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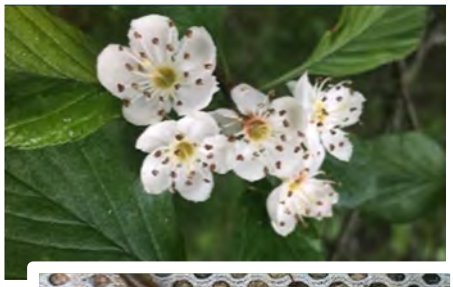

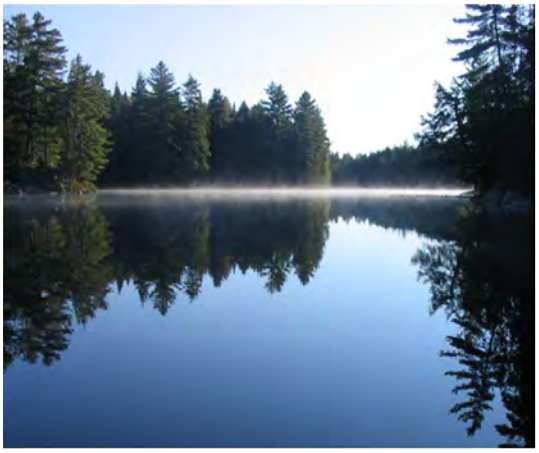

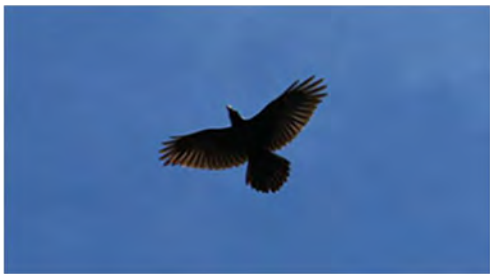

# Fenelon Landfill Site

## 341 Mark Road

## City of Kawartha Lakes

**Prepared for City of Kawartha Lakes**

**AEC Project No. 26-010 | May 2026**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

May 27, 2026 AEC 26-010

City of Kawartha Lakes
Waste Management Department
322 Kent St. West
Lindsay, ON
K9V 4T7

Attention: Ms. Kayla Pantaleo -Regulatory Compliance Officer

**Re: 2025 Annual Monitoring Report – Fenelon Landfill Site**

Dear Kayla:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide the 2025 Annual Monitoring Report (AMR) for the Fenelon Waste Disposal Site (Site). The data and interpretation included provides a summary of the 2025 monitoring data with comparison to the historical data and accurate assessment of the current state of the landfill Site. This report has been prepared in compliance with the existing Environmental Compliance Approval (ECA) and applicable Provincial standards. This assessment also interprets the longer-term trends at the Site such that an appropriate monitoring program assesses the current state of the landfill.

The environmental setting at the Fenelon Landfill Site is well understood based on 30+ years of performance monitoring. The data trends over this monitoring period have yielded a relatively consistent geochemical signature such that it is reasonable to infer that the Site reflects a near steady state condition. This is supported by the general consistency between the 2025 data with the historic data set for the majority of monitoring locations.

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telephone: 705.721.8451 • info@azimuthenvironmental.com • www.azimuthenvironmental.com

If there are any questions regarding the content of the report, do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Colin Ross, B.Sc., P.Geo.
Senior Hydrogeologist

c.c. MECP – Peterborough District Office

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## EXECUTIVE SUMMARY

The City of Kawartha Lakes (City) is responsible for the operation and maintenance of the Fenelon Landfill Site (Site) in accordance with the Ministry of Environment, Conservation & Parks (MECP) Environmental Compliance Approval (ECA) No. A321206 (Appendix A), issued October 28, 2003 and last amended in March 2025.

The Fenelon Landfill Site is located along an esker complex that extends along a southwest – northeast axis that is surrounded by low lying wetland areas. The soils underlying the Site vary from coarse sands and gravel along the center line of the esker, while a more extensive sand unit and underlying till deposit are located beneath. Peat deposits are present away from the landfill into the wetland areas that surround the landfill. Given these conditions, the monitoring network at the Site has historically been subdivided into three (3) target aquifer units referred to as the shallow overburden, lower overburden and shallow bedrock.

The ground water flow patterns at the Site generally flow to the southeast from the esker/ waste mound into the wetland features associated with Martin Creek, which represents the ultimate discharge point for ground water originating at the landfill. Ground water from the Site flows within the granular overburden or underlying fractured bedrock ultimately discharging into Martin Creek. Despite the southeasterly flow path and permeable overburden and bedrock, there is a significant reduction in leachate indicator parameter concentrations only a short distance from the waste mound indicating that the attenuative capacity of the Site is sufficient to ensure the Site is in compliance which suggests that there is no impact to Martin Creek.

In interpreting the Site data, it was important to distinguish between the organic-rich geochemical signature present in the wetland complex from that in proximity to the waste mound. Of note, several leachate indicator parameters are also associated with the naturally occurring geochemically reduced conditions present in the downgradient wetland.

The data trends over this monitoring period have yielded a relatively consistent geochemical signature, although some shorter-term trends are present at the proximal locations owing to a shift in active area from west to east over time. This has resulted in greater leachate influence at wells in proximity to the Phase II waste (active) area. Conversely, a reduction in leachate influence in surface water along the western toe of the waste mound has resulted since the Phase I area was capped and closed in 2017. Despite these trends, the downgradient locations have remained very consistent for a number of years indicating the Site is in a relative steady state condition. In addition, the data shows that attenuative processes are active a short

distance downgradient such that leachate influence is not seen east of Mark Road. This finding is in keeping with the soils present beneath the landfill site. Dilution and dispersion process are considerable in remedying the leachate flux percolating from the landfill. The permeability contrast between the emplaced waste and esker sediments affords the attenuation reported and hence dispersion to background levels within the downgradient area.

Exceedances with respect to Reasonable Use Policy (RUP) B-7-1 continued in 2025, with a few elevated concentrations which are attributed to natural variability as many more definable leachate indicator parameters were not similarly elevated.

Similar to previous years, downstream surface water quality results from Martin Creek did not indicate any leachate influence suggesting that the Site is providing adequate attenuation of leachate within the property boundaries. Leachate influence is observed along the western toe of the waste mound, although additional transect monitoring completed in past indicates that the leachate influence is generally not observed beyond 30 m of the toe of waste.

The trigger programs for the Site, which are targeted around protection of the adjacent Martin Creek and Martin Creek Wetland, had no parameter exceedances reported for the 2025 monitoring period. Additional PFAS samples were collected in April 2025 from perimeter wetland locations which were previously dry during the original PFAS screening sampling that took place in 2023. The 2025 results fall in line with what was observed historically with measurable but minimal leachate influence is present within 30 m of the waste mound.

The monitoring program for 2026 follows what was included in the 2025 ECA amendment, but includes a new Guideline B7 – Reasonable Use compliance monitoring well (WP-7) that was installed in December 2025 and will be included in the 2026 monitoring program.

Based on the remaining capacity (69,462 $m^3$) and an annual average waste and interim cover material volume of 7,000 $m^3$, there is ~10 years of capacity remaining within the Phase II area of the Site.

# 1.0 INTRODUCTION

The City of Kawartha Lakes (City) is responsible for the operation and maintenance of the Fenelon Landfill Site (Site) in accordance with the Ministry of Environment, Conservation & Parks (MECP) Environmental Compliance Approval (ECA) No. A321206 (Appendix A), last amended March 17th, 2025 to facilitate a vertical volumetric expansion (39,385 $m^3$) of the Site.

The following report provides a summary of the 2025 monitoring data with comparison to the historical data set such that accurate assessment of the current state of the landfill Site is provided with respect to compliance with the existing ECA and applicable Provincial standards.

## 1.1 Site Background

For the purposes of efficiency and consistency, much of the background information provided within this report has been referenced from previous Site reports, all of which have been referenced in Section 9.0.

The Site is located at 341 Mark Road, which is in the southeast corner of Lot 16, Concession 4, in the Township of Fenelon, approximately 5 kilometers (km) north of the Hamlet of Cameron and 9 km southwest of the Village of Fenelon Falls (Figure 1). The Site has been operating since 1972 and currently accepts domestic, commercial and industrial wastes from the City of Kawartha Lakes. Originally the landfill's service area consisted of the Township of Fenelon and the Village of Fenelon Falls. The Township of Fenelon was the owner/operator of the landfill until 1992 when the County of Victoria (now the City of Kawartha Lakes) assumed the responsibility for operation of the Site.

