-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-10	E290	27-Jun-2024	29-Jun-2024	14 days	2 days	✓	29-Jun-2024	14 days	2 days	✓



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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE MW-11	E290	27-Jun-2024	29-Jun-2024	14 days	2 days	✓	29-Jun-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE D24-1	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-02B	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-03	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-04	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-05	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-06	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-09	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-12	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE MW-13	E290	26-Jun-2024	29-Jun-2024	14 days	3 days	✓	29-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01	E290	29-Jun-2024	29-Jun-2024	15 days	1 days	✓	29-Jun-2024	15 days	0 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-02	E100	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-07	E100	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-08	E100	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-10	E100	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-11	E100	27-Jun-2024	29-Jun-2024	28 days	2 days	✓	29-Jun-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE D24-1	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-02B	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE MW-03	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-04	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-05	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-06	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-09	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-12	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-13	E100	26-Jun-2024	29-Jun-2024	28 days	3 days	✓	29-Jun-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-01	E100	29-Jun-2024	29-Jun-2024	29 days	1 days	✓	29-Jun-2024	29 days	0 days	✓
Physical Tests : pH by Meter										
HDPE MW-01	E108	29-Jun-2024	29-Jun-2024	0.25 hrs	4 hrs	✖ EHTL	29-Jun-2024	0.25 hrs	4 hrs	✖ EHTL



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE MW-10	E108	27-Jun-2024	29-Jun-2024	0.25 hrs	47 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	47 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-02	E108	27-Jun-2024	29-Jun-2024	0.25 hrs	48 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	48 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-07	E108	27-Jun-2024	29-Jun-2024	0.25 hrs	48 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	48 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-08	E108	27-Jun-2024	29-Jun-2024	0.25 hrs	51 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	51 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-11	E108	27-Jun-2024	29-Jun-2024	0.25 hrs	52 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	52 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-06	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	68 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	68 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-09	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	69 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	69 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-12	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	70 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	70 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-13	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	71 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	71 hrs	✖ EHTR-FM



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE MW-05	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	72 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	72 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE D24-1	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	74 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	74 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-04	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	74 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	74 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-03	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	75 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	75 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-02B	E108	26-Jun-2024	29-Jun-2024	0.25 hrs	77 hrs	✖ EHTR-FM	29-Jun-2024	0.25 hrs	77 hrs	✖ EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE MW-01	E162	29-Jun-2024	----	----	----		05-Jul-2024	7 days	6 days	✔
Physical Tests : TDS by Gravimetry										
HDPE MW-02	E162	27-Jun-2024	----	----	----		05-Jul-2024	7 days	7 days	✔
Physical Tests : TDS by Gravimetry										
HDPE MW-07	E162	27-Jun-2024	----	----	----		05-Jul-2024	7 days	7 days	✔
Physical Tests : TDS by Gravimetry										
HDPE MW-08	E162	27-Jun-2024	----	----	----		05-Jul-2024	7 days	7 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE MW-10	E162	27-Jun-2024	----	----	----		05-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE D24-1	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-03	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-04	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-05	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-06	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-09	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-11	E162	27-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-12	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE MW-13	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE MW-02B	E162	26-Jun-2024	----	----	----		05-Jul-2024	7 days	9 days	✖ EHT
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-01	H-2+O-18	29-Jun-2024	----	----	----		02-Jul-2024	----	3 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-02	H-2+O-18	27-Jun-2024	----	----	----		02-Jul-2024	----	5 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-07	H-2+O-18	27-Jun-2024	----	----	----		02-Jul-2024	----	5 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-08	H-2+O-18	27-Jun-2024	----	----	----		02-Jul-2024	----	5 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-10	H-2+O-18	27-Jun-2024	----	----	----		02-Jul-2024	----	5 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-11	H-2+O-18	27-Jun-2024	----	----	----		02-Jul-2024	----	5 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging D24-1	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-02B	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-03	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-04	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-05	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-06	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-09	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-12	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Stable Isotope : Stable Isotope Analysis in Water by IRMS										
Original packaging MW-13	H-2+O-18	26-Jun-2024	----	----	----		02-Jul-2024	----	6 days	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-02	E611A	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	14 days	5 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-07	E611A	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	14 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-08	E611A	27-Jun-2024	02-Jul-2024	14 days	5 days	✓	02-Jul-2024	14 days	5 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-02B	E611A	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-03	E611A	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-04	E611A	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-05	E611A	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-06	E611A	26-Jun-2024	02-Jul-2024	14 days	6 days	✓	02-Jul-2024	14 days	6 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-10	E611A	27-Jun-2024	03-Jul-2024	14 days	6 days	✓	03-Jul-2024	14 days	6 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-11	E611A	27-Jun-2024	03-Jul-2024	14 days	6 days	✓	03-Jul-2024	14 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) D24-1	E611A	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-09	E611A	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-12	E611A	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-13	E611A	26-Jun-2024	03-Jul-2024	14 days	7 days	✓	03-Jul-2024	14 days	7 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-01	E611A	29-Jun-2024	02-Jul-2024	15 days	4 days	✓	02-Jul-2024	15 days	3 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
Analytical Methods			QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1522161	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	1525530	2	40	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1523691	2	34	5.8	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1523692	2	40	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1522100	1	20	5.0	5.0	✓
Conductivity in Water	E100	1522160	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1525221	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1525359	2	39	5.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1525381	2	40	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1522097	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1522098	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1522099	1	20	5.0	5.0	✓
pH by Meter	E108	1522159	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1522101	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1525875	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1522161	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	1525530	2	40	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1523691	2	34	5.8	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1523692	2	40	5.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1524365	2	39	5.1	5.0	✓
Chloride in Water by IC	E235.Cl	1522100	1	20	5.0	5.0	✓
Conductivity in Water	E100	1522160	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1525221	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1525359	2	39	5.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1525381	2	40	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1522097	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1522098	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1522099	1	20	5.0	5.0	✓
pH by Meter	E108	1522159	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1522101	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1525875	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1522161	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	1525530	2	40	5.0	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
BTEX by Headspace GC-MS	E611A	1523691	2	34	5.8	5.0	✔
CCME PHC - F1 by Headspace GC-FID	E581.F1	1523692	2	40	5.0	5.0	✔
CCME PHCs - F2-F4 by GC-FID	E601	1524365	2	39	5.1	5.0	✔
Chloride in Water by IC	E235.Cl	1522100	1	20	5.0	5.0	✔
Conductivity in Water	E100	1522160	1	15	6.6	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1525221	2	40	5.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1525359	2	39	5.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1525381	2	40	5.0	5.0	✔
Fluoride in Water by IC	E235.F	1522097	1	20	5.0	5.0	✔
Nitrate in Water by IC	E235.NO3	1522098	1	20	5.0	5.0	✔
Nitrite in Water by IC	E235.NO2	1522099	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1522101	1	20	5.0	5.0	✔
TDS by Gravimetry	E162	1525875	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1525530	2	40	5.0	5.0	✔
BTEX by Headspace GC-MS	E611A	1523691	2	34	5.8	5.0	✔
Chloride in Water by IC	E235.Cl	1522100	1	20	5.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1525221	2	40	5.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1525359	2	39	5.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1525381	2	40	5.0	5.0	✔
Fluoride in Water by IC	E235.F	1522097	1	20	5.0	5.0	✔
Nitrate in Water by IC	E235.NO3	1522098	1	20	5.0	5.0	✔
Nitrite in Water by IC	E235.NO2	1522099	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1522101	1	20	5.0	5.0	✔



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Edmonton	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Edmonton	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TDS by Gravimetry	E162 ALS Environmental - Edmonton	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Edmonton	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Edmonton	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Edmonton	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Edmonton	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 µm), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Edmonton	Water	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Edmonton	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Edmonton	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Edmonton	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Edmonton	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 ALS Environmental - Edmonton	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Edmonton	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
F1-BTEX	EC580 ALS Environmental - Edmonton	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Stable Isotope Analysis in Water by IRMS	H-2+O-18 Isobrine Solutions Inc. - 9330 60 Avenue NW Edmonton Alberta Canada T6E 0C1	Water		See attached report.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Edmonton	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Edmonton	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Edmonton	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Edmonton	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Edmonton	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: EO2405230	Page	: 1 of 17
Client	: Worley Canada Services Ltd.	Laboratory	: ALS Environmental - Edmonton
Contact	: Rylee Machula	Account Manager	: Dana Brown
Address	: 200 - 8615 51 Ave NW Edmonton AB Canada T6E 6A8	Address	: 9450 - 17 Avenue NW Edmonton, Alberta Canada T6N 1M9
Telephone	: 780.919.2746	Telephone	: 7804136472
Project	: ----	Date Samples Received	: 28-Jun-2024 13:42
PO	: ----	Date Analysis Commenced	: 29-Jun-2024
C-O-C number	: 20-1057903,04	Issue Date	: 09-Jul-2024 10:58
Sampler	: RM		
Site	: ----		
Quote number	: EO24-WORL100-0010 NCIA		
No. of samples received	: 15		
No. of samples analysed	: 15		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Alex Drake	Lab Analyst	Edmonton Inorganics, Edmonton, Alberta
Alex Drake	Lab Analyst	Edmonton Metals, Edmonton, Alberta
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Brayden Ginther	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
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Daniel Nguyen	Laboratory Analyst	Edmonton Metals, Edmonton, Alberta
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Yan Zhang	Team Leader - Organics	Edmonton Organics, Edmonton, Alberta



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.



Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1522159)											
EO2405230-015	D24-1	pH	----	E108	0.10	pH units	8.20	8.09	1.35%	3%	----
Physical Tests (QC Lot: 1522160)											
EO2405230-015	D24-1	Conductivity	----	E100	1.0	µS/cm	1290	1320	1.69%	10%	----
Physical Tests (QC Lot: 1522161)											
EO2405230-015	D24-1	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	362	363	0.220%	20%	----
Physical Tests (QC Lot: 1525875)											
EO2405196-005	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	530	540	1.96%	20%	----
Anions and Nutrients (QC Lot: 1522097)											
FC2401653-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.023	0.023	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1522098)											
FC2401653-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.020	<0.020	0.0005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1522099)											
FC2401653-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1522100)											
FC2401653-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	59.2	60.0	1.29%	20%	----
Anions and Nutrients (QC Lot: 1522101)											
FC2401653-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.55	3.53	0.678%	20%	----
Anions and Nutrients (QC Lot: 1525530)											
EO2405225-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0120	0.0126	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1528477)											
EO2405260-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.123	0.123	0.00%	20%	----
Organic / Inorganic Carbon (QC Lot: 1525381)											
EO2405226-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	7.95	7.70	3.19%	20%	----
Organic / Inorganic Carbon (QC Lot: 1525605)											
EO2405230-002	MW-02	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	5.23	5.15	1.46%	20%	----
Dissolved Metals (QC Lot: 1525221)											
EO2405208-028	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1525224)											
EO2405230-011	MW-10	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1525359)											



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1525359) - continued											
EO2405196-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0182	0.0183	0.507%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00068	0.00066	0.00002	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00074	0.00070	0.00003	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0355	0.0350	1.38%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.030	0.030	0.00009	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000129	0.0000146	0.0000017	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	16.8	16.5	1.55%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00190	0.00189	0.000004	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00646	0.00643	0.406%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.051	0.051	0.0002	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000084	0.000076	0.000008	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.94	1.89	2.40%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00120	0.00120	0.131%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00127	0.00130	2.01%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00089	0.00092	0.00003	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	2.00	mg/L	4.83	4.73	0.096	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000579	0.000575	0.551%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	0.000015	0.000023	0.000008	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	21.8	21.0	4.04%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00282	0.00283	0.000010	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000854	0.000869	1.75%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00181	0.00182	0.00001	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0555	0.0544	2.03%	20%	----
Dissolved Metals (QC Lot: 1525360)											
EO2405230-015	D24-1	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00040	0.00040	0.000004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0998	0.0979	1.92%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.105	0.101	4.02%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000069	0.0000074	0.0000004	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1525360) - continued											
EO2405230-015	D24-1	Calcium, dissolved	7440-70-2	E421	0.050	mg/L	137	134	2.64%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00021	0.00021	0.000005	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00088	0.00091	0.00003	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.897	0.900	0.399%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	39.6	40.0	1.01%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.266	0.268	0.962%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000349	0.000342	0.000007	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00125	0.00116	0.00009	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	10.1	10.2	1.05%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	75.9	75.7	0.205%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00313	0.00307	1.86%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0018	0.0018	0.00009	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1523691)											
EO2405229-001	Anonymous	Benzene	71-43-2	E611A	10.0	µg/L	5820	5610	3.62%	30%	----
		Ethylbenzene	100-41-4	E611A	10.0	µg/L	84.4	76.0	10.5%	30%	----
		Toluene	108-88-3	E611A	10.0	µg/L	494	478	3.22%	30%	----
		Xylene, m+p-	179601-23-1	E611A	10.0	µg/L	871	851	2.32%	30%	----
		Xylene, o-	95-47-6	E611A	10.0	µg/L	30.8	30.6	0.12	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1525102)											
EO2405230-010	MW-09	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1523692)											
EO2405229-001	Anonymous	F1 (C6-C10)	----	E581.F1	1000	µg/L	8610	9380	8.62%	30%	----
Hydrocarbons (QC Lot: 1525103)											



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Hydrocarbons (QC Lot: 1525103) - continued											
EO2405230-010	MW-09	F1 (C6-C10)	----	E581.F1	100	µg/L	<100	<100	0	Diff <2x LOR	----



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1522160)						
Conductivity	----	E100	1	µS/cm	1.1	----
Physical Tests (QCLot: 1522161)						
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1525875)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1522097)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1522098)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1522099)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1522100)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1522101)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1525530)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1528477)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1525381)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1525605)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Dissolved Metals (QCLot: 1525221)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1525224)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1525359)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1525359) - continued						
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Dissolved Metals (QCLot: 1525360)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1525360) - continued						
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1523691)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Volatile Organic Compounds (QCLot: 1525102)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1523692)						
F1 (C6-C10)	----	E581.F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1524365)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
Hydrocarbons (QCLot: 1525103)						
F1 (C6-C10)	----	E581.F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1525884)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----





Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1522159)									
pH	----	E108	----	pH units	6 pH units	101	97.0	103	----
Physical Tests (QCLot: 1522160)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	98.7	90.0	110	----
Physical Tests (QCLot: 1522161)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1525875)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	94.6	85.0	115	----
Anions and Nutrients (QCLot: 1522097)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1522098)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1522099)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1522100)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1522101)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1525530)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1528477)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	105	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1525381)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	94.8	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1525605)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	99.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	96.7	80.0	120	----
Dissolved Metals (QCLot: 1525359)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	96.4	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Target Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1525359) - continued									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	96.0	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	92.7	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	94.0	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.1	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.8	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.9	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	93.3	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.5	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	94.7	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.9	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.7	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.6	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.8	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	94.6	80.0	120	----
Dissolved Metals (QCLot: 1525360)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.7	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	96.6	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.2	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	108	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	94.2	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1525360) - continued									
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.3	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.0	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	92.8	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.3	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.1	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	90.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.9	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.2	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.7	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	95.8	80.0	120	----
Volatile Organic Compounds (QCLot: 1523691)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	101	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	92.2	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	81.0	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	97.9	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	91.2	70.0	130	----
Volatile Organic Compounds (QCLot: 1525102)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	106	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	79.1	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	83.4	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	101	70.0	130	----
Hydrocarbons (QCLot: 1523692)									
F1 (C6-C10)	----	E581.F1	100	µg/L	2750 µg/L	104	70.0	130	----
Hydrocarbons (QCLot: 1524365)									
F2 (C10-C16)	----	E601	100	µg/L	3820 µg/L	104	70.0	130	----
Hydrocarbons (QCLot: 1525103)									
F1 (C6-C10)	----	E581.F1	100	µg/L	2750 µg/L	91.0	70.0	130	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Hydrocarbons (QCLot: 1525884)									
F2 (C10-C16)	----	E601	100	µg/L	3820 µg/L	104	70.0	130	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1522097)										
FC2401653-001	Anonymous	Fluoride	16984-48-8	E235.F	1.07 mg/L	1 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 1522098)										
FC2401653-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.71 mg/L	2.5 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 1522099)										
FC2401653-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.396 mg/L	0.5 mg/L	79.2	75.0	125	----
Anions and Nutrients (QCLot: 1522100)										
FC2401653-001	Anonymous	Chloride	16887-00-6	E235.Cl	96.4 mg/L	100 mg/L	96.4	75.0	125	----
Anions and Nutrients (QCLot: 1522101)										
FC2401653-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1525530)										
EO2405225-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0992 mg/L	0.1 mg/L	99.2	75.0	125	----
Anions and Nutrients (QCLot: 1528477)										
EO2405260-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1525381)										
EO2405226-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1525605)										
EO2405230-002	MW-02	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 1525221)										
EO2405208-029	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000108 mg/L	0 mg/L	108	70.0	130	----
Dissolved Metals (QCLot: 1525224)										
EO2405230-012	MW-11	Mercury, dissolved	7439-97-6	E509	0.000102 mg/L	0 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1525359)										
EO2405196-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.185 mg/L	0.2 mg/L	92.4	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.117 mg/L	0.1 mg/L	117	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00410 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0201 mg/L	0.02 mg/L	101	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Dissolved Metals (QCLot: 1525359) - continued										
EO2405196-002	Anonymous	Iron, dissolved	7439-89-6	E421	2.00 mg/L	2 mg/L	100	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00381 mg/L	0.004 mg/L	95.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0986 mg/L	0.1 mg/L	98.6	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.398 mg/L	0.4 mg/L	99.5	70.0	130	----
Dissolved Metals (QCLot: 1525360)										
EO2405232-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.207 mg/L	0.2 mg/L	104	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0243 mg/L	0.02 mg/L	122	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.118 mg/L	0.1 mg/L	118	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00427 mg/L	0.004 mg/L	107	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0418 mg/L	0.04 mg/L	104	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		Iron, dissolved	7439-89-6	E421	2.00 mg/L	2 mg/L	100.0	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0178 mg/L	0.02 mg/L	88.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0185 mg/L	0.02 mg/L	92.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.02 mg/L	4 mg/L	100	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0513 mg/L	0.04 mg/L	128	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00381 mg/L	0.004 mg/L	95.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00359 mg/L	0.004 mg/L	89.7	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0417 mg/L	0.04 mg/L	104	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00382 mg/L	0.004 mg/L	95.5	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.104 mg/L	0.1 mg/L	104	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.384 mg/L	0.4 mg/L	95.9	70.0	130	----
Volatile Organic Compounds (QCLot: 1523691)										