The Site is operated by the City under the current ECA (No. A321206), which allows for the use and operation of a 20.83 hectare (ha) site which includes a waste disposal area, a Household Hazardous Waste (HHW) Depot, a collection and transfer facility for waste electronics and electrical equipment, a Reuse Centre and an outdoor leaf and yard waste composting facility, as shown in Figure 2. The ECA also includes a 104.6 ha contaminant attenuation zone (CAZ) south and east of the Site as shown in Figure 2.

A provincially significant wetland referred to as the Martin Creek Wetland surrounds the Site (Figures 2 & 3), except for the north-east boundary which is adjoined by agricultural land and a sand and gravel pit. The nearest residential dwellings are located on Mark Road, approximately 700 m south and 450 m north of the waste fill area.
The Site has been approved and is currently operated as a natural attenuation facility, with no engineered liner and no leachate collection system. Natural attenuation of leachate occurs

within the CAZ south and east of the waste fill area and within the wetland in close proximity to the landfill.

## 2.0 GEOLOGY

According to Chapman and Putnam (1984), the Fenelon Landfill Site is located within the physiographic region named the "Peterborough Drumlin Field". The Peterborough drumlin field is located north of Lake Ontario, covering an area of ~5,000 $km^2$. It covers regions of the Lowlands between the Niagara Escarpment and the Algonquin Uplands, encompassing a belt of southwestern trending glacial terrain spanning 140 km east of Lake Simcoe. The belt has an extent of 20 to 60 km north-south, which is bound by two (2) moraine ridges that are oriented west to east. The Dummer Moraine occurs to the North, while the Oak Ridge Moraine is situated to the South.

The Fenelon Landfill Site is at a geologic transition point (esker) between an upland area that has a substantial thickness of glaciofluvial sand and gravel deposits (~20 m) and an adjacent lower lying "wetland area". A glacial till unit of approximately 5 m thickness (*i.e.,* Peterborough Drumlin Till Plain) lies over the underlying Ordovician limestone of the Verulam Formation (Golder, 2010). Over top of the till and present around the Site periphery is a glaciolacustrine silty fine sand unit which has been interpreted in borehole logs (Appendix B) to be approximately 8 m thick. A wetland complex has developed over this unit and now supports a peat bog environment.

Golder, 2010 had stated that the silty fine sand and till units have limited thickness or are not present in the center of the esker (MW18 & MW23), which is likely the result of glacial meltwater erosion prior to the deposition of the esker sediments. Middle Earth Hydrogeology (2000) had previously described the local geological sequence as limestone bedrock (Layer 1); beneath clay till material (Layer 2); beneath glaciolacustrine silty fine sand (Layer 4); which has been scoured and replaced by glaciofluvial sediments of the esker (Layer 3) and flanked by a peat bog (Layer 5). The Golder (2010) report has sub-divided the esker materials into a core sandy gravel material which is encased by a fine to medium sand which outcrops. A detailed northwest to southeast cross-section through the Site is presented in Figure 5.

Hydraulic data for the geological units noted above are provided in the following table.

**Table 1: Hydraulic Conductivity Values**

| Geologic Unit | | Average Hydraulic Conductivity(m/s) | Hydraulic Conductivity Range (m/s) |
|---|---|---|---|
| Peat | (Layer 5) | | $10^{-6.2*}$ to $10^{-5.0}$ |
| Sand and Gravel** | (Layer 3) | $5 \times 10^{-4} = 10^{-3.3}$ | $10^{-4.0}$ to $10^{-3.4}$ |
| Silty Fine Sand | (Layer 4) | $1 \times 10^{-4} = 10^{-4.0}$ | $10^{-5.1***}$ |
| Glacial Till | (Layer 2) | $9 \times 10^{-6} = 10^{-5.1}$ | $10^{-7.5****}$ |
| Upper Bedrock | (Layer 1) | $1 \times 10^{-4} = 10^{-4.0}$ | $10^{-4.0}$ |

* - Values lower in compacted peat beneath wastes
** - Esker deposits
*** - Average value based on in-situ testing and grain size analysis
**** - Base on grain size analysis
Data from Golder, 2010

Outside the immediate area of the Site, local MECP water well record data suggest that the overburden thickness is moderate to thin (i.e., <4 m thick). However, some areas such as the Fenelon Landfill Site have much more significant overburden thicknesses and are typically associated with esker formations (Finamore & Bajc, 1981). Drumlins are also present on this landscape, but not in the immediate vicinity of the Site.

The local bedrock geology has been described by the Ontario Geologic Survey (OGS) as being composed generally of a gray-brown to blue-gray dolostone, included as part of the Lower Verulam Formation (Armstrong & Rheaume, 1994). The thickness of this dolostone formation averages about 30 m, and is underlain by the Bobcaygeon, Gull River and Shadow Lake Formations prior to intersecting the Pre-Cambrian contact. Below the weathered contact, the ground water flow in the limestone bedrock tends to be dominated by discrete laterally bedded fracture planes that would be expected to limit vertical migration deeper into the bedrock formations.

## 3.0 HYDROGEOLOGIC INTERPRETATION

As an initial step in our interpretation of the Site hydrogeology, geologic cross-sections were reviewed as they provide a visual representation of the major water-bearing zone(s) existing within the subsurface in the vicinity of the Fenelon Landfill Site (*i.e.,* upper 30 m). The current monitoring well network for the Site includes locations with multiple target zones (shallow overburden, deep overburden, shallow bedrock and till unit). The following section describes how ground water within these different zones moves and interacts both horizontally and vertically.

Ground water flows principally through both the underlying sand and gravel unit from the esker as well as the more regional silty fine sand aquifer, which due to their high permeability forms the preferred migration pathway. These units are underlain by a regional till unit which is locally discontinuous due to glaciofluvial processes. The till unit is in turn underlain by a weathered / fractured limestone. It should also be noted that much of the waste area is also deposited atop a 1.5 m layer of compacted peat soils associated with the surrounding wetland. Given the low hydraulic conductivities in the peat and presence of leachate mounding, it is likely that this unit provides a hydraulic barrier between the waste and underlying sand unit. However, as the peat layer does not extend completely across the base of the waste mound, there is still expected to be a hydraulic connection between the waste mound and underlying sand unit closest to the esker.

The ground water elevations (Appendix C) have been monitored from 2002 to present. The ground water elevation data suggest that the ground water table shows typical seasonal variation (*i.e.,* < 2 m change in most monitors). The hydraulic gradient is also quite muted at this Site with a differential hydraulic head of 2 to 3 m over the 500 m monitoring distance, with the exception of some mounding present within the waste mound.

Ground water flow direction within the overburden reflects the local topography with an elevated water table conditions observed within the highpoints of the Site (*i.e.,* waste mound and center of esker), although not significantly elevated around the surrounding area (~1 m). As such, ground water would be expected to migrate in a radial direction from the waste mound/ esker. Beyond the waste mound a southeastern flow path is observed in the shallow overburden.

The ground water flow patterns in the lower overburden and bedrock also show a similar regional south to southeast flow path as the shallow overburden. Ground water flow mapping is presented on Figures 6 to 11.

Based on the hydraulic properties, ground water velocities were calculated and summarized in Table 2 below. Porosity values are considered slightly low, but are considered conservative in estimating ground water flow and have been maintained based on previous estimates for the Site (Golder, 2010).

**Table 2: Ground Water Flow Velocities**

| Hydrogeologic Unit | Hydraulic Conductivity (m/s) | Lateral Gradient (m/m) | Porosity | Ground Water Velocity (m/yr) |
|---|---|---|---|---|
| Sand and Gravel* | $5 \times 10^{-4}$ | 0.004 | 0.25 | 250 |
| Fine to Medium Sand* | $1 \times 10^{-4}$ | 0.004 | 0.25 | 50 |
| Lower Overburden | $9 \times 10^{-6}$ | 0.003 | 0.25 | 3 |
| Upper Bedrock | $1 \times 10^{-4}$ | 0.005 | 0.01-0.02** | 800-1500 |

* - Esker Deposits

** - Conservative assumption

*** - Data used in tables from Golder, 2010

Given the ground water flow directions and flow rates presented above, it is apparent that both the esker deposits as well as the upper bedrock aquifer units provide the primary pathways for potential leachate migration from the site assuming a sufficient vertical hydraulic connection with the waste mound. However, as the extent of the esker complex to the southwest is limited to approximately 300 m beyond the existing monitoring network, it is likely that ground water within the coarser grained esker deposits drains into surrounding silty fine sand lacustrine deposits.

Under these velocities, a contaminating source could have easily extended to the limits of the esker and beyond within a relatively short period of time. Assuming a constant source is present, the expectation is that a steady-state dissolved-phase plume would have been established within these transmissive units. Therefore, a constant geochemical signature at monitoring points would be anticipated under such conditions.

## 4.0 SITE CONCEPTUAL MODEL

As noted in previous sections, the Site is located along an esker complex that extends along a southwest – northeast axis which is surrounded by low lying wetland areas. The upper local soils consist of esker sediments (coarse sand and gravel) while deeper soils range from regionally extensive sand sequences to silty sand/ sandy silt till deposits. Modern organic (peat) deposits are also present in nearby wetland areas that surround the landfill.

Given the above-noted conditions, the monitoring network has historically targeted three (3) regional aquifer units referred to as “shallow overburden”, “lower overburden” and “shallow bedrock”. Based on these details, the hydrogeological environment is somewhat complex which is compounded by proposed deposition and the surrounding wetland complexes. The Site geochemistry has been used to differentiate the individual aquifer units at the Site. The

ability to distinguish different geochemical signatures has allowed for a more defined ground water flow pathway which infers some degree of isolation between the different units. However, this is most discernable between the shallow overburden and lower units (lower overburden and bedrock) in proximity to the waste mound. This distinction becomes less obvious further out from the waste mound.

The most notable difference between the shallow and lower units is the consistency in water quality over time. The lower units (lower overburden and bedrock units) indicate similar and stable ground water signatures, while the shallow unit is a bit more variable. This variability is likely owing to its influence from surface water sources (*i.e.,* precipitation, runoff and leachate infiltration). The one exception to this is MW27-I, which has shown a more mineralized ground water signature that is unique from other bedrock wells at the Site.

This overall pattern is not surprising given the fact there is no apparent confining layer which would hydraulically separate the units, aside from some differential in grain size and the depth in the coarse-textured esker complex. Although a basal till unit is present on top of the bedrock contact, it has been found to be discontinuous along the esker complex, likely due to erosional processes associated with the esker's deposition. As such, there would be preferential ground water movement between these two units, especially given the greater hydraulic conductivity observed in the bedrock which suggests greater weathering/ fracturing at the contact.

In addition to the ground water signatures described above, the surface water quality was also evaluated and compared to the observed leachate and ground water signatures. The surface water from Martin Creek and the established background station was found to have a similar geochemical signature to that of the ground water aquifers with some greater seasonal variability. The expectation is that ground water from the esker complex flows toward, and ultimately discharges to, Martin Creek. Despite this flow pattern, the surface water chemistry does not appear to be altered by the migration of leachate. This is expressly shown by the limited difference in samples collected between the upstream and downstream sampling locations. This continues to suggest that there is no detectable influence downgradient of the landfill. In addition, the movement of ground water from the landfill to the adjacent wetland area is not observed at any significant distance into the wetland from the landfill periphery (*i.e.,* within Site limits) and adjacent creek.

Based on the geochemical findings to date, there is limited migration of leachate within the overburden and surface water regimes. Leachate indicator parameters (LIPs), such as ammonia, are not elevated in these units which suggests that the mass flux from the landfill is insufficient to dramatically alter or influence the background geochemical signature. Thus,

there is a sufficient amount of ground water underflow that provides enough dilution for the amount of contaminant mass that may be leaching from the landfill. The leachate mound present in the landfill is evidence of this as the limited hydraulic conductivity of the wastes and/ or the compacted peat layer which underlies much of the waste mound has created at least a partial hydraulic barrier between the waste and the underlying aquifers. The basis for this interpretation was presented in the preceding sections of this report.

## 5.0 SUMMARY OF 2025 MONITORING PROGRAM

The 2025 monitoring program for the Site was undertaken by Azimuth Environmental Consulting (Azimuth). This included ground and surface water monitoring which occurred in April and October 2025, as well as additional surface water monitoring events in April (later in month) and July.

This program, which includes 44 ground water monitoring wells and 12 surface water locations represents a similar program that has been completed historically. Prior to sampling at ground water monitors, static water levels were measured. Ground water samples were then collected following purging of at least three well volumes of water from each monitor using dedicated check valve pumps and tubing or until the monitor was dry and sufficient recovery allowed for a sample collection. Ground water samples for metals and dissolved organic carbon (DOC) analysis were also field-filtered using disposable 0.45 μm filters.

Surface water samples were collected at a depth about equal to half of the surface water feature's total depth, while minimizing the potential for sediment entrainment and were not filtered, with the exception of WP6-13 which had a second additional filtered sample for metals. For both ground and surface water sample collection, field parameters are collected including pH, electrical conductivity, temperature and dissolved oxygen (surface water only).

In 2025, the analytical testing was completed by Caduceon Environmental Laboratories (Caduceon) of Kingston or Richmond Hill, Ontario. Caduceon is accredited by the Canadian Association for Laboratory Accreditation (CALA). Unabbreviated Laboratory Certificates of Analyses for all testing are presented in Appendix D, while the data has also been summarized with the historical data in Appendix E.

The details of the monitoring program are summarized in the following table.

**Table 3: 2025 Monitoring Program**

| Monitoring Station | Frequency | Parameters |
|---|---|---|
| *Ground Water*<br>MW1*, MW2*, MW3*, MW3A*, MW5*, MW5A*, MW6*, MW6A*, MW-7*, MW10, MW11A, MW12, MW13, MW14, MW15, MW15A, MW15B, MW16, MW17, MW18, MW18A, MW18B, MW19, MW22, MW22A, MW22B, MW23, MW23A, MW23B, MW26, MW26-1, MW26-2, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, Office, WP1, WP2, WP3, WP4, WP5 & WP6, WP7 (new western boundary well installed in December 2026) | Semi-Annual (April / May & September / October) | Total Kjeldahl Nitrogen (TKN), Nitrate, Nitrite, Ammonia, Unionized Ammonia, Alkalinity, Hardness, Chloride, Calcium, Magnesium, Total Phosphorous, Phosphorous, Sulfate, Phenols, Dissolved Organic Carbon (DOC), Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, pH, Conductivity, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD).<br><br>* - Water Level Measurements Only During Fall Monitoring Event |
| MW-7, MW12, MW14, MW15, MW15A, MW15B, MW16, MW26, MW26-1, MW26-2, , MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, WP1, WP2, WP3, WP3, WP4, WP5 & WP6 | | VOCs |

**Table 3: 2025 Monitoring Program**

| Monitoring Station | Frequency | Parameters |
|---|---|---|
| *Surface Water*<br>SW2, SW3*, SW4*, SW12 (10m), SW13 (10m), SW15 (10m), SW13 (30m), SW14, SW15 (30 m), SW16*, SW17 & WP4 (30 m) | Seasonal (April / May, July & September / October) | Total Kjeldahl Nitrogen (TKN), Nitrate, Nitrite, Ammonia, Unionized Ammonia, Alkalinity, Hardness, Chloride, Calcium, Magnesium, Total Phosphorous, Phosphorous, Sulfate, Phenols, Dissolved Organic Carbon (DOC), Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, pH, Conductivity, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), Free Cyanide, Colour, Turbidity, Total Suspended Solids (TSS)<br><br>* - Additional filtered metals analysis for all locations except SW2, SW3 & SW4. |
| SW12 (10m), SW13 (10m), SW14 & SW15 (10m) | | Toluene |

The 2025 program was completed as required with the exception of ground water sample collection from MW14, MW15, MW16, MW17, MW22B, WP2 & WP5 during the fall monitoring event and MW17 during the spring monitoring event. Surface water samples were collected at all locations with the exception of WP4 (30m) during the April monitoring event, WP4 (30m), SW12 (10m), SW13(10m), SW14, SW15(10m), SW15 (30m), SW17 during the spring monitoring event, SW12 (10m), SW13(10m), SW13 (30m), SW14, SW15(10m), SW15 (30m), SW16 & SW17 during the October monitoring. All of these locations were dry or insufficient water for sample collection. The Office well was not able to be sampled in April because the Site was closed.

### 5.1 2025 QA/QC Samples

As part of the routine sampling program for the Site, duplicate samples were collected and analyzed for quality assurance purposes. In 2025, 87 samples were collected as well as 8

QA/QC samples. The laboratory was not advised of the sample duplication prior to analysis of these samples. Laboratory duplicate precision was assessed using Percent Difference, which is the difference between two concentrations divided by the average of the two concentrations.

Results are provided in Appendix E and were found to be within acceptable limits (*i.e.,* <20% variation), with the exceptions summarized in the following table (Table 4). It should be noted that as the analytical results approach the detection limit, the precision of the analysis tends to decline, while these differences are also exaggerated with the lower detection limits and may account for some of the variation observed.