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1523691) - continued										
EO2405229-002	Anonymous	Benzene	71-43-2	E611A	ND µg/L	----	ND	50.0	140	MS-B
		Ethylbenzene	100-41-4	E611A	ND µg/L	----	ND	50.0	140	MS-B
		Toluene	108-88-3	E611A	ND µg/L	----	ND	50.0	140	MS-B
		Xylene, m+p-	179601-23-1	E611A	ND µg/L	----	ND	50.0	140	MS-B
		Xylene, o-	95-47-6	E611A	ND µg/L	----	ND	50.0	140	MS-B
Volatile Organic Compounds (QCLot: 1525102)										
EO2405230-011	MW-10	Benzene	71-43-2	E611A	114 µg/L	100 µg/L	114	50.0	140	----
		Ethylbenzene	100-41-4	E611A	62.5 µg/L	100 µg/L	62.5	50.0	140	----
		Toluene	108-88-3	E611A	78.6 µg/L	100 µg/L	78.6	50.0	140	----
		Xylene, m+p-	179601-23-1	E611A	170 µg/L	200 µg/L	85.0	50.0	140	----
		Xylene, o-	95-47-6	E611A	68.8 µg/L	100 µg/L	68.8	50.0	140	----

Qualifiers

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Client: ALS Environmental
Report date: July 5, 2024
Client project ID: E02405230
Isobrine File No: ISOBR-24270



9330 60 Avenue NW
 Edmonton, AB
 Canada, T6E 0C1
 www.isobrine.com
 780-433-3699

Isobrine ID	Client sample IDs		Collected	Received	$\delta^{18}\text{O}$		$\delta^2\text{H}$	
					‰ VSMOW	$\pm 1\sigma$	‰ VSMOW	$\pm 1\sigma$
IB-24-2453	E02405230-001	MW-01	29-Jun-24	2-Jul-24	-18.0	0.04	-143	0.30
IB-24-2454	E02405230-002	MW-02	27-Jun-24	2-Jul-24	-18.4	0.03	-146	0.22
IB-24-2455	E02405230-003	MW-02B	26-Jun-24	2-Jul-24	-16.8	0.00	-136	0.10
IB-24-2456	E02405230-004	MW-03	26-Jun-24	2-Jul-24	-19.0	0.03	-149	0.20
IB-24-2457	E02405230-005	MW-04	26-Jun-24	2-Jul-24	-16.7	0.02	-134	0.13
IB-24-2458	E02405230-006	MW-05	26-Jun-24	2-Jul-24	-16.3	0.03	-133	0.25
IB-24-2459	E02405230-007	MW-06	26-Jun-24	2-Jul-24	-18.0	0.04	-145	0.29
IB-24-2460	E02405230-008	MW-07	27-Jun-24	2-Jul-24	-18.4	0.04	-147	0.17
IB-24-2461	E02405230-009	MW-08	27-Jun-24	2-Jul-24	-17.9	0.04	-145	0.24
IB-24-2462	E02405230-010	MW-09	26-Jun-24	2-Jul-24	-18.8	0.02	-149	0.23
IB-24-2463	E02405230-011	MW-10	27-Jun-24	2-Jul-24	-18.7	0.03	-148	0.09
IB-24-2464	E02405230-012	MW-11	27-Jun-24	2-Jul-24	-17.4	0.05	-142	0.31
IB-24-2465	E02405230-013	MW-12	26-Jun-24	2-Jul-24	-17.4	0.06	-142	0.02
IB-24-2466	E02405230-014	MW-13	26-Jun-24	2-Jul-24	-19.0	0.03	-149	0.19
IB-24-2467	E02405230-015	D24-1	26-Jun-24	2-Jul-24	-16.7	0.05	-135	0.12

Oxygen and hydrogen stable isotope compositions determined on mechanically and chemically cleaned samples using a CRDS (Cavity Ring-Down Spectrometer).

Reported in units of per mil (‰) relative to the international reference standard, Vienna Standard Mean Ocean Water (VSMOW).

Standard deviations for $\delta^{18}\text{O}$ and $\delta^2\text{H}$ are equal to or better than 0.2 ‰ and 2.0 ‰, respectively ($\pm 1\sigma$).



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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

COC Number: 20 - 1057903
Page 1 of 2

Report To		Contact and company name below will appear on the final report	
Company:	Ryke Machuda Consulting	Company address below will appear on the final report	
Phone:	(303) 919-3346		
Street:	4811 87 St NW		
City/Province:	Edmonton AB		
Postal Code:	T6E 0V3		
Invoice To	Same as Report To	Copy of Invoice with Report	☒ YES ☐ NO
Company:		Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Contact:		Email 1 or Fax	
Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #	BR439349		
Job #:		Major/Minor Code:	
PO / AFE:		Routing Code:	
Location:		Routing Code:	
ALS Lab Work Order # (ALS use only):	EO2405230	ALS Contact:	Dana
ALS Sample #		Sample Type	
Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mm-yy)	Time (h:mm)
MW-01		26-Jun-24	1034
MW-02		27-Jun-24	1455
MW-03		26-Jun-24	0935
MW-04		27-Jun-24	1119
MW-05		27-Jun-24	1437
MW-06		27-Jun-24	1440
MW-07		27-Jun-24	1408
MW-08		27-Jun-24	1115
MW-09		26-Jun-24	1753
MW-10		27-Jun-24	1553
MW-11		27-Jun-24	1018
Drinking Water (DW) Samples ¹ (client use)		Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)	
Are samples taken from a Regulated DW System?		☒ YES ☐ NO	
Are samples for human consumption/ use?		☒ YES ☐ NO	
SHIPMENT RELEASE (client use)		Released by: <i>Ryke Machuda</i> Date: 28-Jun-24 Time: 1000	
INITIAL SHIPMENT RECEPTION (ALS use only)		Received by: <i>[Signature]</i> Date: 28-Jun-24 Time: 1048	
FINAL SHIPMENT RECEPTION (ALS use only)		Received by: <i>[Signature]</i> Date: 28-Jun-24 Time: 1048	
Cooling Method: ☒ NONE ☐ ICE ☐ ICE PACKS ☐ ROZBY ☐ COOLING INITIATED		Cooling Method: ☒ NONE ☐ ICE ☐ ICE PACKS ☐ ROZBY ☐ COOLING INITIATED	
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO		Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO	
Cooler Custody Seals Intact: ☐ YES ☐ N/A		Cooler Custody Seals Intact: ☐ YES ☐ N/A	
INITIAL COOLER TEMPERATURES °C		INITIAL COOLER TEMPERATURES °C	
FINAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
SAMPLE RECEIPT DETAILS (ALS use only)		SAMPLE RECEIPT DETAILS (ALS use only)	
Major ion/Routine		Major ion/Routine	
Diss./Ammonia		Diss./Ammonia	
DOC		DOC	
Diss. Metals + Hg		Diss. Metals + Hg	
PACFI-FA		PACFI-FA	
Stable Isotopes		Stable Isotopes	
Deuterium/Oxygen		Deuterium/Oxygen	
H2		H2	
Telephone : +1 780 413 5227		Telephone : +1 780 413 5227	
Barcode		Barcode	
Work Order Reference		Work Order Reference	
Edmonton		Edmonton	
Environmental Division		Environmental Division	
SUSPECTED HAZARD (see notes)		SUSPECTED HAZARD (see notes)	

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form. Failure to complete all portions of this form may delay analysis. Please fill in this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Aug 2009 FRONT

Chain of Custody (COC) / Analytical Request Form

[illegible]

CERTIFICATE OF ANALYSIS

Work Order	: EO2405230	Page	: 1 of 32
Client	: Worley Canada Services Ltd.	Laboratory	: ALS Environmental - Edmonton
Contact	: Rylee Machula	Account Manager	: Dana Brown
Address	: 200 - 8615 51 Ave NW Edmonton AB Canada T6E 6A8	Address	: 9450 - 17 Avenue NW Edmonton AB Canada T6N 1M9
Telephone	: 780.919.2746	Telephone	: 7804136472
Project	:	Date Samples Received	: 28-Jun-2024 13:42
PO	: ----	Date Analysis	: 29-Jun-2024
		Commenced	
C-O-C number	: 20-1057903,04	Issue Date	: 09-Jul-2024 10:57
Sampler	: RM		
Site	: ----		
Quote number	: EO24-WORL100-0010 NCIA		
No. of samples received	: 15		
No. of samples analysed	: 15		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Amanda Powell	Account Manager	External Subcontracting, Edmonton, Alberta
Brayden Ginther	Laboratory Analyst	Inorganics, Edmonton, Alberta
Dan Nguyen	Team Leader - Inorganics	Metals, Edmonton, Alberta
Daniel Nguyen	Laboratory Analyst	Metals, Edmonton, Alberta
Geoff Berg	Lab Analyst	Organics, Edmonton, Alberta
Jing Liu	Laboratory Analyst	Inorganics, Edmonton, Alberta
Kari Mulroy	Lab Supervisor - Environmental	Organics, Edmonton, Alberta
Logan Carroll	Laboratory Analyst	Inorganics, Edmonton, Alberta
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Yan Zhang	Team Leader - Organics	Organics, Edmonton, Alberta



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).
Measurement Uncertainty: The reported uncertainties in this report are expanded uncertainties calculated using a coverage factor of 2, which gives a level of confidence of approximately 95%.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Unit	Description
-	no units
%	percent
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
‰ VSMOW	parts per thousand Vienna Standard Mean Ocean Water
mg/L	milligrams per litre
pH units	pH units

>: greater than.

<: less than.

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
SHMI	Surrogate recovery was outside ALS DQO (High) due to Matrix Interference
SP	Sample was preserved at the laboratory.



Analytical Results

EO2405230-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: MW-01

Client sampling date / time: 29-Jun-2024 10:34

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	411	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	337	± 24.9	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	744	± 57.2	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	331	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.15	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	431	± 55	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	465	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	0.248 ^{SP}	± 0.0292	0.0050	mg/L	E298/EO	03-Jul-2024	04-Jul-2024	1525530
Chloride	16887-00-6	36.6	± 1.66	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.145	± 0.011	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	48.3	± 2.38	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	2.70	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525381
Ion Balance									
Ion balance (cations/anions)	----	94.5	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00094	± 0.00012	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.121	± 0.0104	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.057	± 0.011	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	89.6	± 7.96	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00068	± 0.00008	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	0.00039	± 0.00013	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	1.93	± 0.278	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	26.1	± 2.54	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.686	± 0.0661	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000312	± 0.000039	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	0.00055	± 0.00010	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	2.67	± 0.237	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	34.6	± 3.22	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: MW-01

Client sampling date / time: 29-Jun-2024 10:34

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.00154	± 0.000180	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	0.0015	± 0.0004	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	106	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	159 ^{SHML}	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	78.8	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	90.2	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-002

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-02
Client sampling date / time: 27-Jun-2024 14:55

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	624	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	511	± 37.8	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1310	± 100	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	459	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	7.98	± 0.11	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	770	± 98	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	860	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	0.567 ^{SP}	± 0.0642	0.0150	mg/L	E298/EO	03-Jul-2024	04-Jul-2024	1525530
Chloride	16887-00-6	82.4	± 3.72	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.118	± 0.009	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	158	± 7.78	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	5.23	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	92.4	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	0.0020	± 0.0008	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00217	± 0.00028	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.150	± 0.0128	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.248	± 0.046	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	114	± 10.1	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00028	± 0.00004	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	4.84	± 0.698	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	42.3	± 4.11	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.326	± 0.0314	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000409	± 0.000052	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	4.93	± 0.435	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	0.000126	± 0.000024	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	118	± 10.9	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-002

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: MW-02

Client sampling date / time: 27-Jun-2024 14:55

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.000998	± 0.000117	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	105	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	155 ^{SHML}	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	79.6	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	89.2	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-003

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-02B
Client sampling date / time: 26-Jun-2024 09:35

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	440	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	2.8	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	366	± 27.1	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	3440	± 262	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	114	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.33	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	1800	± 227	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	1940	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	1.38 ^{SP}	± 0.154	0.0250	mg/L	E298/EO	03-Jul-2024	04-Jul-2024	1525530
Chloride	16887-00-6	936 ^{DLDS}	± 42.2	2.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.636 ^{DLDS}	± 0.046	0.100	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.100 ^{DLDS}	-	0.100	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.112	-	0.112	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.050 ^{DLDS}	-	0.050	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	<1.50 ^{DLDS}	-	1.50	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	6.74	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	99.7	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	0.0030	± 0.0009	0.0020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00020 ^{DLDS}	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00857	± 0.00110	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.870	± 0.0745	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000040 ^{DLDS}	-	0.000040	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.883	± 0.163	0.020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000100 ^{DLDS}	-	0.000010 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	34.9	± 3.10	0.100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00100 ^{DLDS}	-	0.00100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	<0.00020 ^{DLDS}	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	0.00138	± 0.00018	0.00040	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	0.684	± 0.099	0.020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000100 ^{DLDS}	-	0.000100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	6.60	± 0.642	0.0100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.0567	± 0.00547	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.00490	± 0.000617	0.000100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00100 ^{DLDS}	-	0.00100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	3.91	± 0.346	0.100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000100 ^{DLDS}	-	0.000100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000020 ^{DLDS}	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	717	± 66.6	0.100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-003

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: MW-02B

Client sampling date / time: 26-Jun-2024 09:35

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000020 ^{DLDS}	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00060 ^{DLDS}	-	0.00060	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.000237	± 0.000028	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00100 ^{DLDS}	-	0.00100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	0.0025	± 0.0005	0.0020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	106	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	158 ^{SHML}	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	80.7	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	89.7	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-004

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-03

Client sampling date / time: 26-Jun-2024 11:19

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO ₃)	71-52-3	446	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO ₃)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO ₃)	----	366	± 27.0	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1020	± 78.2	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO ₃), dissolved	----	442	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.12	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	622	± 79	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	656	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	0.380 ^{SP}	± 0.0436	0.0050	mg/L	E298/EO	03-Jul-2024	04-Jul-2024	1525530
Chloride	16887-00-6	73.5	± 3.32	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.105	± 0.008	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO ₃ /EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO ₂ /EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO ₄)	14808-79-8	124	± 6.12	0.30	mg/L	E235.SO ₄ /EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	3.07	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	95.0	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	0.0272	± 0.0038	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00158	± 0.00020	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0416	± 0.00356	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.132	± 0.025	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	112	± 9.91	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	0.00059	± 0.00009	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00074	± 0.00009	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	0.00061	± 0.00013	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	5.55	± 0.802	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	39.3	± 3.82	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.286	± 0.0275	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000652	± 0.000082	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	0.00085	± 0.00012	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	3.31	± 0.293	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	51.3	± 4.78	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-004

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-03
Client sampling date / time: 26-Jun-2024 11:19

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	0.00068	± 0.00022	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.000549	± 0.000064	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	0.0014	± 0.0004	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	107	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	136 ^{SHML}	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	75.7	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	92.0	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-005

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-04
Client sampling date / time: 26-Jun-2024 12:32

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	443	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	363	± 26.9	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1290	± 98.5	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	508	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.13	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	781	± 99	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	792	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	<0.0050 ^{SP}	-	0.0050	mg/L	E298/EO	03-Jul-2024	04-Jul-2024	1525530
Chloride	16887-00-6	168	± 7.60	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.116	± 0.009	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	0.263	± 0.018	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	0.263	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	121	± 5.96	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	3.77	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	95.2	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00043	± 0.00006	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.102	± 0.00875	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.103	± 0.019	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	0.0000077	± 0.0000014	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	136	± 12.0	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00020	± 0.00003	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	0.00074	± 0.00014	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	0.910	± 0.131	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	40.9	± 3.98	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.267	± 0.0257	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000359	± 0.000045	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	0.00147	± 0.00016	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	10.4	± 0.910	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	78.2	± 7.27	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-005

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: MW-04

Client sampling date / time: 26-Jun-2024 12:32

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.00308	± 0.000360	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	0.0015	± 0.0004	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	109	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	155 ^{SHML}	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	77.3	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	90.8	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-006

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-05
Client sampling date / time: 26-Jun-2024 14:27

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	462	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	379	± 28.0	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	991	± 76.0	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	446	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.04	± 0.11	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	570	± 72	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	638	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	0.236 ^{SP}	± 0.0279	0.0050	mg/L	E298/EO	03-Jul-2024	04-Jul-2024	1525530
Chloride	16887-00-6	61.0	± 2.76	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.099	± 0.008	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	117	± 5.76	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	3.90	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	95.7	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	0.0018	± 0.0008	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00203	± 0.00026	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0500	± 0.00428	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.068	± 0.013	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	119	± 10.6	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00092	± 0.00011	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	4.37	± 0.631	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	36.2	± 3.52	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.705	± 0.0680	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000428	± 0.000054	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	0.00068	± 0.00011	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	8.26	± 0.725	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	43.3	± 4.03	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-006

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: MW-05

Client sampling date / time: 26-Jun-2024 14:27

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.000654	± 0.000076	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	109	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	121	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	73.3	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	90.9	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-007

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-06
Client sampling date / time: 26-Jun-2024 18:40

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	648	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	532	± 39.3	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1650	± 126	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	634	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.07	± 0.11	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	1130	± 143	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	1240	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	1.78 ^{SP}	± 0.198	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	7.18 ^{DLDS}	± 0.33	2.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.136 ^{DLDS}	± 0.010	0.100	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.100 ^{DLDS}	-	0.100	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.112	-	0.112	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.050 ^{DLDS}	-	0.050	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	498 ^{DLDS}	± 24.5	1.50	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	7.48	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	93.9	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	0.0037	± 0.0010	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00634	± 0.00082	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0263	± 0.00225	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.174	± 0.032	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	158	± 14.0	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00022	± 0.00003	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	5.83	± 0.842	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	58.2	± 5.66	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	1.63	± 0.157	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000727	± 0.000092	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	5.52	± 0.486	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	0.000051	± 0.000010	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	154	± 14.4	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-007

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: MW-06

Client sampling date / time: 26-Jun-2024 18:40

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.00163	± 0.000191	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	107	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	121	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	76.6	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	92.2	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-008

Sub-Matrix:Water
(Matrix: Water)

Client sample ID: MW-07
Client sampling date / time: 27-Jun-2024 14:08

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	716	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	587	± 43.4	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	2620	± 200	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	1020	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	7.82	± 0.11	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	2040	± 257	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	2110	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	2.68 ^{SP}	± 0.298	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	14.8 ^{DLDS}	± 0.68	2.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	<0.100 ^{DLDS}	-	0.100	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.100 ^{DLDS}	-	0.100	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.112	-	0.112	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.050 ^{DLDS}	-	0.050	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	1080 ^{DLDS}	± 53.1	1.50	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	6.42	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	94.5	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0020 ^{DLDS}	-	0.0020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00020 ^{DLDS}	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00391	± 0.00050	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0415	± 0.00355	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000040 ^{DLDS}	-	0.000040	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.344	± 0.064	0.020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000100 ^{DLDS}	-	0.000010 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	257	± 22.8	0.100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00100 ^{DLDS}	-	0.00100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00105	± 0.00012	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	0.00093	± 0.00015	0.00040	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	12.5	± 1.80	0.020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000100 ^{DLDS}	-	0.000100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	91.6	± 8.90	0.0100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	1.94	± 0.187	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000748	± 0.000094	0.000100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00100 ^{DLDS}	-	0.00100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	6.00	± 0.528	0.100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000100 ^{DLDS}	-	0.000100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000020 ^{DLDS}	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	264	± 24.5	0.100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-008

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: MW-07

Client sampling date / time: 27-Jun-2024 14:08

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000020 ^{DLDS}	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00060 ^{DLDS}	-	0.00060	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.00156	± 0.000182	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00100 ^{DLDS}	-	0.00100	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0020 ^{DLDS}	-	0.0020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	108	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	119	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	76.2	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	90.7	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-009

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-08
Client sampling date / time: 27-Jun-2024 11:15

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	627	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	514	± 38.0	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1430	± 109	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	569	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.12	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	982	± 124	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	1050	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	2.16 ^{SP}	± 0.240	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	1.38	± 0.08	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.119	± 0.009	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	364	± 17.9	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	6.13	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	98.9	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00525	± 0.00068	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0252	± 0.00215	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.231	± 0.043	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	155	± 13.8	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00017	± 0.00003	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	0.00072	± 0.00014	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	8.00	± 1.15	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	44.2	± 4.29	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.512	± 0.0493	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.000844	± 0.000106	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	6.32	± 0.556	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	132	± 12.3	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-009

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: MW-08

Client sampling date / time: 27-Jun-2024 11:15

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.000822	± 0.000096	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	106	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	122	-	1.0	%	E581.F1/EO	02-Jul-2024	02-Jul-2024	1523692
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	74.8	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Difluorobenzene, 1,4-	540-36-3	90.8	-	1.0	%	E611A/EO	02-Jul-2024	02-Jul-2024	1523691
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-010

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-09
Client sampling date / time: 26-Jun-2024 17:53

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	670	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	549	± 40.6	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1470	± 112	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	323	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.25	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	956	± 121	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	1040	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	2.15 ^{SP}	± 0.239	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	5.46	± 0.26	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.233	± 0.017	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	0.023	± 0.004	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	0.0230	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	323	± 15.9	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	6.58	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	93.8	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00263	± 0.00034	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0194	± 0.00166	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.314	± 0.058	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	86.6	± 7.69	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00144	± 0.00017	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	1.91	± 0.276	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	26.0	± 2.52	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.807	± 0.0778	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525221
Molybdenum, dissolved	7439-98-7	0.00136	± 0.000172	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	4.12	± 0.364	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	230	± 21.4	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-010

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: MW-09

Client sampling date / time: 26-Jun-2024 17:53

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.00123	± 0.000144	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525221
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	109	-	1.0	%	E601/EO	02-Jul-2024	02-Jul-2024	1524365
Dichlorotoluene, 3,4-	95-75-0	167 ^{SHML}	-	1.0	%	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	75.3	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Difluorobenzene, 1,4-	540-36-3	91.4	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-011

Sub-Matrix:Water
(Matrix: Water)

Client sample ID: MW-10 -
Client sampling date / time: 27-Jun-2024 15:53

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	671	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	550	± 40.7	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1210	± 92.5	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	444	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.11	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	774	± 98	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	846	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	2.01 ^{SP}	± 0.224	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	0.77	± 0.06	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.159	± 0.012	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	207	± 10.2	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	5.98	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	92.8	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00492	± 0.00063	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0277	± 0.00237	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.210	± 0.039	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	123	± 10.9	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00031	± 0.00004	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	5.54	± 0.799	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	33.2	± 3.23	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.658	± 0.0634	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525224
Molybdenum, dissolved	7439-98-7	0.000882	± 0.000111	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	5.52	± 0.486	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	0.000061	± 0.000011	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	112	± 10.4	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-011

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: MW-10 -

Client sampling date / time: 27-Jun-2024 15:53

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.00108	± 0.000127	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525224
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	104	-	1.0	%	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Dichlorotoluene, 3,4-	95-75-0	154 ^{SHML}	-	1.0	%	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	75.2	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Difluorobenzene, 1,4-	540-36-3	90.2	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-012

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-11 -
Client sampling date / time: 27-Jun-2024 10:18

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	667	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	547	± 40.5	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1230	± 94.3	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	508	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.13	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	798	± 101	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	870	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	1.77 ^{SP}	± 0.197	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	11.2	± 0.51	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.112	± 0.009	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	218	± 10.7	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	6.59	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	92.4	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00255	± 0.00033	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.0375	± 0.00321	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.236	± 0.044	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	138	± 12.3	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00026	± 0.00004	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	6.59	± 0.952	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	39.8	± 3.87	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.591	± 0.0570	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525224
Molybdenum, dissolved	7439-98-7	0.000603	± 0.000076	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	4.76	± 0.420	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	91.6	± 8.52	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-012

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: MW-11 -

Client sampling date / time: 27-Jun-2024 10:18

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.00101	± 0.000118	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525224
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	102	-	1.0	%	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Dichlorotoluene, 3,4-	95-75-0	156 ^{SHML}	-	1.0	%	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	79.1	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Difluorobenzene, 1,4-	540-36-3	92.0	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-013

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-12
Client sampling date / time: 26-Jun-2024 16:24

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	698	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	572	± 42.4	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	968	± 74.3	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	336	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.21	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	578	± 74	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	641	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	1.46 ^{SP}	± 0.163	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	6.20	± 0.29	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.095	± 0.008	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	39.2	± 1.94	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	7.08	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	89.5	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00280	± 0.00036	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.112	± 0.00962	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.269	± 0.050	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	87.8	± 7.80	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00042	± 0.00006	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	4.47	± 0.646	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	28.4	± 2.76	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.439	± 0.0423	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525224
Molybdenum, dissolved	7439-98-7	0.000915	± 0.000115	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	4.90	± 0.432	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	92.2	± 8.58	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-013

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: MW-12

Client sampling date / time: 26-Jun-2024 16:24

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.000780	± 0.000091	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525224
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	102	-	1.0	%	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Dichlorotoluene, 3,4-	95-75-0	147 ^{SHML}	-	1.0	%	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	77.6	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Difluorobenzene, 1,4-	540-36-3	91.6	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-014

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: MW-13 -
Client sampling date / time: 26-Jun-2024 15:46

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QC/Lot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	506	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	5.5	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	424	± 31.4	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	712	± 54.8	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	174	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.38	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	420	± 54	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	464	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	1.43 ^{SP}	± 0.160	0.0500	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	2.03	± 0.10	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.155	± 0.012	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	<0.020	-	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	<0.0224	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	10.5	± 0.52	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	4.58	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	96.2	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	0.0215	± 0.0030	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Arsenic, dissolved	7440-38-2	0.00171	± 0.00022	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Barium, dissolved	7440-39-3	0.380	± 0.0325	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Boron, dissolved	7440-42-8	0.284	± 0.053	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cadmium, dissolved	7440-43-9	<0.0000050	-	0.000005 0	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Calcium, dissolved	7440-70-2	44.8	± 3.98	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Cobalt, dissolved	7440-48-4	0.00066	± 0.00008	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Copper, dissolved	7440-50-8	<0.00020	-	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Iron, dissolved	7439-89-6	1.35	± 0.195	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Magnesium, dissolved	7439-95-4	15.0	± 1.46	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Manganese, dissolved	7439-96-5	0.234	± 0.0226	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005 0	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525224
Molybdenum, dissolved	7439-98-7	0.00200	± 0.000252	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Nickel, dissolved	7440-02-0	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Potassium, dissolved	7440-09-7	3.86	± 0.341	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Sodium, dissolved	7440-23-5	108	± 10.0	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359



Analytical Results

EO2405230-014

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: MW-13 -

Client sampling date / time: 26-Jun-2024 15:46

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Uranium, dissolved	7440-61-1	0.000598	± 0.000070	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Zinc, dissolved	7440-66-6	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525359
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525224
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525359
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	104	-	1.0	%	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Dichlorotoluene, 3,4-	95-75-0	157 ^{SHML}	-	1.0	%	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	73.9	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Difluorobenzene, 1,4-	540-36-3	90.9	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



Analytical Results

EO2405230-015

Sub-Matrix: Water
(Matrix: Water)

Client sample ID: D24-1
Client sampling date / time: 26-Jun-2024 12:35

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	442	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, carbonate (as CO3)	3812-32-6	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, hydroxide (as OH)	14280-30-9	<1.0	-	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Alkalinity, total (as CaCO3)	----	362	± 26.8	1.0	mg/L	E290/EO	29-Jun-2024	29-Jun-2024	1522161
Conductivity	----	1290	± 99.0	1.0	µS/cm	E100/EO	29-Jun-2024	29-Jun-2024	1522160
Hardness (as CaCO3), dissolved	----	505	-	0.50	mg/L	EC100/EO	-	04-Jul-2024	-
pH	----	8.20	± 0.12	0.10	pH units	E108/EO	29-Jun-2024	29-Jun-2024	1522159
Solids, total dissolved [TDS]	----	765	± 97	20	mg/L	E162/EO	-	05-Jul-2024	1525875
Solids, total dissolved [TDS], calculated	----	785	-	1.0	mg/L	EC103/EO	-	02-Jul-2024	-
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	<0.0050 ^{SP}	-	0.0050	mg/L	E298/EO	04-Jul-2024	04-Jul-2024	1528477
Chloride	16887-00-6	165	± 7.43	0.50	mg/L	E235.Cl/EO	29-Jun-2024	29-Jun-2024	1522100
Fluoride	16984-48-8	0.110	± 0.008	0.020	mg/L	E235.F/EO	29-Jun-2024	29-Jun-2024	1522097
Nitrate (as N)	14797-55-8	0.322	± 0.022	0.020	mg/L	E235.NO3/EO	29-Jun-2024	29-Jun-2024	1522098
Nitrate + Nitrite (as N)	----	0.322	-	0.0224	mg/L	EC235.N+N/EO	-	02-Jul-2024	-
Nitrite (as N)	14797-65-0	<0.010	-	0.010	mg/L	E235.NO2/EO	29-Jun-2024	29-Jun-2024	1522099
Sulfate (as SO4)	14808-79-8	120	± 5.92	0.30	mg/L	E235.SO4/EO	29-Jun-2024	29-Jun-2024	1522101
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	3.72	-	0.50	mg/L	E358-L/EO	03-Jul-2024	03-Jul-2024	1525605
Ion Balance									
Ion balance (cations/anions)	----	95.1	-	0.010	%	EC101/EO	-	02-Jul-2024	-
Dissolved Metals									
Aluminum, dissolved	7429-90-5	<0.0010	-	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Antimony, dissolved	7440-36-0	<0.00010	-	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Arsenic, dissolved	7440-38-2	0.00040	± 0.00005	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Barium, dissolved	7440-39-3	0.0998	± 0.00854	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Beryllium, dissolved	7440-41-7	<0.000020	-	0.000020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Boron, dissolved	7440-42-8	0.105	± 0.020	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Cadmium, dissolved	7440-43-9	0.0000069	± 0.0000013	0.000005	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Calcium, dissolved	7440-70-2	137	± 12.2	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Chromium, dissolved	7440-47-3	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Cobalt, dissolved	7440-48-4	0.00021	± 0.00003	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Copper, dissolved	7440-50-8	0.00088	± 0.00015	0.00020	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Iron, dissolved	7439-89-6	0.897	± 0.130	0.010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Lead, dissolved	7439-92-1	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Magnesium, dissolved	7439-95-4	39.6	± 3.84	0.0050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Manganese, dissolved	7439-96-5	0.266	± 0.0256	0.00010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Mercury, dissolved	7439-97-6	<0.0000050	-	0.000005	mg/L	E509/EO	03-Jul-2024	03-Jul-2024	1525224
Molybdenum, dissolved	7439-98-7	0.000349	± 0.000044	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Nickel, dissolved	7440-02-0	0.00125	± 0.00015	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Potassium, dissolved	7440-09-7	10.1	± 0.888	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Selenium, dissolved	7782-49-2	<0.000050	-	0.000050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Silver, dissolved	7440-22-4	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Sodium, dissolved	7440-23-5	75.9	± 7.06	0.050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360



Analytical Results

EO2405230-015

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID: D24-1

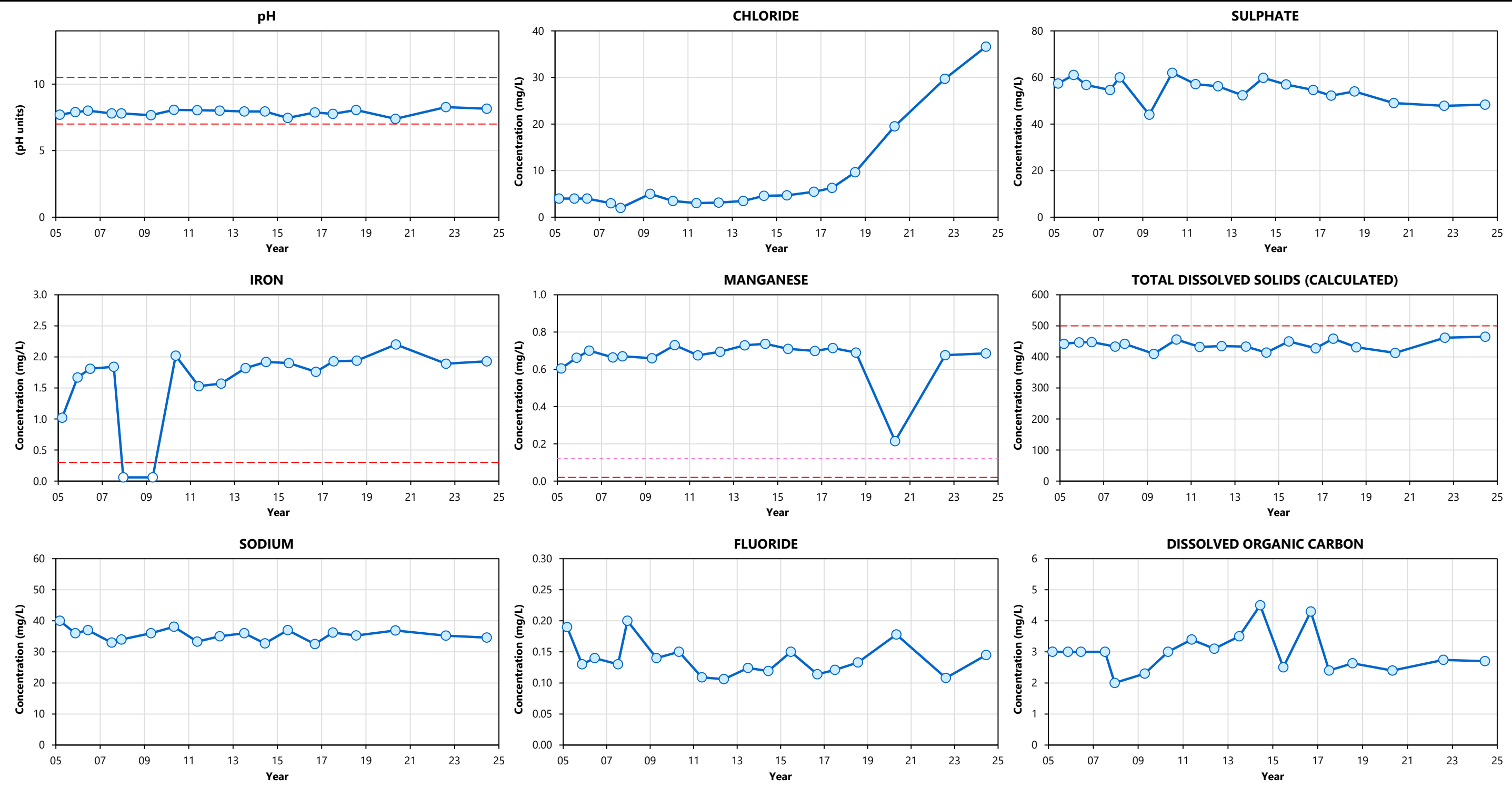
Client sampling date / time: 26-Jun-2024 12:35