Although these variances create some degree of uncertainty in the results, they are not seen as a concern at this time as the majority of the parameters listed had concentrations within the historical range for the corresponding parameter and location. The exceptions were ammonia and TKN at both MW15B and MW16, which both had concentrations above the historical range for these locations for one of the measurements (QA/QC & regular sample). The source of the difference is not known, but isolated increases in ammonia and TKN concentrations beyond the historical range have been observed at other locations at the Site as well as other Sites over the past few years, which did not correlate to other LIPs such that they were not considered leachate sourced. With these duplicate results, the isolated increases may be sourced to laboratory analysis, although given the differences are not widespread in the remaining QA/QC sampling location or elevations in these parameters for other locations in 2026, there are no significant concerns with the laboratory quality in 2025. However, both ammonia and TKN concentrations for all locations in 2025 will be reviewed with caution relating to any potential trending observed.

**Table 4: QA/QC Analysis**

| April (MW5) | | | |
|---|---|---|---|
| **Parameter** | **Results (mg/L)** | | **Difference (%)** |
| Phenols | 0.087 | 0.032 | 53% |
| Copper | 0.0001 | 0.0002 | 50% |
| **April (MW12)** | | | |
| **Parameter** | **Results (mg/L)** | | **Difference (%)** |
| Manganese | 0.001 | 0.002 | 50% |
| Phenols | 0.002 | <0.001 | 40% |
| TKN | 0.6 | 0.3 | 40% |
| **October (MW15B)** | | | |
| **Parameter** | **Results (mg/L)** | | **Difference (%)** |
| COD | 9 | 5 | 35% |
| TKN | 1.9 | 0.8 | 48% |
| Ammonia | 1.53 | 0.44 | 62% |
| **April (MW16)** | | | |
| **Parameter** | **Results** | | **Difference (%)** |
| Manganese | 0.001 | 0.004 | -100% |
| TKN | 3.2 | 0.8 | 67% |
| Ammonia | 1.16 | 0.08 | 90% |
| Vanadium | 0.0002 | 0.0003 | -29% |
| **April (MW22)** | | | |
| **Parameter** | **Results** | | **Difference (%)** |
| Aluminum | 0.03 | 0.11 | -94% |
| Antimony | 0.0005 | 0.0007 | -24% |
| **September (WP6)** | | | |
| **Parameter** | **Results** | | **Difference (%)** |
| Fluoride | <0.1 | 0.2 | 50% |

## 5.2 Ground Water & Leachate

### 5.2.1 Ground Water & Leachate Flow

Water level measurements were obtained prior to any disturbance of the static piezometric surface using an electronic water level meter (accuracy of +/- 0.5 cm). The water level data collected during monitoring events in 2025 was generally consistent with the historical data set; The 2025 ground water elevations and associated contours are illustrated on Figures 6 to 11.

### 5.2.2 Background Ground Water Quality

The background ground water chemistry is currently and has historically been monitored at two upgradient locations (MW11A and the Office Well). MW11A monitors the shallow overburden unit northeast of the waste area, while the Office well targets the shallow fractured bedrock aquifer northeast of the waste area (Figure 2).

Some differences in chemistry have been noted between these background locations which include elevated sodium, chloride, and TDS, likely from road salting activities along Mark Road. The water quality can be characterized by a moderate level of mineralization, with consistent exceedances to Ontario Drinking Water Quality Standards (ODWQS, 2006) noted for iron, manganese, and DOC in both units. TDS, aluminum, and hardness are also exceeded occasionally at MW11A. The elevated iron and manganese concentrations present in the ground water are attributed to anoxic ("reduced" oxygen) conditions. The natural organic rich peat environment depletes / reduces the dissolved oxygen environment to a point where valence changes in iron and manganese occur and therefore account for the elevated concentration levels detected. Iron and manganese are much more soluble under geochemically reduced conditions and are naturally sourced earth elements. The hardness comes from the carbonate-rich sediments in both the overburden and bedrock environments. Elevated DOC may be the result of influence of the surrounding wetlands on the underlying ground water quality through decay of natural organic materials. The TDS is associated with the elevated sodium and chloride concentrations attributable to road salting on Mark Road.

### 5.2.3 Leachate Quality

Leachate quality is controlled by the availability of soluble contaminants in the waste pile, the residence time of infiltrating water in the waste, and the physical conditions (*i.e.,* temperature, redox potential, and pH) of the solution. Compared to natural waters, leachate that is produced from landfilled waste typically possesses elevated concentrations of calcium, magnesium, sodium, potassium, iron, zinc, chloride, sulphate, alkalinity, ammonia, total kjeldahl nitrogen (TKN), conductivity, total dissolved solids, dissolved organic carbon, and/or phenols (Jones, 2001). Aluminum, boron, barium, cobalt, nickel, strontium, titanium, vanadium and phosphorus species are also typically enriched, if available, although to a lesser degree. Leachate quality changes over time as a result of continued leaching of the waste pile, which preferentially removes more soluble compounds first. The valence of certain species (*i.e.,* nitrogen, sulphur) can also be used to evaluate differences in the waste environment, specifically the oxidation state which tends to be depleted in a landfilled environment. Inherent difficulties arise when selecting leachate related parameters in a limestone bedrock environment. Typically, elements such as alkalinity and sulphate are elevated in natural

limestone bedrock ground waters, thus reducing their effectiveness to be used as leachate indicator parameters.

Presently, the best available estimate of leachate quality at the Fenelon Landfill Site is the analytical data obtained from MW7, which is screened within the waste (Figure 2). For the Fenelon Landfill Site, the leachate strength is relatively high as it is still an active site. One of the most significant deviations noted between the leachate and natural levels is with respect to nitrogen species (*i.e.,* TKN and total ammonia [as N]). An elevated concentration of both of these parameters is indicative of a reducing environment, as is typical of ground water conditions in the immediate vicinity of any landfill site. This is primarily due to the consumption of available dissolved oxygen within the subsurface by bacteriological activity, which is catalyzed by the large quantity of organic matter (organic carbon source for energy-producing reactions) occurring within the waste mass. The microbial activity is limited by the available oxygen which is often depleted within the landfill mass and hence the use of alternative sources of oxygen by facilitative bacteria (*i.e.,* reduction of oxygenated species [$NO_3$ to $NH_4$ and $SO_4$ to $SO_2$] dissolved in the leachate).

These geochemically reducing conditions will also allow for valence changes in many metal species which tends to increase dissolution potential of metals. This is evident at this site with the significantly elevated iron and manganese concentrations. Other parameters are slightly elevated (*i.e.,* chloride), but to a much lesser extent.

A final characteristic of the leachate quality is its relative consistency over time, albeit some variance is observed owing to the fact MW7 has been replaced several times including 2013 and 2017. The parameter concentrations have all remained elevated and within a consistent range for the period of record with the exception of COD, TKN, DOC and iron, which have shown some variability since the monitor was last replaced in 2017. The inference is that the Fenelon Landfill Site will continue to yield this geochemical signature because it maintains a steady state condition likely due to the rate limiting effects. Eventually, the carbon-rich source present in the landfill will be depleted and will result in geochemical changes in line with the change within the host environment. It also suggests that the level of influence, the leachate at the Fenelon Landfill Site has on its surrounding environment would be expected to remain relatively steady throughout the operational lifespan of the Site and will likely show a slow decline over time. This is becoming evident with the water quality at MW6A, which is located near the north slope within the waste mound. This location has shown a declining trend for the majority of LIPs since 2020. It should be noted that these assumptions are based on the Site accepting similar waste streams / annual waste volumes as has been historically.

Based on the leachate quality derived at MW7, the leachate indicator parameters (LIPs) identified for this Site in 2025 are listed below and have been included in the chemistry graphs (Appendix G) and average concentration tables in subsequent sections of the report. It is noted that these are the same as last year:

**-Alkalinity**
**-Chloride**
**-Iron**
**-Chemical Oxygen Demand (COD)**
**-Total Dissolved Solids (TDS)**
**-Ammonia**
**-Boron**
**-Dissolved Organic Carbon (DOC)**
**-Manganese**
**-Potassium**
**-Total Kjeldahl Nitrogen (TKN)**

### 5.2.4 Downgradient Ground Water Quality

In 2025, the ground water quality downgradient of the Fenelon Landfill Site is monitored via 25 monitoring wells at twelve locations (MW1, 12, 13, 14, 15, 16, 17, 18, 23, 26, 27 and 28). Additionally, 11 perimeter monitoring wells at six locations (MW2, 3, 5, 6, 10 and 22) are present only a short distance from the waste area. Many of these locations are nested and target the shallow bedrock, shallow overburden and lower overburden. Lastly, there are seven wetland probes (WP1, 2, 3, 4, 5, 6, & 7)) which are constructed shallow (~3 m) and are located in close proximity to the perimeter of the waste fill area. It is noted that WP7 was installed in December 2025, such that no samples were collected as part of the 2025 monitoring program.