Analyte	CAS Number	Result	Measurement Uncertainty	LOR	Unit	Method/Lab	Prep Date	Analysis Date	QCLot
Dissolved Metals									
Thallium, dissolved	7440-28-0	<0.000010	-	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Titanium, dissolved	7440-32-6	<0.00030	-	0.00030	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Uranium, dissolved	7440-61-1	0.00313	± 0.000366	0.000010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Vanadium, dissolved	7440-62-2	<0.00050	-	0.00050	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Zinc, dissolved	7440-66-6	0.0018	± 0.0004	0.0010	mg/L	E421/EO	03-Jul-2024	03-Jul-2024	1525360
Dissolved mercury filtration location	----	Field	-	-	-	EP509/EO	-	03-Jul-2024	1525224
Dissolved metals filtration location	----	Field	-	-	-	EP421/EO	-	03-Jul-2024	1525360
Volatile Organic Compounds									
Benzene	71-43-2	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Ethylbenzene	100-41-4	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Toluene	108-88-3	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, m+p-	179601-23-1	<0.40	-	0.40	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylene, o-	95-47-6	<0.30	-	0.30	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Xylenes, total	1330-20-7	<0.50	-	0.50	µg/L	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Hydrocarbons									
F1 (C6-C10)	----	<100	-	100	µg/L	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
F1-BTEX	----	<100	-	100	µg/L	EC580/EO	-	04-Jul-2024	-
F2 (C10-C16)	----	<100	-	100	µg/L	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	102	-	1.0	%	E601/EO	03-Jul-2024	03-Jul-2024	1525884
Dichlorotoluene, 3,4-	95-75-0	164 ^{SHML}	-	1.0	%	E581.F1/EO	03-Jul-2024	03-Jul-2024	1525103
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	78.1	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Difluorobenzene, 1,4-	540-36-3	90.8	-	1.0	%	E611A/EO	03-Jul-2024	03-Jul-2024	1525102
Stable Isotope									
delta-Oxygen-18	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-
delta-Hydrogen-2	n/a	See attached	-	-	‰ VSMOW	H-2+O-18/2D	-	02-Jul-2024	-

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Appendix 5. Hydrochemical Control Charts



- Notes:**
- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
 - Canadian Drinking Water Quality Guidelines 2022 - AO:
 - Canadian Drinking Water Quality Guidelines 2022 - MAC:
 - pH: 7 - 10.5 / --- pH units
 - Iron: 0.3 / --- mg/L
 - Sodium: 200 / --- mg/L
 - Chloride: 250 / --- mg/L
 - Manganese: 0.02 / 0.12 mg/L
 - Fluoride: --- / 1.5 mg/L
 - Sulphate: 500 / --- mg/L
 - Total Dissolved Solids (Calculated): 500 / --- mg/L
 - Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

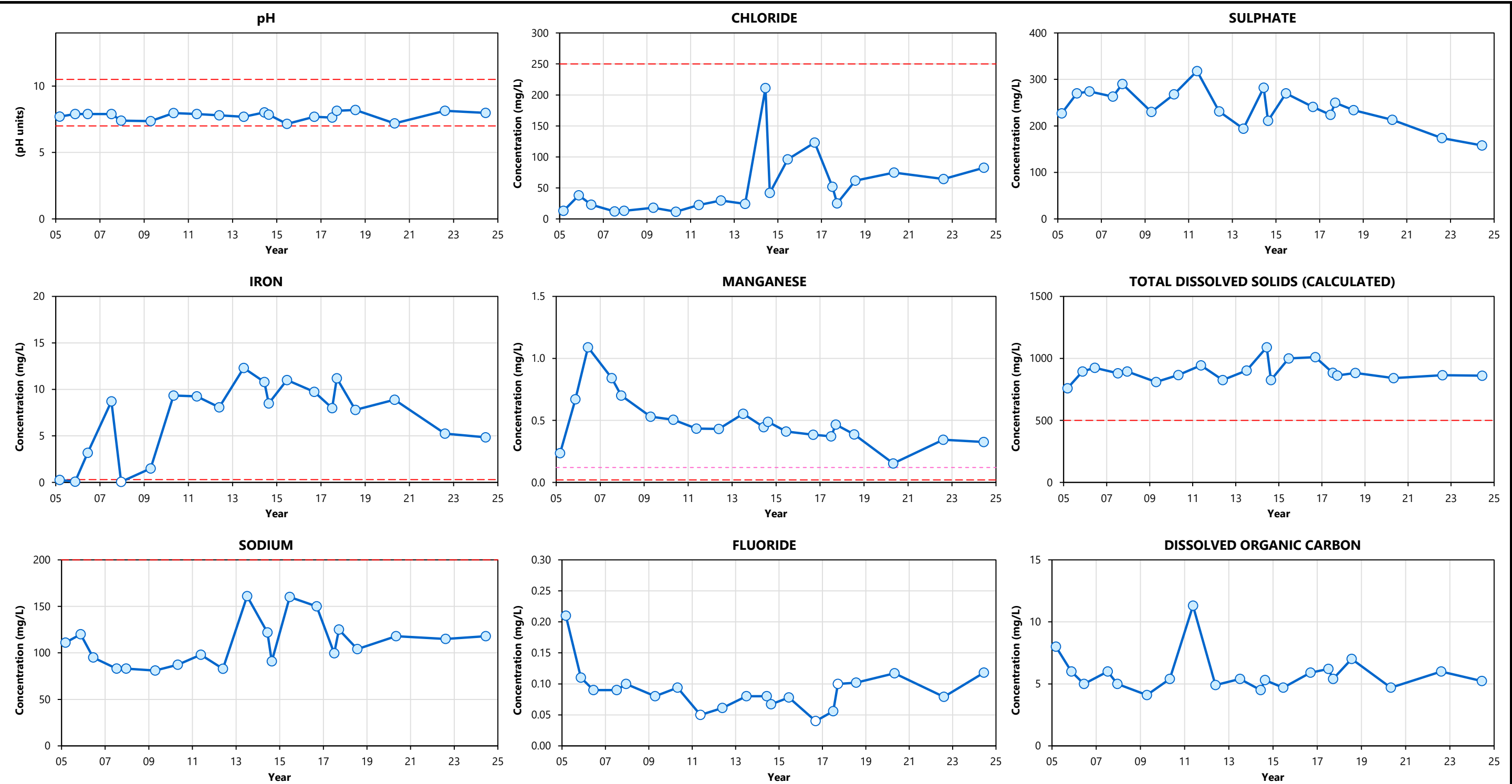
HYDROCHEMICAL CONTROL CHARTS

MW-01

Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
		Worley Project No. 317085-55576-24000	
		Figure # A5-1	Rev A

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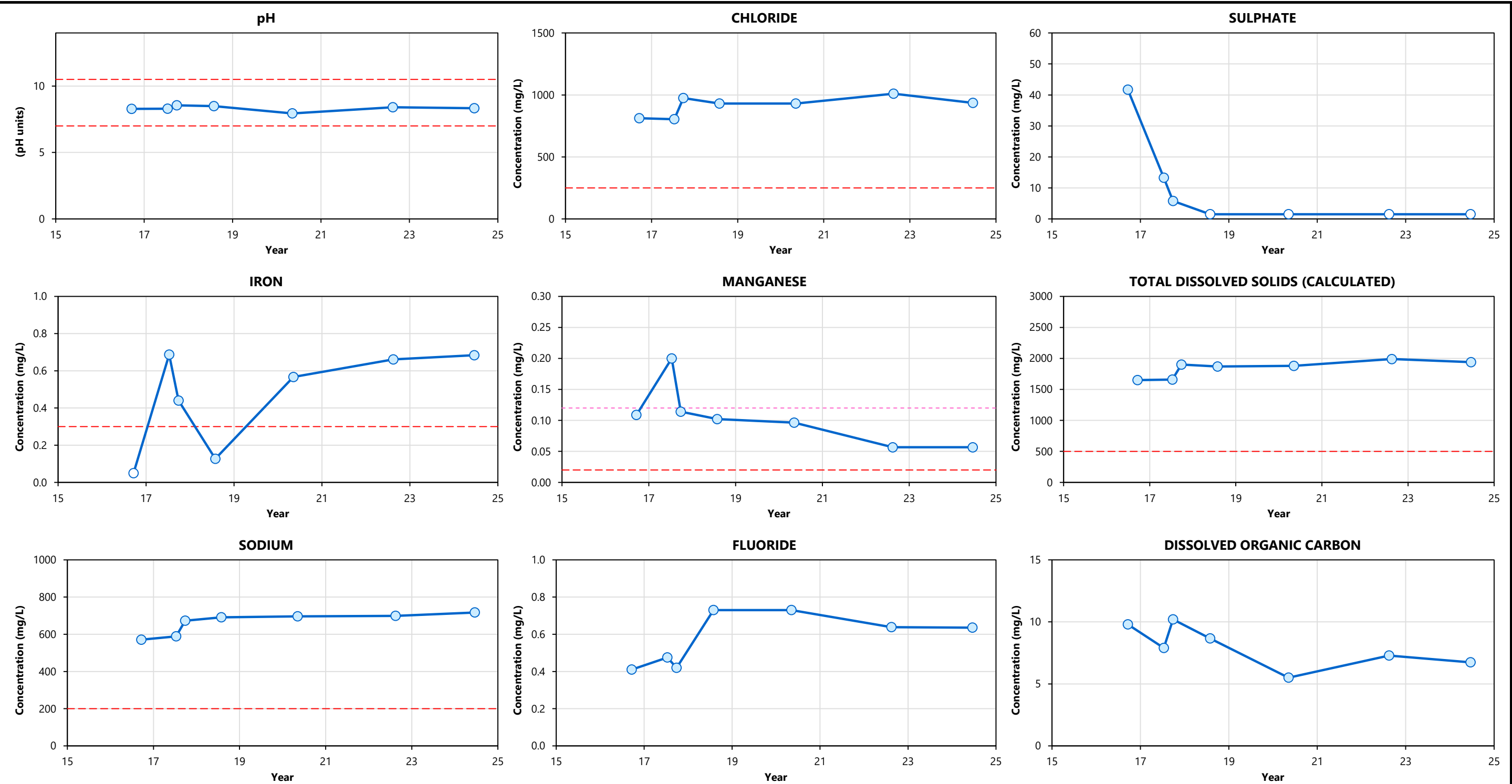
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Notes:

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- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
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- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

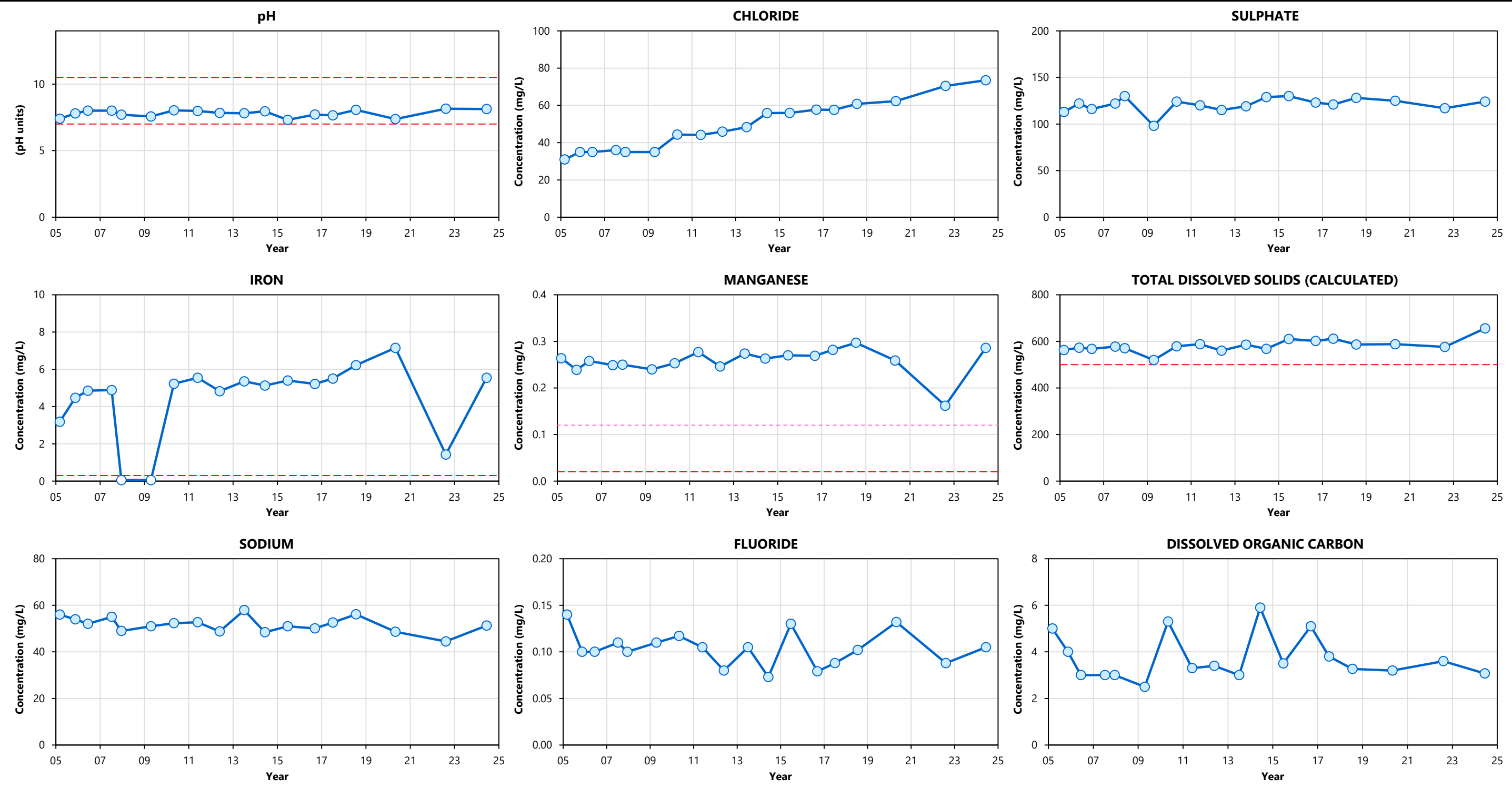
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HYDROCHEMICAL CONTROL CHARTS				
MW-02				
	Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
	Worley Project No. 317085-55576-24000			
	Figure # A5-2			Rev A
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Notes:

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- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
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- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS				
HYDROCHEMICAL CONTROL CHARTS				
MW-02B				
	Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
			Worley Project No. 317085-55576-24000	
			Figure # A5-3	Rev A
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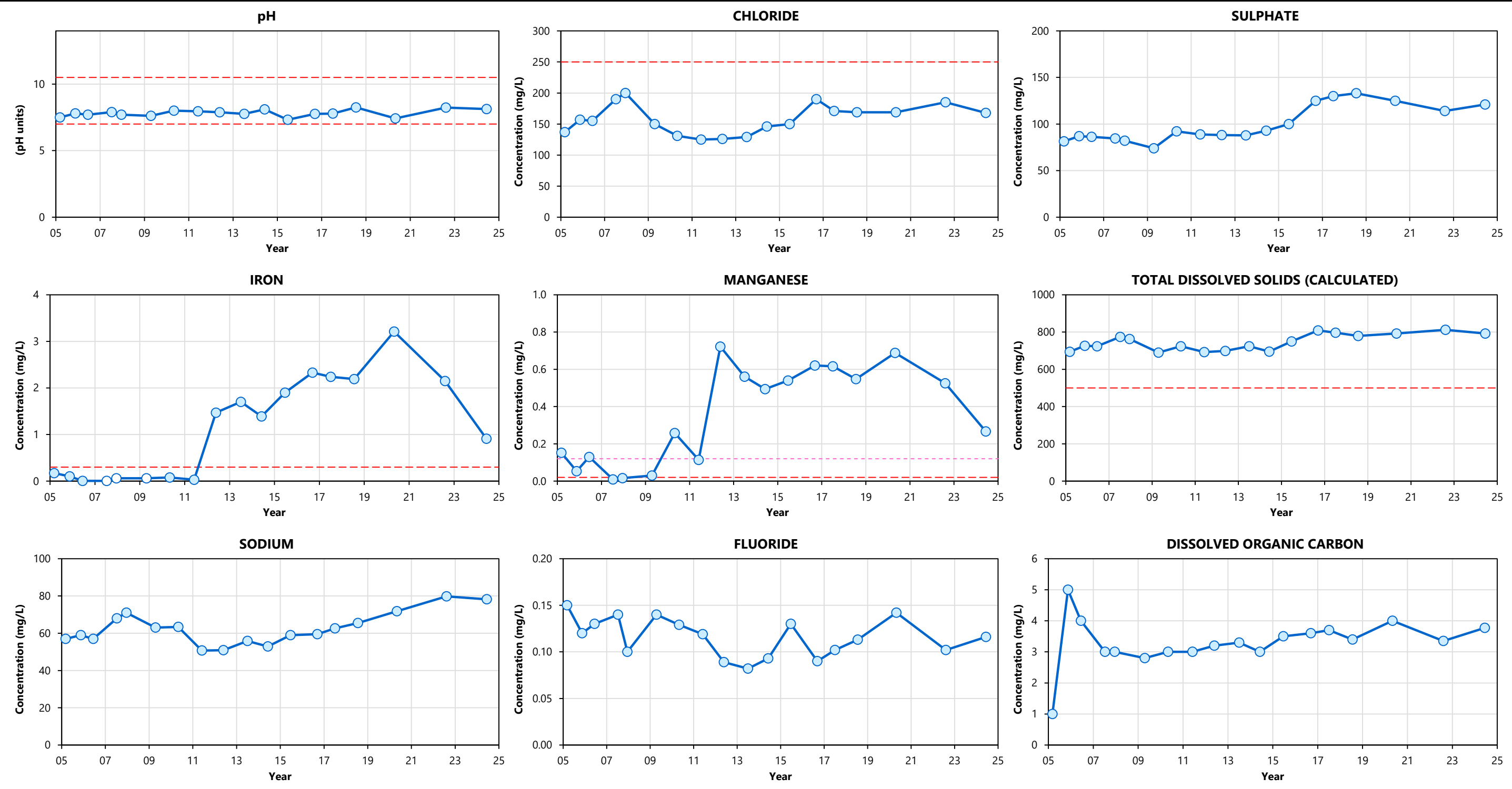


Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS				
HYDROCHEMICAL CONTROL CHARTS				
MW-03				
	Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
	Worley Project No. 317085-55576-24000			
	Figure # A5-4			Rev A
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- Notes:**
- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
 - Canadian Drinking Water Quality Guidelines 2022 - AO:
 - Canadian Drinking Water Quality Guidelines 2022 - MAC:
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 - Iron: 0.3 / --- mg/L
 - Sodium: 200 / --- mg/L
 - Chloride: 250 / --- mg/L
 - Manganese: 0.02 / 0.12 mg/L
 - Fluoride: --- / 1.5 mg/L
 - Sulphate: 500 / --- mg/L
 - Total Dissolved Solids (Calculated): 500 / --- mg/L
 - Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

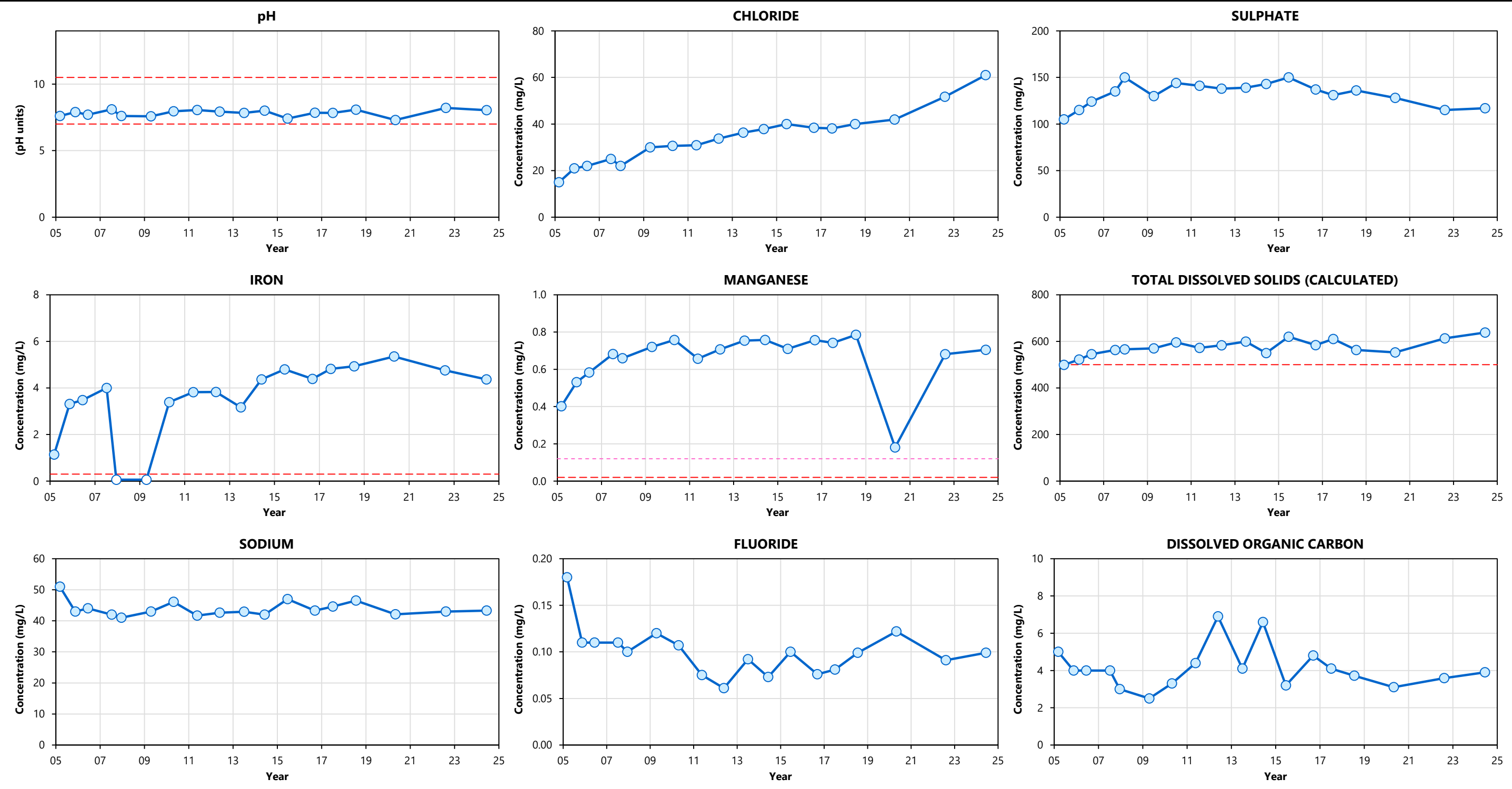
HYDROCHEMICAL CONTROL CHARTS

MW-04

Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
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		Figure # A5-5	Rev A

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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

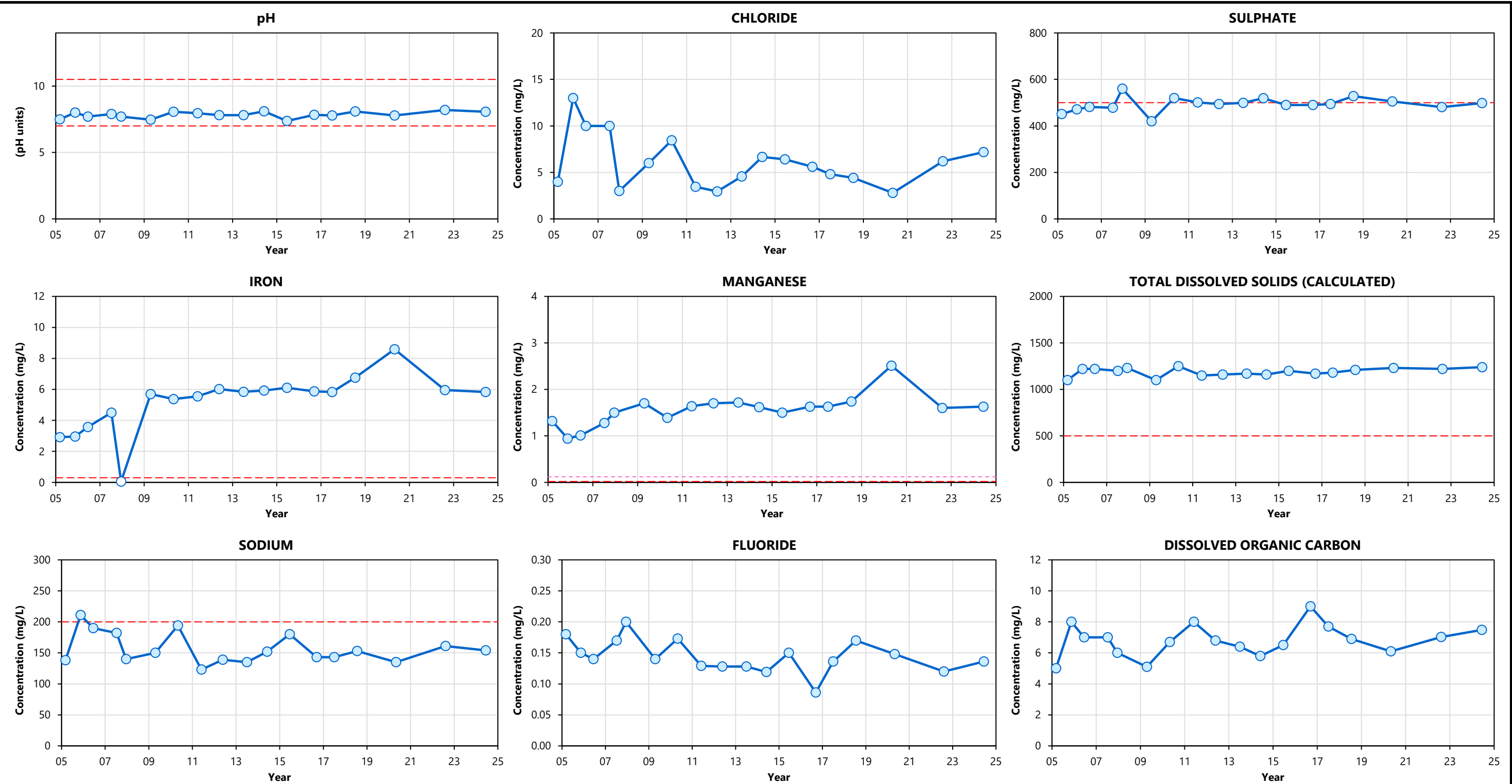
HYDROCHEMICAL CONTROL CHARTS

MW-05

Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
		Worley Project No. 317085-55576-24000	
		Figure # A5-6	Rev A

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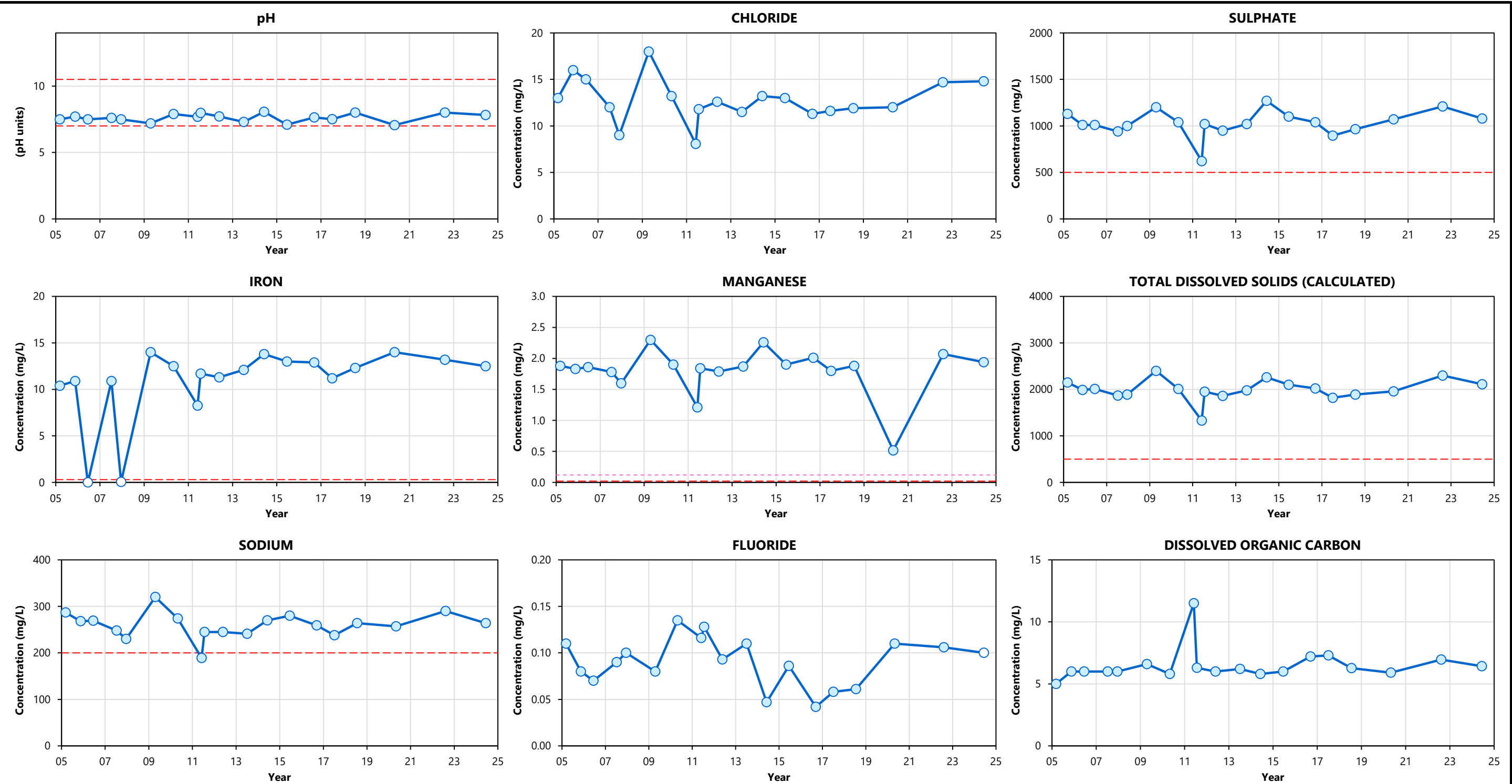
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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

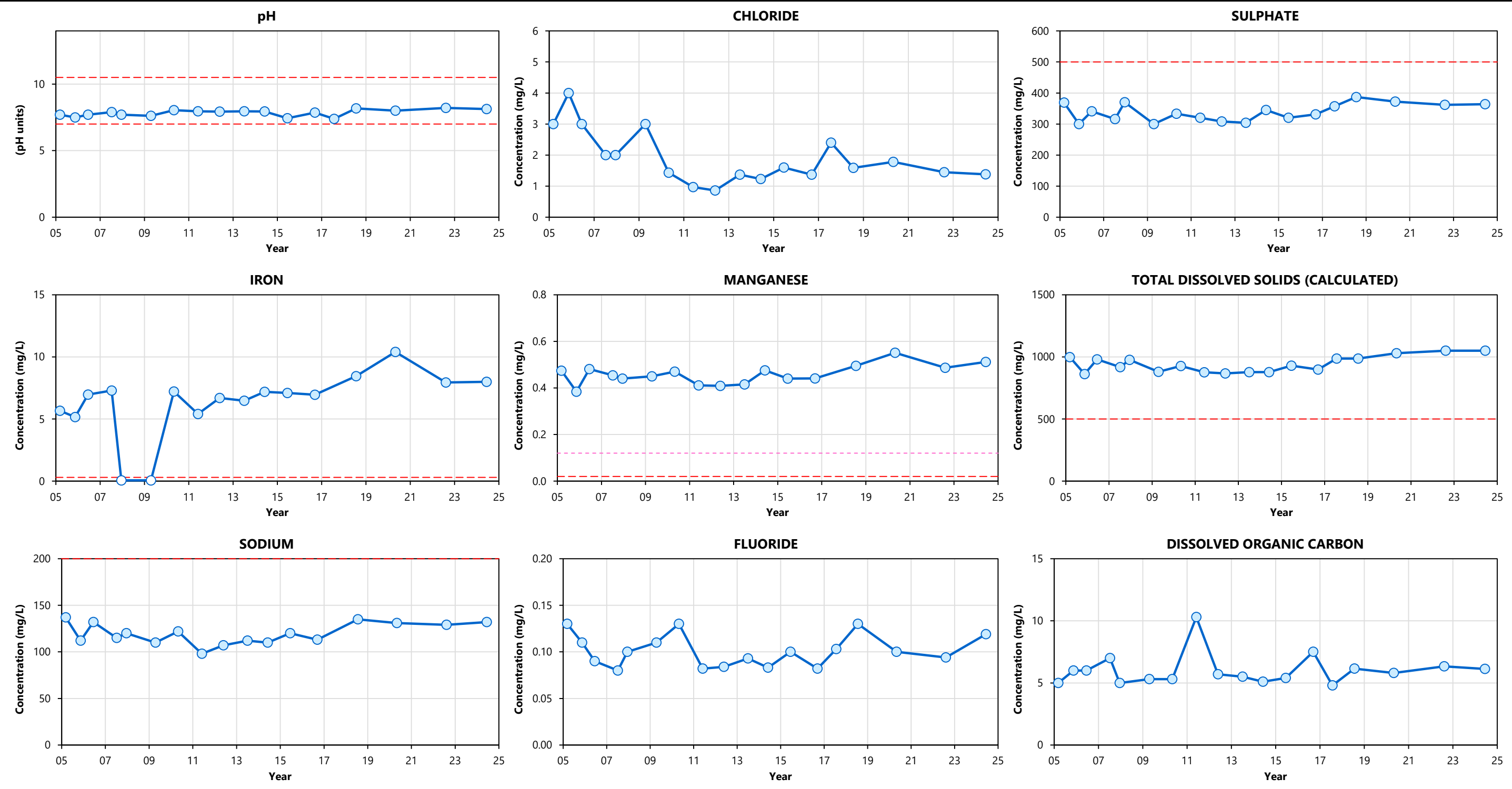
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HYDROCHEMICAL CONTROL CHARTS				
MW-06				
	Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
			Worley Project No. 317085-55576-24000	
			Figure # A5-7	Rev A
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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS				
HYDROCHEMICAL CONTROL CHARTS				
MW-07				
	Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
	Worley Project No. 317085-55576-24000			
	Figure # A5-8			Rev A
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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