A review of the geochemical database has indicated that the water quality of the shallow overburden and lower overburden units at the Site have generally consistent water quality, unless influenced by leachate. The leachate influence tends to target both of these units when in close proximity to the waste mound (*i.e.,* perimeter wells). The strongest chemical trend occurs in the lower overburden aquifer moving away from the waste area (*i.e.,* southeast). This separation may be attributable to a plunging of the plume with distance coupled with infiltration contributing to the surficial water table quality away from the waste mound. It is further supported by the geological setting which has been previously described without a confining layer which would separate the shallow and lower overburden units. This is discussed in greater detail below.

*Overburden Aquifer Summary*

A summary of the 5-year average concentrations for the LIPs in the perimeter overburden wells at the Site is provided in Table 5. Averages from the past five years are used to provide a general representation of water quality since the geochemical signature is consistent over time.

As observed, leachate influence is present in all directions from the landfill. These results support the previously interpreted ground water flow directions which originate from the northeast. Around 2017, results at MW5 & MW22B had shown the onset of leachate impacts at the east and northeast parts of the landfill, which is in the perceived up/ side gradient direction of the waste. However, it is noted that the active waste area had shifted towards these monitors such that now they are within the active waste area. As such, this influence appears related to radial flow from the waste mound which is somewhat expected now that the active waste area has shifted. It is noted that the geochemical conditions have remained stable since the initial increases, although a similar spike in LIP concentrations was observed in October 2025. Up to this point, leachate influence had been marginal such that it could be that the monitor's annual seal has been compromised through the filling and grading activities taking place in the immediate vicinity of the monitoring well. A closer inspection of the monitoring well and additional data collected in 2026 will help to refine the understanding of these elevations.

A variable leachate influence around the perimeter of the waste mound is noted, but this is more likely related to spatial distribution of these monitors and the variable distribution of the waste found across the waste mound. Another item to note is the inconsistency in leachate influence between the shallow overburden and lower overburden amongst the perimeter monitors. MW3 and MW5A displays greater leachate influence in the lower overburden relative to the shallow overburden (MW3A & MW5), while perimeter location MW22 suggests a greater influence in the shallow overburden relative to the lower overburden. This is interpreted to be from the complex stratigraphy along the esker feature. MW22 is located along the eastern flank of this geologic feature where soils consist of fine-textured sands overlying a medium-coarse sand in the lower overburden. The lower permeable sands are thought to limit the downward vertical migration of leachate in this area.

The lateral migration of the leachate plume at depth is evident from the values included in Tables 6 and 7, which provide the 5-year running average for LIP concentrations in all downgradient overburden monitors. The concentrations clearly indicate that although elevations are noted in the downgradient monitors, it is apparent that attenuative processes are active downgradient of the landfill as concentrations become greatly reduced a short distance downgradient of the landfill.

The tables also illustrate the relative influence migrating leachate has on the downgradient monitors. Slight elevations for select parameters are noted at MW13 and MW18 in the shallow overburden, while the lower overburden appears to be most influenced at MW15A and MW18B; although MW17 and MW19 may also be showing some minor influence as well.

Based on the interpreted findings, and considering the southeasterly ground water flow direction, it can be interpreted that the center line of a dilute leachate plume extends to MW18. While the concentrations in the downgradient locations are less than those monitors within and surrounding the waste area, this suggests that attenuative processes are active at the Site. Moreover, the most distant locations at MW26, MW26-2 and MW28-II/III indicate LIP concentrations that align with those observed in the background monitor (MW11A).

*Shallow Bedrock Aquifer Summary*

The 5-year average concentrations for monitoring wells targeting the shallow bedrock aquifer are provided in Table 8. The bedrock water quality appears to have elevated concentration for many indicator parameters, most notably iron. The most notable leachate influence is noted at MW18A, which is the closest downgradient bedrock well to the waste mound. Some subtle variance and increasing trends are noted over time, but most parameters fall within the historical range in 2025. Some marginal influence may also be present at MW15B and MW23, but without the trending noted at MW18A.

Other distant locations MW26-1 and MW28-I indicate water quality that aligns with background water quality. Chloride concentrations at these locations are also elevated; however, this is likely the result of influence from Mark Road.

*Geochemical Trends*

Since there appears to be a measurable leachate influence in the downgradient shallow overburden and lower overburden wells, it is important to chart temporal trends with respect to the selected LIPs. This observational exercise is central to assess any migrating leachate plumes originating from the Site and if it has changed or evolved over time. This trending is also important to assess the effectiveness of the monitoring program for the Site.

These trends are illustrated for several LIPs over time graphs provided in Appendix G. It should be noted that these locations were selected as they provided adequate coverage of the Site and surrounding area. For reference purposes, the entire geochemical database has been appended in Appendix E.

## Table 5: Average Leachate Indicator Parameter Concentrations – Perimeter Overburden

| Parameters | ODWQS | Background | Leachate | North | | South | | | | East | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lower | Shallow | Shallow | Lower | Shallow | Shallow | Shallow | Lower | Lower | Shallow |
| | | 11A | MW7 | MW6 | MW6A | MW10 | MW3 | MW3A | MW2 | MW5 | MW5A | MW22A | MW22B |
| Alkalinity | 500 | 262 | **2364** | **1506** | **1118** | **1607** | **1132** | 282 | **695** | **860** | **980** | 496 | **1842** |
| Boron | 5 | 0.02 | 4 | 2 | 1 | 1 | 0.4 | 0.1 | 0.5 | 1 | 2 | 0.4 | 2 |
| COD | | 32 | 710 | 456 | 244 | 245 | 169 | 29 | 77 | 264 | 326 | 85 | 382 |
| Chloride | 250 | 138 | **681** | 199 | 99 | 244 | 155 | 15 | 66 | 63 | 232 | **383** | **327** |
| DOC | 5 | **7** | **74** | **49** | **27** | **57** | **32** | **10** | **17** | **39** | **54** | **7** | **68** |
| Iron | 0.3 | **3** | **15** | **7** | **29** | **12** | **26** | **2** | **56** | **58** | **67** | **4** | **18** |
| Manganese | 0.05 | **0.2** | **0.1** | **1** | **1** | **1** | **0.3** | **0.2** | **1** | **4** | **1** | **1** | **3** |
| Potassium | | 2 | 270 | 103 | 51 | 177 | 110 | 9 | 56 | 55 | 63 | 26 | 156 |
| TKN | | 1 | 506 | 163 | 85 | 210 | 95 | 9 | 50 | 19 | 47 | 32 | 234 |
| Ammonia (total) | | 1 | 481 | 134 | 76 | 182 | 82 | 8 | 45 | 15 | 41 | 25 | 202 |
| TDS | 500 | **509** | **3532** | **1916** | **1298** | **2141** | **1454** | 336 | **856** | **1052** | **1461** | **1156** | **2514** |

Bold Highlighting indicates ODWQS exceedance

Average data from 2021 to 2025, where available

## Table 6: Average Leachate Indicator Parameter Concentrations – Shallow Overburden

| Parameters | ODWQS | Background | Leachate | **Downgradient** (in order of proximity to waste) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11A | MW7 | MW18 | MW16 | MW12 | MW13 | MW15 | MW14 | MW23-B | MW28-III | MW26 | MW27-III |
| Alkalinity | 500 | 262 | **2364** | 260 | 217 | 239 | 186 | 183 | 206 | 152 | 245 | 285 | 191 |
| Boron | 5 | 0.02 | 4 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.04 | 0.05 | 0.01 |
| COD | | 32 | 710 | 42 | 22 | 8 | 26 | 13 | 67 | 12 | 31 | 137 | 328 |
| Chloride | 250 | 138 | **681** | 4 | 3 | 4 | 5 | 2 | 15 | 1 | 32 | 41 | 23 |
| DOC | 5 | **7** | **74** | **11** | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 4 | 2 |
| Iron | 0.3 | **3** | **15** | 0.04 | 0.01 | 0.02 | **1** | 0.01 | 0.03 | 0.02 | **0.4** | **1** | 0.3 |
| Manganese | 0.05 | **0.2** | **0.1** | 0.01 | 0.001 | 0.002 | **0.1** | 0.001 | 0.01 | 0.03 | **0.1** | 0.03 | 0.03 |
| Potassium | | 2 | 270 | 35 | 1 | 1 | 3 | 0.2 | 0.3 | 0.3 | 2 | 3 | 2 |
| TKN | | 1 | 506 | 1 | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | 0.3 | 1 | 4 |
| Ammonia (total) | | 1 | 481 | 0.2 | 0.3 | 0.2 | 1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| TDS | 500 | **509** | **3532** | 325 | 230 | 253 | 201 | 188 | 242 | 154 | 350 | 377 | 253 |