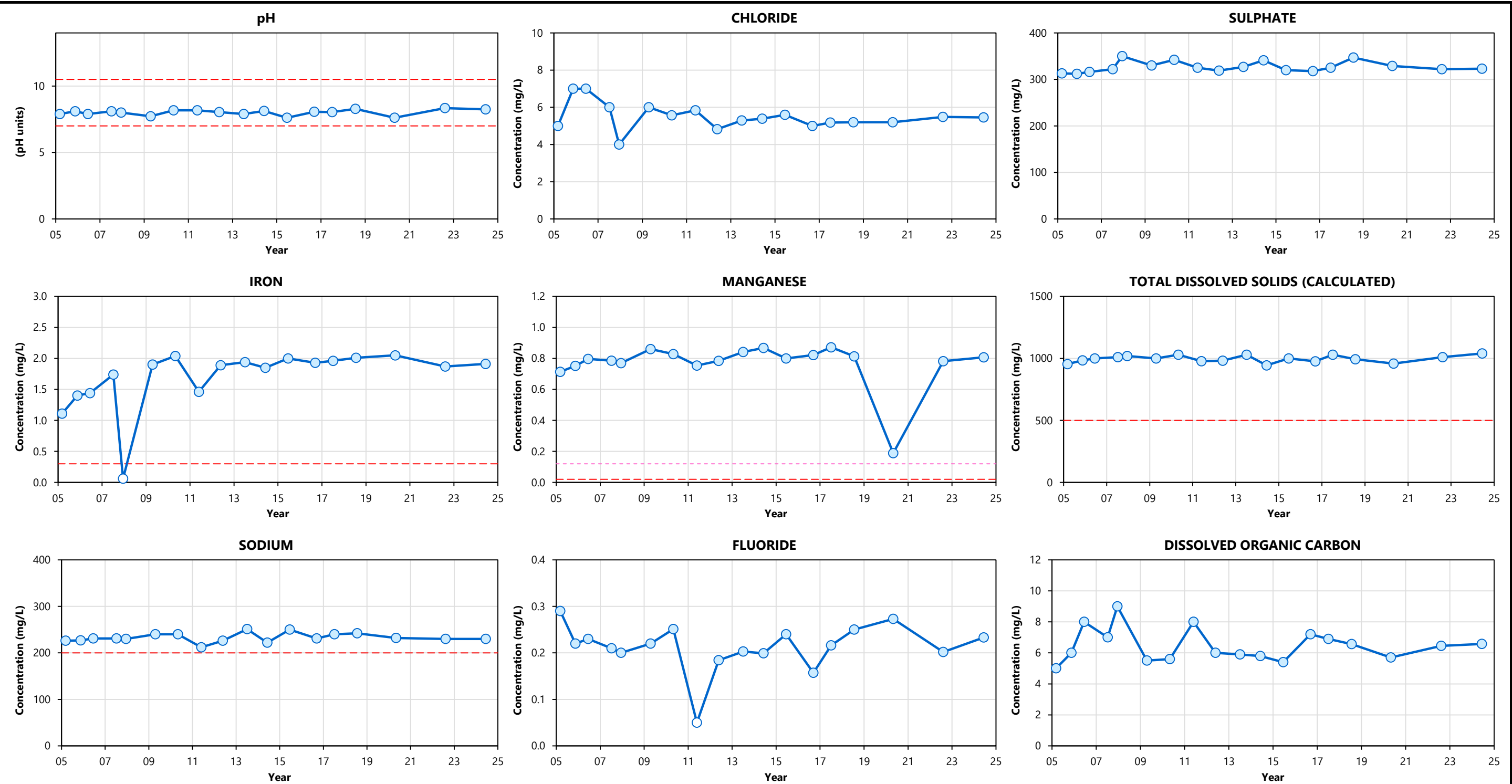
HYDROCHEMICAL CONTROL CHARTS

MW-08

Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
		Worley Project No. 317085-55576-24000	
		Figure # A5-9	Rev A

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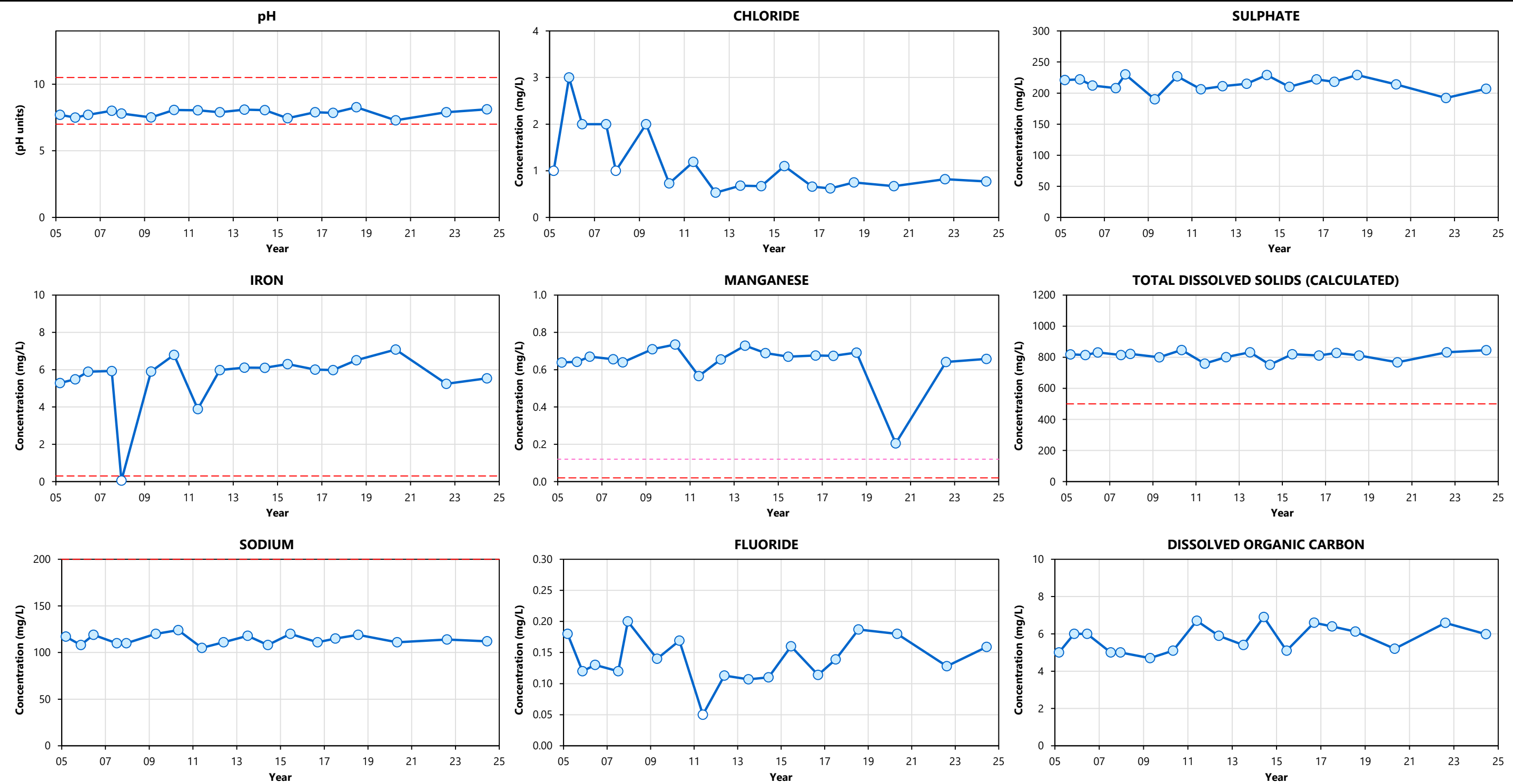
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FILE DIRECTORY: U:\EDM\GBS\317085-55576\24000\02_RPTS\11_TECHRPTS&STUDIES\03_BACKEND\APPENDICES\APDX 5 HYDROCHEMICAL CONTROL CHARTS\WORKING FILES



Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS				
HYDROCHEMICAL CONTROL CHARTS				
MW-09				
	Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
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			Figure # A5-10	Rev A
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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

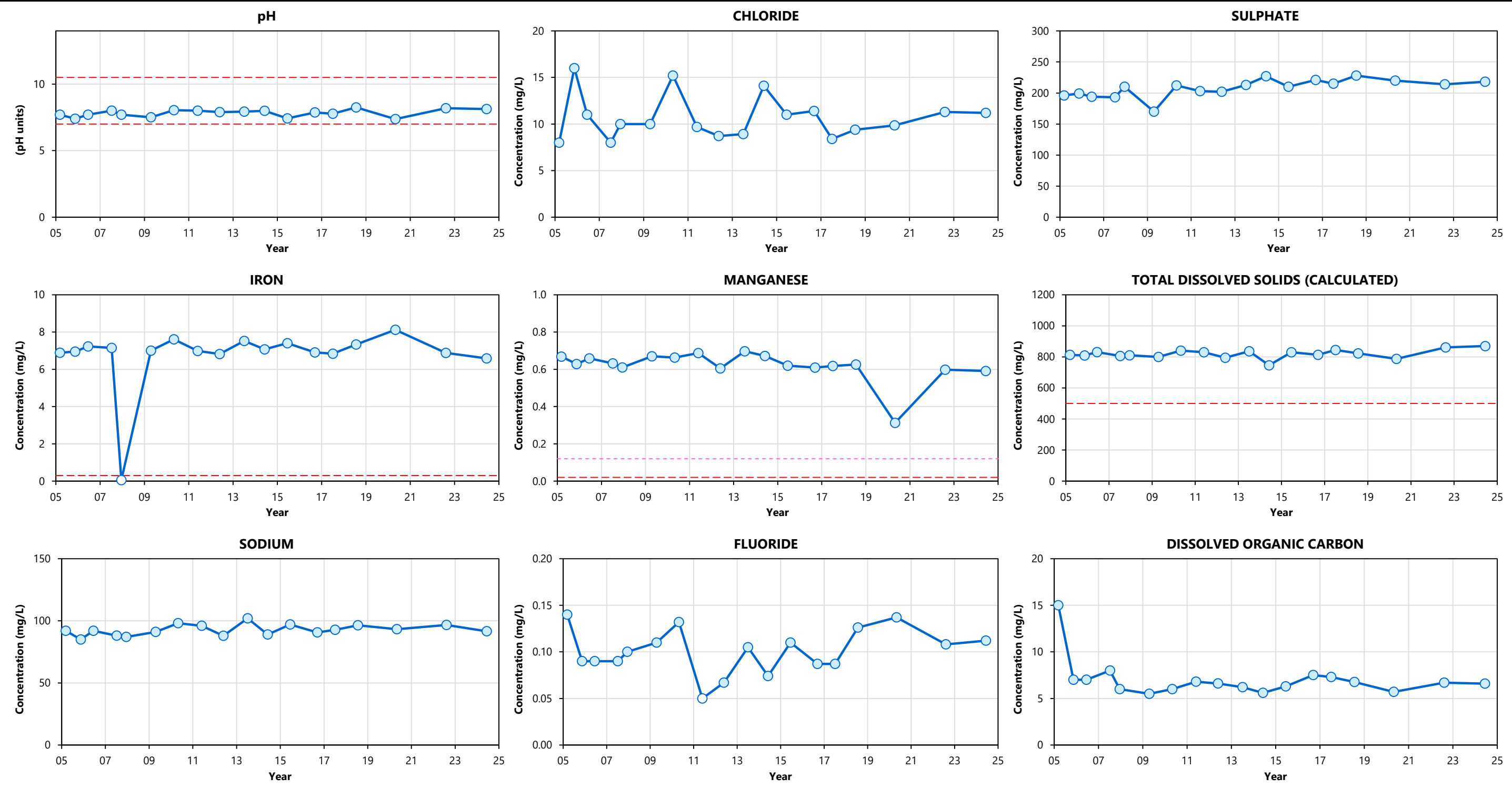
HYDROCHEMICAL CONTROL CHARTS

MW-10

Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
		Worley Project No. 317085-55576-24000	
		Figure # A5-11	Rev A

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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Chloride: 250 / --- mg/L
- Sulphate: 500 / --- mg/L
- Iron: 0.3 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Sodium: 200 / --- mg/L
- Fluoride: --- / 1.5 mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

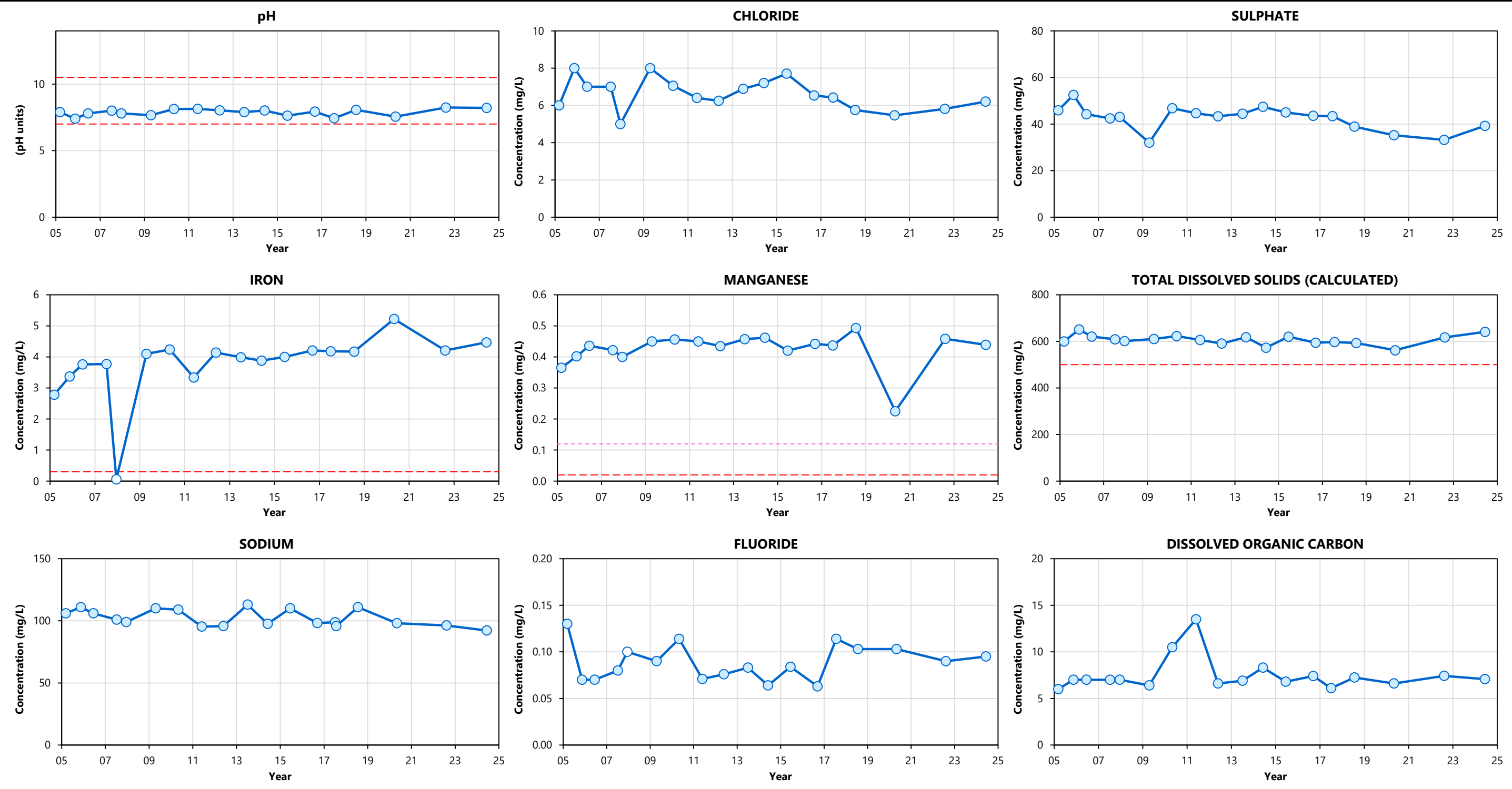
HYDROCHEMICAL CONTROL CHARTS

MW-11

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		Figure # A5-12	Rev A

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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION
2024 GROUNDWATER QUALITY MONITORING
BEVERLY CHANNEL MONITORING WELLS

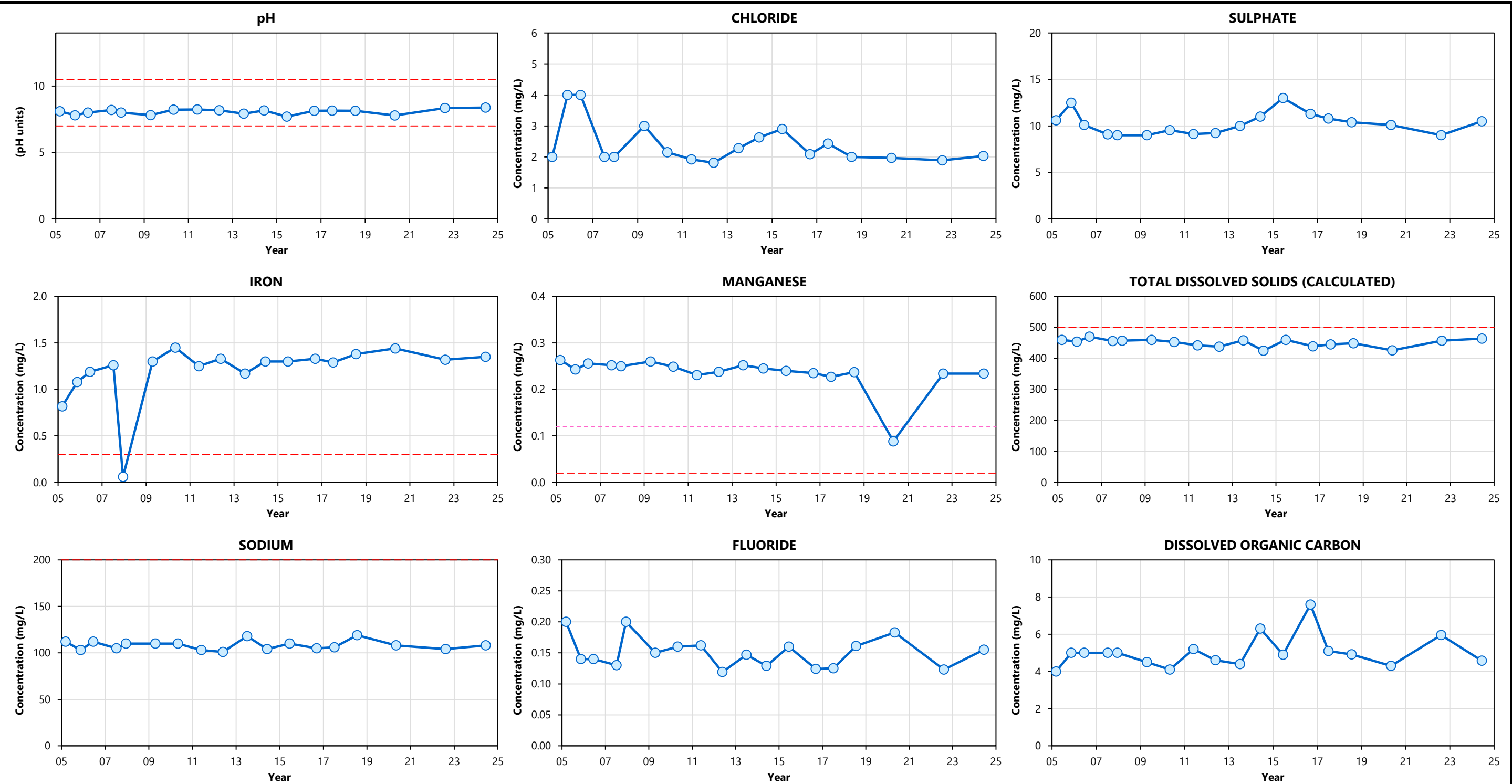
HYDROCHEMICAL CONTROL CHARTS

MW-12

Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
		Worley Project No. 317085-55576-24000	
		Figure # A5-13	Rev A

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Notes:

- Blue circles denote normal sampling data (filled: detected; unfilled: < RDL)
- Canadian Drinking Water Quality Guidelines 2022 - AO:
- Canadian Drinking Water Quality Guidelines 2022 - MAC:
- pH: 7 - 10.5 / --- pH units
- Iron: 0.3 / --- mg/L
- Sodium: 200 / --- mg/L
- Chloride: 250 / --- mg/L
- Manganese: 0.02 / 0.12 mg/L
- Fluoride: --- / 1.5 mg/L
- Sulphate: 500 / --- mg/L
- Total Dissolved Solids (Calculated): 500 / --- mg/L
- Dissolved Organic Carbon: --- / --- mg/L

NORTHEAST CAPITAL INDUSTRIAL ASSOCIATION 2024 GROUNDWATER QUALITY MONITORING BEVERLY CHANNEL MONITORING WELLS				
HYDROCHEMICAL CONTROL CHARTS				
MW-13				
	Date: 04-Sep-24	Drawn by: RM	Edited by:	App'd by:
	Worley Project No. 317085-55576-24000			
	Figure # A5-14			Rev A
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Appendix 6. Mann-Kendall/Sen's Slope Analysis and Statistical Table

Table 6-1
Statistical Analysis

Project #: 317085-55576-24000		Mann-Kendall Analysis ⁴								Visual Trend Analysis		Guideline Exceedances ⁵				Basic Analysis ⁶						
Monitoring Station	Parameter	S-Stat (-)	Z-Stat (-)	P Value of Two Tailed Test (-)	Inferred Confidence Level (of Trend Present in Data Set) (%)	Slope (units/yr)	Normalized Slope (%/yr)	Meets Trend Assumptions?	Statistically Significant Mann-Kendall Trend	Probable Visual Trend?	Visual Trend Classification	Canadian Drinking Water Quality Guidelines 2022 - AO (units)	Reporting Period Values Greater Than Guideline	Canadian Drinking Water Quality Guidelines 2022 - MAC (units)	Reporting Period Values Greater Than Guideline	Count	Min (units)	Median (units)	Max (units)	Range (units)	Average (units)	Standard Deviation (units)
Monitoring Wells																						
MW-01	pH	8	0.87	0.39	61.4%	0.038	0.48	Y	---			7 - 10.5	0	---	n/a	18	7.39	7.92	8.27	0.88	7.88	0.23
	Chloride	28	3.34	0.00	99.9%	3.35	42.12	Y	Up			250	0	---	n/a	18	2	4.29	36.6	34.6	8.42	9.88
	Sulphate	-24	-2.85	0.00	99.6%	-1.22	-2.29	Y	---			500	0	---	n/a	18	44	55.4	62.0	18.0	54.7	4.98
	Iron	7	0.75	0.45	54.6%	0.0041	0.21	Y	---			0.3	1	---	n/a	18	< 0.06	1.83	2.20	2.14	1.60	0.62
	Manganese	-18	-2.10	0.04	96.5%	-0.0058	-0.83	Y	---			0.02	1	0.12	1	18	0.215	0.69	0.737	0.52	0.66	0.12
	Total Dissolved Solids (Calculated)	12	1.36	0.17	82.6%	2.90	0.66	Y	---			500	0	---	n/a	18	410	439	465	55.0	438.9	16.5
	Sodium	-2	-0.12	0.90	9.8%	-0.023	-0.06	Y	---			200	0	---	n/a	18	32.5	35.7	40	7.50	35.5	1.97
	Fluoride	4	0.37	0.71	28.9%	0.0023	1.82	Y	---			---	n/a	1.5	0	18	0.106	0.13	0.2	0.094	0.14	0.027
	Dissolved Organic Carbon	-5	-0.50	0.62	38.2%	-0.035	-1.33	Y	---			---	n/a	---	n/a	18	2	3.00	4.5	2.50	2.97	0.65
MW-02	pH	9	1.00	0.32	68.1%	0.074	0.94	Y	---			7 - 10.5	0	---	n/a	20	7.15	7.88	8.20	1.05	7.78	0.30
	Chloride	0	0.00	1.00	0.0%	-0.42	-0.61	Y	---			250	0	---	n/a	20	11.6	33.8	211	199	51.8	48.9
	Sulphate	-22	-2.60	0.01	99.1%	-11.7	-5.13	Y	---			500	0	---	n/a	20	158	238	318	160	241.1	39.8
	Iron	-18	-2.10	0.04	96.5%	-0.66	-7.79	Y	---			0.3	1	---	n/a	20	< 0.06	8.28	12.3	12.2	6.94	3.97
	Manganese	-14	-1.61	0.11	89.2%	-0.0095	-2.52	Y	---			0.02	1	0.12	1	20	0.153	0.44	1.09	0.94	0.49	0.21
	Total Dissolved Solids (Calculated)	-18	-2.10	0.04	96.5%	-15.4	-1.76	Y	---			500	1	---	n/a	20	759	882	1090	331	891.1	75.4
	Sodium	-9	-1.00	0.32	68.1%	-3.40	-2.88	Y	---			200	0	---	n/a	20	81	108	161	80.0	110.2	24.9
	Fluoride	16	1.86	0.06	93.7%	0.0082	10.47	Y	---			---	n/a	1.5	0	20	< 0.040	0.080	0.21	0.17	0.085	0.040
	Dissolved Organic Carbon	1	0.00	1.00	0.0%	0.0084	0.15	Y	---			---	n/a	---	n/a	20	4.1	5.40	11.3	7.20	5.80	1.57
MW-02B	pH	---	---	---	---	---	---	N (Ins. trend data)	---			7 - 10.5	0	---	n/a	7	7.94	8.33	8.55	0.61	8.33	0.20
	Chloride	---	---	---	---	---	---	N (Ins. trend data)	---			250	1	---	n/a	7	804	931	1010	206	914.0	78.0
	Sulphate	---	---	---	---	---	---	N (Ins. trend data)	---			500	0	---	n/a	7	< 1.5	0.75	41.7	40.2	9.11	15.1
	Iron	---	---	---	---	---	---	N (Ins. trend data)	---			0.3	1	---	n/a	7	< 0.050	0.57	0.687	0.64	0.46	0.28
	Manganese	---	---	---	---	---	---	N (Ins. trend data)	---			0.02	1	0.12	0	7	0.0567	0.10	0.200	0.14	0.10	0.048
	Total Dissolved Solids (Calculated)	---	---	---	---	---	---	N (Ins. trend data)	---			500	1	---	n/a	7	1650	1880	1990	340	1841.4	134
	Sodium	---	---	---	---	---	---	N (Ins. trend data)	---			200	1	---	n/a	7	571	691	717	146	662.3	57.9
	Fluoride	---	---	---	---	---	---	N (Ins. trend data)	---			---	n/a	1.5	0	7	0.41	0.64	0.73	0.32	0.58	0.14
	Dissolved Organic Carbon	---	---	---	---	---	---	N (Ins. trend data)	---			---	n/a	---	n/a	7	5.5	7.90	10.2	4.70	8.01	1.68
MW-03	pH	10	1.11	0.27	73.4%	0.025	0.32	Y	---			7 - 10.5	0	---	n/a	18	7.31	7.82	8.15	0.84	7.80	0.26
	Chloride	26	3.09	0.00	99.8%	1.67	2.82	Y	---	Y	Up	250	0	---	n/a	18	31	47.1	73.5	42.5	49.1	13.2
	Sulphate	-12	-1.36	0.17	82.6%	-0.68	-0.54	Y	---			500	0	---	n/a	18	98	122	130	32.0	120.9	7.63
	Iron	10	1.11	0.27	73.4%	0.046	0.84	Y	---			0.3	1	---	n/a	18	< 0.06	5.18	7.15	7.09	4.45	1.99
	Manganese	2	0.12	0.90	9.8%	0.0012	0.44	Y	---			0.02	1	0.12	1	18	0.162	0.26	0.297	0.14	0.26	0.029
	Total Dissolved Solids (Calculated)	4	0.37	0.71	28.9%	0.98	0.16	Y	---			500	1	---	n/a	18	520	579	656	136	582.5	27.7
	Sodium	2	0.12	0.90	9.8%	0.034	0.07	Y	---			200	0	---	n/a	18	44.5	51.7	57.9	13.4	51.7	3.31
	Fluoride	11	1.25	0.21	78.8%	0.0025	2.68	Y	---			---	n/a	1.5	0	18	0.073	0.10	0.14	0.067	0.10	0.018
	Dissolved Organic Carbon	-18	-2.10	0.04	96.5%	-0.23	-6.55	Y	---			---	n/a	---	n/a	18	2.5	3.35	5.9	3.40	3.72	0.96

Table 6-1
Statistical Analysis

Project #: 317085-55576-24000		Mann-Kendall Analysis ⁴								Visual Trend Analysis		Guideline Exceedances ⁵				Basic Analysis ⁶						
Monitoring Station	Parameter	S-Stat (-)	Z-Stat (-)	P Value of Two Tailed Test (-)	Inferred Confidence Level (of Trend Present in Data Set) (%)	Slope (units/yr)	Normalized Slope (%/yr)	Meets Trend Assumptions?	Statistically Significant Mann-Kendall Trend	Probable Visual Trend?	Visual Trend Classification	Canadian Drinking Water Quality Guidelines 2022 - AO (units)	Reporting Period Values Greater Than Guideline	Canadian Drinking Water Quality Guidelines 2022 - MAC (units)	Reporting Period Values Greater Than Guideline	Count	Min (units)	Median (units)	Max (units)	Range (units)	Average (units)	Standard Deviation (units)
MW-04	pH	8	0.87	0.39	61.4%	0.030	0.38	Y	---			7 - 10.5	0	---	n/a	18	7.32	7.79	8.25	0.93	7.82	0.26
	Chloride	5	0.50	0.62	38.2%	2.47	1.46	Y	---			250	0	---	n/a	18	125	156	200	75.0	158.2	23.6
	Sulphate	7	0.75	0.45	54.6%	2.70	2.19	Y	---			500	0	---	n/a	18	74	90.5	133	59.0	99.6	19.3
	Iron	0	0.00	1.00	0.0%	0.013	0.58	Y	---			0.3	1	---	n/a	18	0.005	1.15	3.21	3.21	1.11	1.07
	Manganese	-2	-0.12	0.90	9.8%	-0.0039	-0.71	Y	---			0.02	1	0.12	1	18	0.009	0.38	0.722	0.71	0.35	0.26
	Total Dissolved Solids (Calculated)	11	1.25	0.21	78.8%	7.71	0.97	Y	---			500	1	---	n/a	18	690	738	812	122	746.5	43.8
	Sodium	26	3.09	0.00	99.8%	2.98	4.65	Y	---	Y	Up	200	0	---	n/a	18	50.7	61.1	79.8	29.1	62.5	8.57
	Fluoride	9	1.00	0.32	68.1%	0.0022	2.01	Y	---			---	n/a	1.5	0	18	0.082	0.12	0.15	0.068	0.12	0.021
	Dissolved Organic Carbon	10	1.11	0.27	73.4%	0.070	1.96	Y	---			---	n/a	---	n/a	18	1	3.33	5	4.00	3.31	0.78
MW-05	pH	6	0.62	0.54	46.4%	0.025	0.32	Y	---			7 - 10.5	0	---	n/a	18	7.30	7.88	8.21	0.91	7.83	0.25
	Chloride	21	2.49	0.01	98.7%	1.67	4.16	Y	---	Y	Up	250	0	---	n/a	18	15	35.0	61.0	46.0	34.2	11.3
	Sulphate	-22	-2.60	0.01	99.1%	-3.17	-2.38	Y	---			500	0	---	n/a	18	105	136	150	45.0	132.1	12.7
	Iron	5	0.50	0.62	38.2%	0.026	0.54	Y	---			0.3	1	---	n/a	18	< 0.06	3.92	5.35	5.29	3.56	1.59
	Manganese	-10	-1.11	0.27	73.4%	-0.0053	-0.73	Y	---			0.02	1	0.12	1	18	0.181	0.71	0.785	0.60	0.65	0.15
	Total Dissolved Solids (Calculated)	8	0.87	0.39	61.4%	3.59	0.60	Y	---			500	1	---	n/a	18	499	571	638	139	574.8	35.0
	Sodium	-1	0.00	1.00	0.0%	-0.025	-0.06	Y	---			200	0	---	n/a	18	41	43.0	51	10.0	43.8	2.44
	Fluoride	11	1.25	0.21	78.8%	0.0026	2.73	Y	---			---	n/a	1.5	0	18	0.061	0.100	0.18	0.12	0.10	0.026
	Dissolved Organic Carbon	-10	-1.11	0.27	73.4%	-0.16	-4.20	Y	---			---	n/a	---	n/a	18	2.5	4.00	6.9	4.40	4.12	1.14
MW-06	pH	5	0.50	0.62	38.2%	0.028	0.36	Y	---			7 - 10.5	0	---	n/a	18	7.37	7.83	8.20	0.83	7.84	0.23
	Chloride	-6	-0.62	0.54	46.4%	-0.32	-5.44	Y	---			250	0	---	n/a	18	2.80	5.80	13	10.2	6.08	2.81
	Sulphate	-1	0.00	1.00	0.0%	-0.63	-0.13	Y	---			500	0	---	n/a	18	420	494	560	140	493.4	30.2
	Iron	-1	0.00	1.00	0.0%	-0.0032	-0.05	Y	---			0.3	1	---	n/a	18	< 0.06	5.83	8.59	8.53	5.19	1.86
	Manganese	9	1.02	0.31	69.2%	0.0092	0.56	Y	---			0.02	1	0.12	1	18	0.943	1.63	2.51	1.57	1.56	0.33
	Total Dissolved Solids (Calculated)	22	2.60	0.01	99.1%	7.90	0.66	Y	---			500	1	---	n/a	18	1100	1200	1250	150	1189.4	44.1
	Sodium	1	0.00	1.00	0.0%	0.085	0.06	Y	---			200	0	---	n/a	18	123	151	211	88.0	156.8	24.4
	Fluoride	3	0.25	0.80	19.7%	0.00091	0.67	Y	---			---	n/a	1.5	0	18	0.086	0.14	0.2	0.11	0.14	0.027
	Dissolved Organic Carbon	6	0.62	0.54	46.4%	0.085	1.23	Y	---			---	n/a	---	n/a	18	5	6.85	9.0	4.00	6.81	1.02
MW-07	pH	-1	0.00	1.00	0.0%	-0.0031	-0.04	Y	---			7 - 10.5	0	---	n/a	19	7.06	7.64	8.06	1.00	7.62	0.31
	Chloride	10	1.11	0.27	73.4%	0.19	1.50	Y	---			250	0	---	n/a	19	8.07	12.6	18	9.93	12.8	2.30
	Sulphate	-2	-0.12	0.90	9.8%	-4.18	-0.39	Y	---			500	1	---	n/a	19	622	1020	1270	648	1030.0	138
	Iron	-4	-0.37	0.71	28.9%	-0.064	-0.50	Y	---			0.3	1	---	n/a	19	< 0.005	12.1	14	14.0	10.8	4.05
	Manganese	-6	-0.62	0.54	46.4%	-0.028	-1.43	Y	---			0.02	1	0.12	1	19	0.517	1.87	2.3	1.78	1.80	0.39
	Total Dissolved Solids (Calculated)	0	0.00	1.00	0.0%	-6.92	-0.34	Y	---			500	1	---	n/a	19	1330	1990	2400	1070	1994.7	225
	Sodium	-1	0.00	1.00	0.0%	-0.27	-0.10	Y	---			200	1	---	n/a	19	189	264	320	131	259.9	27.4
	Fluoride	8	0.87	0.39	61.4%	0.0031	5.26	Y	---			---	n/a	1.5	0	19	0.042	0.090	0.135	0.093	0.088	0.028
	Dissolved Organic Carbon	6	0.62	0.54	46.4%	0.054	0.85	Y	---			---	n/a	---	n/a	19	5	6.00	11.5	6.50	6.49	1.33