Bold Highlighting indicates ODWQS exceedance

Average data from 2021 to 2025, where available

## Table 7: Average Leachate Indicator Parameter Concentrations – Lower Overburden

| Parameters | ODWQS | Background | Leachate | Downgradient (in order of proximity to waste) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 11A | MW7 | MW17 | MW19 | MW18B | MW15A | MW23A | MW28-II | MW26-2 | MW27-II |
| Alkalinity | 500 | 262 | **2364** | 331 | 437 | 456 | 422 | 247 | 232 | 377 | 215 |
| Boron | 5 | 0.02 | 4 | 0.1 | 0.1 | 0.2 | 0.1 | 0.02 | 0.02 | 0.04 | 0.01 |
| COD | | 32 | 710 | 16 | 18 | 32 | 28 | 6 | 127 | 16 | 34 |
| Chloride | 250 | 138 | **681** | 24 | 35 | 70 | 70 | 11 | 31 | 53 | 13 |
| DOC | 5 | **7** | **74** | **8** | **7** | **10** | **8** | 3 | 2 | **7** | 2 |
| Iron | 0.3 | **3** | **15** | 0.01 | **0.3** | **10** | **6** | 0.2 | **0.4** | **3** | 0.02 |
| Manganese | 0.05 | **0.2** | **0.1** | 0.01 | **0.1** | **0.5** | **0.1** | 0.02 | 0.04 | **0.1** | 0.004 |
| Potassium | | 2 | 270 | 4 | 4 | 5 | 4 | 1 | 2 | 2 | 2 |
| TKN | | 1 | 506 | 1 | 0.4 | 2 | 1 | 0.3 | 1 | 1 | 1 |
| Ammonia (total) | | 1 | 481 | 0.3 | 0.1 | 2 | 1 | 0.2 | 0.3 | 0.3 | 0.1 |
| TDS | 500 | **509** | **3532** | 408 | **526** | **585** | **540** | 273 | 302 | 466 | 256 |

Bold Highlighting indicates ODWQS exceedance

Average data from 2021 to 2025, where available

## Table 8: Average Leachate Indicator Parameter Concentrations – Shallow Bedrock

| Parameters | ODWQS | Background | Leachate | Downgradient (in order of proximity to waste) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Office | MW7 | MW22 | MW18A | MW15B | MW23 | MW28-I | MW26-1 |
| Alkalinity | 500 | 226 | **2364** | 272 | 428 | 392 | 381 | 217 | 324 |
| Boron | 5 | 0.1 | 3.90 | 0.1 | 0.3 | 0.1 | 0.1 | 0.02 | 0.1 |
| COD | | 12 | 710 | 30 | 28 | 19 | 26 | 6 | 10 |
| Chloride | 250 | 17 | **681** | 55 | 90 | 70 | 61 | 34 | 47 |
| DOC | 5 | **7** | **74** | **10** | **8** | **8** | **10** | 2 | **5** |
| Iron | 0.3 | **3** | **15** | **2** | **4** | **2** | **5** | **0.4** | **1** |
| Manganese | 0.05 | **0.1** | **0.1** | 0.04 | **0.1** | **0.1** | **0.1** | 0.02 | **0.1** |
| Potassium | | 4 | 270 | 5 | 8 | 4 | 3 | 2 | 3 |
| TKN | | 1 | 506 | 2 | 2 | 1 | 1 | 0.2 | 0.4 |
| Ammonia (total) | | 1 | 481 | 1 | 2 | 1 | 1 | 0.1 | 0.2 |
| TDS | 500 | 249 | **3532** | 360 | **572** | **504** | 484 | 291 | 412 |

Bold Highlighting indicates ODWQS exceedance

Average data from 2021 to 2025, where available

Again, leachate influence is noted at a few proximal locations, including MW5, MW5A, MW22A & MW22B, which exhibited an increase in several LIPs in ~2018 owing to the transition of the active waste area to the east and towards these monitoring locations. However, these locations have shown relative stability in concentrations following the initial increases with some parameters even declining. The exception to this is MW22A, which indicated more elevated concentrations in October 2025, which may be a reflection of damage to the monitor resulting from it being located in the active area of Site. Additional water quality data in 2026 and an inspection of the well will be completed to further evaluate these trends. It is noted that similar trending is not observed in the deeper bedrock interval (MW22).

Other locations, such as MW12, MW13 & MW23B, have shown some variability potentially owing to modest leachate influence. MW12 has indicated more variability in ammonia, TKN and COD concentrations, although this variability was present from 2021 to 2024 with no obvious increasing trends and the concentrations are still relatively minimal. It is noted that the 2025 concentrations are more in line with the historical data supporting the previous trends are unlikely representative in a meaningful shift in leachate influence at this location.

MW14, MW17, MW18, MW23 and MW23B have concentrations falling within a predictable range with the exception of ammonia and TKN which remained somewhat elevated following slight increases in 2022, though like MW12 have fallen back to the historical range in 2025. Other LIPs remain within their respective range, suggesting potential independent sources for these nutrient elevations, but these trends will continue to be monitored in 2026. Similar nutrient elevations were noted in 2025 at MW14 and MW16 without a correlating increase in other LIPs

Other subtle increases in ammonia and TKN concentrations at MW15A over the past 10 years are noted and similar subtle trends over a similar period for iron, boron and alkalinity at MW18A, MW18B and MW19. These increases are marginal in nature and appear isolated from other LIPs, and as such, are not viewed as a concern. Notwithstanding, this shows that a dilute leachate plume is observed downgradient of the active waste area.

MW27-III has indicated a small but consistent increasing trend for chloride; however, it is interpreted to be sourced to road salt given a lack of other elevated LIP concentrations. It is also noted that concentrations are below those observed at MW28, which is in closer proximity to Mark Road and had a similar historical subtle increasing trend for chloride, which has since stabilized.

Other locations, including background monitors have shown variable geochemical concentrations over time; however, they all fall within a predictable range. This is most evident for COD concentrations which are shown to fluctuate at most locations regardless of whether a leachate influence is present or not. Despite this variability, there is no defined seasonal trending at any of these locations.

*ODWQS Assessment*

In addition to the above assessment, all 2025 values were compared to ODWQS in the chemistry summary tables (Appendix E), which indicated relatively similar results to previous years. Numerous LIPs are elevated along the perimeter of the landfill, albeit more dilute concentrations from those found at MW7. Further downgradient, LIP exceedances included alkalinity, hardness, iron, manganese, DOC, aluminum and TDS, with the most elevated concentrations and number of exceeded parameters found in the lower overburden and bedrock. It is noted that the concentration differentials between locations and with distance from the waste mound were variable and did not show a declining trend with distance from the waste mound. This would suggest that natural sources are contributing to these elevated parameters, which is also supported by the fact that many of these parameters have shown to be exceeded in the background locations.

The exception to this would be TDS at MW15A, MW15B, MW18A & MW18B which are more likely sourced to the landfill based on their proximity and centerline location of the perceived dilute leachate plume orientation.

### 5.3 Wetland Ground Water Monitoring

In addition to the ground water monitoring network discussed above, a set of shallow drive point monitors are installed within the adjacent wetland surrounding the landfill. WP2, WP3 and WP4 are located immediately adjacent to the waste mound, WP5 is located approximately 200 m south of the waste area while WP1 is located approximately 200 m northeast of the waste mound. WP6 is located approximately 700 m south of the waste mound. WP7 was added in December 2025 to provide a western property boundary location (Figure 2) and will be included in the 2026 monitoring program. Given the location and water quality at WP1 and WP6, these locations are utilized as representative background locations, while the others provide an indication of shallow ground water impacts beyond the edge of waste.

The following table illustrates the horizontal distribution of leachate influence within the shallow ground water within the wetland.

**Table 9: Average Leachate Indicator Parameter Concentrations – Wetland Probes**

| Parameters | PWQO / CWQG* | Background | | Leachate | Perimeter Locations | | | |
|---|---|---|---|---|---|---|---|---|
| | | WP6 | WP1 | MW7 | WP2 | WP3 | WP4 | WP5 |
| Alkalinity | | 323 | 241 | 2364 | 483 | 633 | 748 | 285 |
| Boron* | 1.5 | 0.02 | 0.01 | **4** | 0.1 | 0.4 | 0.5 | 0.1 |
| COD | | 112 | 428 | 710 | 1826 | 370 | 470 | 126 |
| Chloride* | 120 | 29 | 18 | **681** | 25 | 36 | 76 | 10 |
| DOC | | 10 | 18 | 74 | 33 | 29 | 37 | 19 |
| Iron | 0.3 | **4** | **1** | **15** | **16** | **1** | **1** | **10** |
| Manganese | | 0.1 | 0.5 | 0.1 | 0.5 | 0.3 | 0.2 | 1 |
| Potassium | | 2 | 2 | 270 | 13 | 40 | 57 | 15 |
| TKN | | 3 | 7 | 506 | 49 | 61 | 33 | 3 |
| Ammonia (total) | | 0.5 | 1 | 481 | 7 | 46 | 28 | 1 |
| TDS | | 411 | 272 | 3532 | 549 | 877 | 878 | 320 |

* - CWQG

Bold Highlighting indicates PWQO CWQG exceedance

Average data from 2021 to 2025, where available

As observed at WP1 & WP6, naturally elevated iron concentrations are present with the naturally anoxic wetland conditions beyond the influence of the landfill. Leachate influence is observed within the three (3) closest locations WP2, WP3 and WP4, while a potentially more subtle influence is observed at WP5, which suggests attenuative processes are actively limiting the extent of influence with distance from the waste mound.