Table 6-1
Statistical Analysis

Project #: 317085-55576-24000		Mann-Kendall Analysis ⁴								Visual Trend Analysis		Guideline Exceedances ⁵				Basic Analysis ⁶						
Monitoring Station	Parameter	S-Stat (-)	Z-Stat (-)	P Value of Two Tailed Test (-)	Inferred Confidence Level (of Trend Present in Data Set) (%)	Slope (units/yr)	Normalized Slope (%/yr)	Meets Trend Assumptions?	Statistically Significant Mann-Kendall Trend	Probable Visual Trend?	Visual Trend Classification	Canadian Drinking Water Quality Guidelines 2022 - AO (units)	Reporting Period Values Greater Than Guideline	Canadian Drinking Water Quality Guidelines 2022 - MAC (units)	Reporting Period Values Greater Than Guideline	Count	Min (units)	Median (units)	Max (units)	Range (units)	Average (units)	Standard Deviation (units)
MW-08	pH	12	1.36	0.17	82.6%	0.036	0.45	Y	---			7 - 10.5	0	---	n/a	18	7.39	7.92	8.21	0.82	7.84	0.25
	Chloride	2	0.12	0.90	9.8%	0.0074	0.49	Y	---			250	0	---	n/a	18	0.86	1.60	4	3.14	1.91	0.85
	Sulphate	14	1.61	0.11	89.2%	4.40	1.23	Y	---			500	0	---	n/a	18	300	337	387	87.0	338.8	28.0
	Iron	14	1.61	0.11	89.2%	0.15	1.93	Y	---			0.3	1	---	n/a	17	< 0.06	6.97	10.4	10.3	6.29	2.65
	Manganese	18	2.10	0.04	96.5%	0.0081	1.67	Y	---			0.02	1	0.12	1	17	0.384	0.45	0.551	0.17	0.46	0.042
	Total Dissolved Solids (Calculated)	24	2.89	0.00	99.6%	17.7	1.80	Y	---			500	1	---	n/a	18	862	929	1050	188	942.9	65.3
	Sodium	16	1.86	0.06	93.7%	2.03	1.63	Y	---			200	0	---	n/a	17	98.0	120	137	39.0	119.7	11.4
	Fluoride	9	1.00	0.32	68.1%	0.0022	2.21	Y	---			---	n/a	1.5	0	18	0.08	0.10	0.13	0.050	0.10	0.017
	Dissolved Organic Carbon	8	0.87	0.39	61.4%	0.092	1.55	Y	---			---	n/a	---	n/a	18	4.8	5.75	10.3	5.50	6.02	1.28
MW-09	pH	8	0.87	0.39	61.4%	0.025	0.31	Y	---			7 - 10.5	0	---	n/a	18	7.61	8.06	8.34	0.73	8.02	0.21
	Chloride	5	0.50	0.62	38.2%	0.0090	0.17	Y	---			250	0	---	n/a	18	4	5.43	7	3.00	5.50	0.71
	Sulphate	0	0.00	1.00	0.0%	-0.0042	0.00	Y	---			500	0	---	n/a	18	312	324	350	38.0	326.7	11.3
	Iron	4	0.37	0.71	28.9%	0.0046	0.24	Y	---			0.3	1	---	n/a	18	< 0.06	1.90	2.05	1.99	1.70	0.49
	Manganese	-10	-1.11	0.27	73.4%	-0.0064	-0.79	Y	---			0.02	1	0.12	1	18	0.189	0.80	0.872	0.68	0.77	0.15
	Total Dissolved Solids (Calculated)	12	1.36	0.17	82.6%	6.77	0.68	Y	---			500	1	---	n/a	18	944	1000	1040	96.0	996.7	28.0
	Sodium	-5	-0.50	0.62	38.2%	-0.33	-0.14	Y	---			200	1	---	n/a	18	212	231	251	39.0	232.8	9.63
	Fluoride	8	0.87	0.39	61.4%	0.0044	1.98	Y	---			---	n/a	1.5	0	18	< 0.050	0.22	0.29	0.24	0.21	0.056
	Dissolved Organic Carbon	2	0.12	0.90	9.8%	0.032	0.48	Y	---			---	n/a	---	n/a	18	5	6.23	9	4.00	6.48	1.05
MW-10	pH	2	0.12	0.90	9.8%	0.0069	0.09	Y	---			7 - 10.5	0	---	n/a	18	7.29	7.89	8.27	0.98	7.84	0.27
	Chloride	5	0.50	0.62	38.2%	0.0067	0.94	Y	---			250	0	---	n/a	18	0.53	0.74	3	2.47	1.07	0.71
	Sulphate	-13	-1.50	0.13	86.5%	-2.19	-1.02	Y	---			500	0	---	n/a	18	190	215	230	40.0	214.6	11.6
	Iron	-6	-0.62	0.54	46.4%	-0.048	-0.79	Y	---			0.3	1	---	n/a	18	< 0.06	5.96	7.08	7.02	5.56	1.54
	Manganese	-10	-1.11	0.27	73.4%	-0.0036	-0.53	Y	---			0.02	1	0.12	1	18	0.205	0.66	0.735	0.53	0.64	0.12
	Total Dissolved Solids (Calculated)	13	1.50	0.13	86.5%	3.72	0.46	Y	---			500	1	---	n/a	18	752	817	847	95.0	811.5	27.3
	Sodium	1	0.00	1.00	0.0%	0.064	0.06	Y	---			200	0	---	n/a	18	105	113	124	19.0	114.0	5.22
	Fluoride	8	0.87	0.39	61.4%	0.0035	2.34	Y	---			---	n/a	1.5	0	18	< 0.050	0.13	0.2	0.15	0.14	0.041
	Dissolved Organic Carbon	-8	-0.87	0.39	61.4%	-0.070	-1.12	Y	---			---	n/a	---	n/a	18	4.7	5.94	6.9	2.20	5.76	0.71
MW-11	pH	4	0.37	0.71	28.9%	0.029	0.36	Y	---			7 - 10.5	0	---	n/a	18	7.37	7.89	8.25	0.88	7.83	0.27
	Chloride	-4	-0.37	0.71	28.9%	-0.040	-0.36	Y	---			250	0	---	n/a	18	8	10.0	16	8.00	10.7	2.33
	Sulphate	-4	-0.37	0.71	28.9%	-0.33	-0.15	Y	---			500	0	---	n/a	18	170	211	228	58.0	208.1	14.3
	Iron	-8	-0.87	0.39	61.4%	-0.039	-0.55	Y	---			0.3	1	---	n/a	18	< 0.06	7.00	8.12	8.06	6.74	1.71
	Manganese	-16	-1.86	0.06	93.7%	-0.0049	-0.80	Y	---			0.02	1	0.12	1	18	0.313	0.63	0.697	0.38	0.62	0.083
	Total Dissolved Solids (Calculated)	14	1.61	0.11	89.2%	7.11	0.86	Y	---			500	1	---	n/a	18	746	818	870	124	819.2	28.6
	Sodium	6	0.62	0.54	46.4%	0.20	0.22	Y	---			200	0	---	n/a	18	85	92.0	102	17.0	92.6	4.43
	Fluoride	13	1.50	0.13	86.5%	0.0039	3.62	Y	---			---	n/a	1.5	0	18	< 0.050	0.10	0.14	0.090	0.099	0.028
	Dissolved Organic Carbon	0	0.00	1.00	0.0%	-0.00017	0.00	Y	---			---	n/a	---	n/a	18	5.5	6.65	15	9.50	7.03	2.10

Table 6-1
Statistical Analysis

Project #: 317085-55576-24000		Mann-Kendall Analysis ⁴								Visual Trend Analysis		Guideline Exceedances ⁵				Basic Analysis ⁶						
Monitoring Station	Parameter	S-Stat (-)	Z-Stat (-)	P Value of Two Tailed Test (-)	Inferred Confidence Level (of Trend Present in Data Set) (%)	Slope (units/yr)	Normalized Slope (%/yr)	Meets Trend Assumptions?	Statistically Significant Mann-Kendall Trend	Probable Visual Trend?	Visual Trend Classification	Canadian Drinking Water Quality Guidelines 2022 - AO (units)	Reporting Period Values Greater Than Guideline	Canadian Drinking Water Quality Guidelines 2022 - MAC (units)	Reporting Period Values Greater Than Guideline	Count	Min (units)	Median (units)	Max (units)	Range (units)	Average (units)	Standard Deviation (units)
MW-12	pH	8	0.87	0.39	61.4%	0.031	0.39	Y	---			7 - 10.5	0	---	n/a	18	7.4	7.92	8.24	0.84	7.88	0.26
	Chloride	-16	-1.86	0.06	93.7%	-0.17	-2.66	Y	---			250	0	---	n/a	18	5	6.48	8	3.00	6.59	0.84
	Sulphate	-22	-2.60	0.01	99.1%	-1.68	-4.07	Y	---			500	0	---	n/a	18	32	43.5	52.5	20.5	42.5	5.13
	Iron	17	1.99	0.05	95.4%	0.053	1.27	Y	---			0.3	1	---	n/a	18	< 0.06	4.05	5.22	5.16	3.77	1.06
	Manganese	-2	-0.12	0.90	9.8%	-0.00044	-0.10	Y	---			0.02	1	0.12	1	18	0.225	0.44	0.493	0.27	0.42	0.057
	Total Dissolved Solids (Calculated)	6	0.62	0.54	46.4%	3.92	0.66	Y	---			500	1	---	n/a	18	562	608	651	89.0	607.1	21.6
	Sodium	-14	-1.61	0.11	89.2%	-0.90	-0.92	Y	---			200	0	---	n/a	19	92.2	99.0	113	20.8	102.3	6.71
	Fluoride	7	0.75	0.45	54.6%	0.0029	3.14	Y	---			---	n/a	1.5	0	18	0.063	0.084	0.13	0.067	0.086	0.021
	Dissolved Organic Carbon	-4	-0.37	0.71	28.9%	-0.041	-0.57	Y	---			---	n/a	---	n/a	18	6	7.00	13.5	7.50	7.49	1.80
MW-13	pH	9	1.00	0.32	68.1%	0.023	0.28	Y	---			7 - 10.5	0	---	n/a	18	7.70	8.14	8.38	0.68	8.07	0.20
	Chloride	-18	-2.10	0.04	96.5%	-0.062	-3.02	Y	---			250	0	---	n/a	18	1.81	2.06	4	2.19	2.39	0.68
	Sulphate	-18	-2.10	0.04	96.5%	-0.26	-2.46	Y	---			500	0	---	n/a	18	9	10.1	13	4.00	10.2	1.18
	Iron	11	1.25	0.21	78.8%	0.0057	0.43	Y	---			0.3	1	---	n/a	18	< 0.06	1.30	1.45	1.39	1.20	0.33
	Manganese	-15	-1.75	0.08	91.9%	-0.0010	-0.44	Y	---			0.02	1	0.12	1	18	0.0882	0.24	0.263	0.17	0.24	0.038
	Total Dissolved Solids (Calculated)	12	1.36	0.17	82.6%	2.89	0.65	Y	---			500	0	---	n/a	18	425	455	470	45.0	450.7	12.5
	Sodium	4	0.38	0.71	29.4%	0.34	0.31	Y	---			200	0	---	n/a	18	101	108	119	18.0	108.2	4.98
	Fluoride	2	0.12	0.90	9.8%	0.00078	0.55	Y	---			---	n/a	1.5	0	18	0.119	0.15	0.2	0.081	0.15	0.025
	Dissolved Organic Carbon	-10	-1.11	0.27	73.4%	-0.15	-2.93	Y	---			---	n/a	---	n/a	18	4	4.96	7.6	3.60	5.03	0.86

Project #: 317085-55576-24000		Mann-Kendall Analysis ⁴								Visual Trend Analysis	Guideline Exceedances ⁵				Basic Analysis ⁶						
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Notes:

1. Non-detect multiplier of 0.5 applied to sample data below reported detection limit (RDL)

2. Shading in the parameter column indicates one or more analyses returned notable results
 - Analysis-specific shading is further specified below

3. Reporting period:
 - Defined as all data between 01-Jan-2024 and 31-Dec-2024 (inclusive)

4. Mann-Kendall Analysis:
 - Shading of trend analysis cells indicates a Mann-Kendall trend has been detected
 - Analysis performed on the last 8 sample points
 - Requirements for valid Mann-Kendall analysis:
 - Minimum of 8 data points present in data set
 - Minimum of 50% of data greater than RDL
 - Statistically significant trend defined as:
 - P-value of two-tailed test less than or equal to 0.05
 - Absolute value of Sen's normalized slope is greater than 10%
 - Absolute slope criteria met for individual parameters:
 - pH: n/a
 - Chloride: 2 mg/L
 - Sulphate: 2 mg/L
 - Iron: 0.1 mg/L
 - Manganese: 0.1 mg/L
 - Total Dissolved Solids (Calculated): 2 mg/L
 - Sodium: 2 mg/L
 - Fluoride: 0.1 mg/L
 - Dissolved Organic Carbon: 0.5 mg/L
 - Up: Denotes statistically significant upward trend
 - Down: Denotes statistically significant downward trend
 - "---": Denotes no trend

5. Guideline exceedances:
 - Exceedances tallied on all sample data in reporting period

6. Basic Analysis performed with the following conditions:
 - Analysis performed on all available sample data

7. Legend for control limit/trend assumptions:
 - Y: All conditions are met
 - N: Not all conditions are met, specified as follows:
 - No valid BL: No valid baseline found at this location
 - Ins. trend data: Insufficient data available to conduct a Mann-Kendall analysis
 - Ins. >DL data: Insufficient data greater than the RDL available to conduct the analysis
 - MK trend present: Associated Mann-Kendall analysis identified statistical trend for parameter
 - < 1x/5x RDL: The calculated result was less than 1 time/less than 5 times the RDL
 - Non-natural: Analyte determined to be not naturally occurring at this location
 - Damaged: The well is damaged

8. Units:
 - pH: pH units
 - Chloride: mg/L
 - Sulphate: mg/L
 - Iron: mg/L
 - Manganese: mg/L
 - Total Dissolved Solids (Calculated): mg/L
 - Sodium: mg/L
 - Fluoride: mg/L
 - Dissolved Organic Carbon: mg/L
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