Elevated concentrations relative to PWQO / CWQG for these wetland monitors in 2025 include iron, aluminum, zinc, phenols, cobalt, vanadium, phosphorus and unionized ammonia at various locations.

The long-term trends at these locations are charted and presented in Appendix G. Most locations show variability over time, although with no defined trends beyond some seasonal variance at some locations indicating that any leachate influence falls within a predictable range. Since the western area of the waste mound has now been fully covered and seeded, there is no expectation that leachate influence to the north, south or western periphery will significantly increase.

Given that the surrounding wetland is interpreted to be a ground water discharge feature, the surface water sampling program provides more consistent insight into the landfills influence on the surface water regime.

## 5.4 Surface Water

### 5.4.1 Surface Water Flow

The Site is located within the catchment area of Martin Creek as shown on Figure 3. Martin Creek flows in a northeast direction and drains into Cameron Lake at Sackett Bay, approximately 11.3 km northeast of the Site. The size of the catchment area is approximately 4,450 ha, with about 1,750 ha upstream of the Site. The bulk of the catchment area is occupied by the Martin Creek Wetland, a provincially significant wetland. The landfill (waste footprint – 8 ha) represents a very small portion of the creek recharge area west of Mark Road (0.5%).

The surface runoff from roughly three-quarters of the landfill drains to the north and west into the wetland. The remaining runoff drains into the wetland to the south of the landfill. Drainage within the wetland is generally towards the southeast toward Martin Creek, with no direct surface watercourse between the landfill and the creek. The creek is approximately 900 m south of the waste mound and separated by the upland area of the esker in which the landfill is located. This results in very slow and indirect drainage over relatively flat ground throughout the wetland near the landfill.

### 5.4.2 Surface Water Quality

The purpose of this monitoring network has been to establish any potential influence the landfill may be having on the water quality of Martin Creek and associated wetland as it has been determined to represent a ground water discharge location downgradient of the landfill. The monitoring network consists of six (6) perimeter sampling locations within the Martin Creek Wetland adjacent to the waste mound, with two (2) samples collected from each SW13 and SW15 at 10 and 30 m from edge of waste. Additionally, four (4) locations along Martin Creek and associated tributaries are also sampled. For reference, these locations are illustrated on Figure 3 and photographs for each location are included in Appendix H.

Surface water monitoring is required three (3) times annually, during spring, summer and fall. Monitoring is completed for a comprehensive list of parameters including general water quality & toluene.

Additional monitoring is also required by the ECA including electrical conductivity monitoring in spring of each year along transect lines extending from the toe of the landfill to approximately 30 m into the wetland as shown in Figure 3. The transect lines coincide with the locations of existing surface water sampling stations and wetland probes (drive points) that are about 10 m into the wetland from the toe of the landfill. Conductivity readings are taken at about 5 m horizontal distance intervals along the transect lines. The conductivity monitoring serves to

delineate the lateral extent and magnitude of leachate impacts within the wetland adjacent the toe of the landfill. At three (3) of the transect lines – Transect Lines WP4, SW-13 and SW-15, surface water samples are collected at 30 m distance from the landfill in spring, summer and fall for analysis of the comprehensive list of parameters. These three (3) transect lines were selected for water quality sampling as they indicated the greatest impacts during the initial (May 2014) transect line monitoring event.

Table 10 summarizes the 5-year average concentrations of LIPs between up and downstream monitoring locations. This summary table and the 2025 results (Appendix E) continue to show consistent water quality between the up- and downstream locations with the exception of slightly elevated iron, manganese, COD, TKN and DOC in some of the downstream locations. Since Martin Creek represents a ground water discharge feature, the aggregation of some of these parameters with distance downstream is not surprising. Any differences are likely attributable to natural variance in the feature (or alternative sources) given the distance between up and downstream locations (~2.7 km). Overall, the water quality continues to show that there is no leachate influence in Martin Creek.

**Table 10: Average Leachate Indicator Parameter Concentrations – Martin Creek**

| Parameters | PWQO / CWQG* | Background | | Leachate | Downstream (in order) | |
|---|---|---|---|---|---|---|
| | | SW2 | SW16 | MW7 | SW3 | SW4 |
| Alkalinity | | 161 | 242 | 2364 | 173 | 150 |
| Boron* | 1.5 | 0.01 | 0.01 | **4** | 0.01 | 0.01 |
| COD | | 31 | 18 | 710 | 48 | 56 |
| Chloride* | 120 | 11 | 14 | **681** | 15 | 12 |
| DOC | | 14 | 8 | 74 | 18 | 19 |
| Iron | 0.3 | 0.04 | 0.1 | **15** | 0.2 | **0.4** |
| Manganese | | 0.03 | 0.04 | 0.1 | 0.1 | 0.1 |
| Potassium | | 1 | 2 | 270 | 1 | 1 |
| TKN | | 1 | 1 | 506 | 1 | 1 |
| Ammonia (total) | | 0.2 | 0.3 | 481 | 0.1 | 0.2 |
| TDS | | 187 | 287 | 3532 | 202 | 172 |

Bold Highlighting indicates PWQO / CWQG exceedance

Average data from 2021 to 2025, where available

* - CWQG

Table 11 provides a summary of the water quality at the perimeter locations around the waste mound.

**Table 11: Average Leachate Indicator Parameter Concentrations – Perimeter SW Locations**

| Parameters | PWQO / CWQG* | Background | Leachate | Perimeter Locations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | West | North | | | | South | |
| | | SW14* | MW7 | SW12 | WP2 | WP3 | SW13 | SW17 | SW15 | WP4 |
| Alkalinity | | 138 | 2364 | 209 | 180 | 202 | 312 | 164 | 289 | 316 |
| Boron* | 1.5 | 0.02 | **4** | 0.1 | 0.1 | 0.1 | 0.1 | 0.01 | 0.1 | 0.2 |
| COD | | 605 | 710 | 60 | 54 | 48 | 214 | 79 | 127 | 161 |
| Chloride* | 120 | 8 | **681** | 13 | 13 | 12 | 24 | 13 | 9 | 13 |
| DOC | | 20 | 74 | 16 | 25 | 20 | 25 | 20 | 26 | 27 |
| Iron | 0.3 | **8** | **15** | **1** | **1** | 0.3 | **28** | **1** | **1** | **6** |
| Manganese | | 1 | 0.1 | 0.1 | 0.2 | 0.04 | 1 | 0.1 | 0.2 | 2 |
| Potassium | | 2 | 270 | 4 | 4 | 5 | 9 | 3 | 13 | 13 |
| TKN | | 2 | 506 | 1 | 1 | 1 | 7 | 1 | 3 | 4 |
| Ammonia (total) | | 0.5 | 481 | 0.2 | 0.5 | 1 | 2 | 0.2 | 0.3 | 1 |
| TDS | | 158 | 3532 | 241 | 207 | 228 | 390 | 189 | 319 | 352 |

* CWQG

Bold Highlighting indicates PWQO exceedance

Average data from 2021 to 2025, where available

The results indicate leachate influence is present around the entire periphery in close proximity to the toe of the landfill with varying levels of impact, although significant elevations are not observed on average beyond background. This is expected in close proximity to the landfill as it is a natural attenuation site. The lowest impact is found at SW17 which is not immediately adjacent to the waste mound, and WP2 and SW12 which are along the northern and western edges of the waste mound. As well, recent Per- and Polyfluoroalkyl Substances (PFAS) sampling was completed as recommended by the MECP in 2023 and gain in 2025 to collect at locations which were dry during 2023. As noted in Section 5.7, The PFAS results support the interpretation of the general water quality analysis in that leachate influence is observed most elevated at the edge of the waste mound, but it is at negligible concentrations generally within 30 m of the edge of the waste mound.

As shown in the trend charts for all surface water locations (Appendix G), surface water quality varies over time between locations. The locations along Martin Creek (SW2, SW3 & SW4) show long term stability with concentrations generally falling within a predictable seasonal range. SW4 indicates slightly more seasonal variation with iron and manganese concentrations, which may be reflective of the increased ground water contributions with distance along this feature. Ammonia concentrations have shown to be seasonally elevated at all three locations over the past four years with concentrations ranging from ~0.1-1 mg/L. As these trends are noted in upstream and downstream locations, they are interpreted to be sourced to non-landfill sources, potentially agricultural in nature.

The remaining plots show water quality over time for the perimeter locations, which most indicate a stable to long term declining trends for many to all LIP's, with the most defined decline noted at SW15, although it has been more steady recently. SW12 and SW13 have more muted but consistent downward trend over time. The reduction in parameter concentrations and lessening leachate influence is likely owing to the fact the active waste area has progressed east over time with an increased buffer distance from the wetland. As well, the Phase I area has been progressively capped over the past number of years such that these activities have likely resulted in reduced leachate generation that limits the contributions to the adjacent wetland. These conditions are expected to continue over time as the leachate source in Phase I depletes over time. The exception to this is some elevated LIP concentrations (COD, iron, manganese and boron) at SW14 during the October, 2024 monitoring event which exceed the historical range. However, given the significantly elevated TSS concentration of 4,240 mg/L, which is two orders of magnitude above the typical values, the results are more reflective of the elevated sediment load, while this is a background location without a history of leachate influence. This was confirmed with the April 2025 results, which indicated values within the historical range.

The 2025 results were also compared to the PWQO as is standard for surface water quality evaluations. Elevated concentrations relative to the PWQO during 2025 are summarized in Table 12 (below) which identifies a number of exceedances noted at both in upstream (background) and downstream locations. Historically, parameters such as iron, phosphorus, cobalt, unionized ammonia and zinc have been elevated or exceed the PWQO in the upstream (background) locations; however, these are not interpreted to be related to the landfill. The ammonia concentration at SW16 represents a deviation from the historical range such that it could be attributable to the data issues outlined in Section 5.1.

**Table 12: 2025 PWQO Exceedances Summary Table**

| Location | Parameter | PWQO | Concentrations (mg/L) | | |
|---|---|---|---|---|---|
| | | | April | July | October |
| **SW2** | Unionized Ammonia | 0.02 | <0.01 | NS | **0.05** |
| **SW3** | No Exceedances | | | | |
| **SW4** | Unionized Ammonia | 0.02 | <0.01 | NS | **0.12** |
| | Total Phosphorus | 0.03 | 0.02 | NS | **0.04** |
| **SW12 (10m)** | Iron | 0.3 | **2.19** | Dry | Dry |
| | Phenols | 0.001 | **0.002** | Dry | Dry |
| | Total Phosphorus | 0.03 | **0.56** | Dry | Dry |
| | Aluminum | 0.075 | **0.39** | Dry | Dry |

**Table 12: 2025 PWQO Exceedances Summary Table**

| Location | Parameter | PWQO | Concentrations (mg/L) | | |
|---|---|---|---|---|---|
| | | | April | July | October |
| | Cobalt | 0.0009 | **0.001** | Dry | Dry |
| **SW12 (30m)** | Total Phosphorus | 0.03 | **0.06** | NS | Dry |
| | Iron | 0.3 | **1.14** | NS | Dry |
| | Aluminum | 0.075 | **0.17** | NS | Dry |
| **SW13 (10m)** | Iron | 0.3 | **2.68** | Dry | Dry |
| | Phenols | 0.001 | **0.002** | Dry | Dry |
| | Total Phosphorus | 0.03 | **0.18** | Dry | Dry |
| **SW13 (30m)** | No Exceedances | | | | |
| **SW14** | Total Phosphorus | 0.03 | **0.1** | Dry | Dry |
| | Iron | 0.3 | **0.361** | Dry | Dry |
| **SW15 (10m)** | Iron | 0.3 | **6.08** | Dry | Dry |
| | Total Phosphorus | 0.03 | **0.17** | Dry | Dry |
| | Aluminum | 0.075 | **1.21** | Dry | Dry |
| | Boron | 0.2 | **0.206** | Dry | Dry |
| | Cobalt | 0.0009 | **0.0026** | Dry | Dry |
| | Zinc | 0.02 | **0.055** | Dry | Dry |
| **SW15 (30m)** | Iron | 0.3 | **2.29** | Dry | Dry |
| | Total Phosphorus | 0.03 | **0.49** | Dry | Dry |
| | Aluminum | 0.075 | **0.44** | Dry | Dry |
| | Cobalt | 0.0009 | **0.0012** | Dry | Dry |
| | Zinc | 0.02 | **0.041** | Dry | Dry |
| **SW16** | No Exceedances | | | | |
| **SW17** | Total Phosphorus | 0.03 | **0.06** | Dry | Dry |
| **WP4 (30m)** | Dry in all events | | | | |

Notes: NS – No sample required
* - Concentrations in bold exceed PWQO

The results of the electrical conductivity (EC) monitoring for the transect lines at SW12, SW13, SW15, WP2, WP3 and WP4 carried out on April 22, 2025 are presented in Table 13 below with locations illustrated on Figure 3. As done in previous years, EC readings were taken at 5 m intervals over a distance of 10 m to 30 m out from the toe of the landfill, with SW12 extended due to dry conditions at the 10 m interval. Similar to previous years, the EC data indicates a general decreasing trend in conductivity with distance from the toe of the landfill at all locations. Similar to previous years, the apparent zone of EC impacts on the wetland generally extends about 15 m to 25 m out from the toe of the landfill.

As requested by the MECP in their review of the 2015 Annual Report, starting in 2017, the transect lines at WP4 and SW15 were to be extended beyond 30m from the toe of the waste as necessary to achieve background conductivities. This was not completed in 2024 due to these transects being dry beyond the 30m distances. The MECP had indicated the conductivity monitoring should be conducted as close as possible to the time of the spring (April) ground water / surface water monitoring events, which was accomplished in 2025 as the conductivity profile was completed on the same day as the routine monitoring event.

Samples were also collected during this monitoring event at the closest and furthest locations along the transects where water was available for a sample. Overall, the water quality indicated a similar declining trend for LIPs as was observed in the EC profile with distance from the waste mound. Compared to PWQO values, the only exceedances at the furthest offset stations were for iron (0.516 to 2.29 mg/L vs. 0.3 mg/L) at SW12, SW15 and WP2, phenols (0.002 mg/L vs. 0.001 mg/L) at WP-3, aluminum (0.1 to 0.44 mg/L vs. 0.075 mg/L) at SW12, SW15 & WP-2 and cobalt (0.0012 mg/L vs. 0.0009 mg/L) & zinc (0.041 mg/L vs. 0.02 mg/L) at SW15. Total phosphorus was exceeded at all locations except SW13 with concentrations ranging from 0.04 to 0.49 mg/L (PWQO – 0.03 mg/L). However, these concentrations are all within the range historically observed at the background location such that they are interpreted to represent natural sources.

**Table 13: Electrical Conductivity Transect Results**

| Date | Location | Conductivity (uS/cm) |
|---|---|---|
| 18-Apr-24 | SW14 (Background) | 230 |
| | SW12-10m | Dry |
| | SW12-15m | Dry |
| | SW12-20m | Dry |
| | SW12-25m | 438 |
| | SW12-30m | 323 |
| | SW12-35m | 310 |
| | SW12-40m | 309 |
| | SW12-45m | 312 |
| | SW13-10m | 632 |
| | SW13-15m | 367 |
| | SW13-20m | 268 |
| | SW13-25m | 233 |
| | SW13-30m | 230 |
| | SW15-10m | 665 |
| | SW15-15m | Dry |
| | SW15-20m | Dry |
| | SW15-25m | 518 |
| | SW15-30m | 455 |
| | SW15-35m | Dry |
| | WP2-10m | 222 |

**Table 13: Electrical Conductivity Transect Results**

| Date | Location | Conductivity (uS/cm) |
|---|---|---|
| | WP2-15m | 212 |
| | WP2-20m | 211 |
| | WP2-25m | 207 |
| | WP2-30m | 217 |
| | WP3-10m | 590 |
| | WP3-15m | 328 |
| | WP3-20m | 234 |
| | WP3-25m | 226 |
| | WP3-30m | 217 |
| | WP4-10m | Dry |
| | WP4-15m | Dry |
| | WP4-20m | Dry |
| | WP4-25m | Dry |
| | WP4-30m | Dry |

## 5.5 Organic Sampling Results

As part of the monitoring program in 2025, volatile organic compounds (VOC) sampling was completed from select monitoring wells during the April and October monitoring events, while the surface water locations SW2, SW3 and SW4 were targeted during the April monitoring event. SW12, SW13, SW14 and SW15 were analyzed for toluene during the April, July and October monitoring events; however, were all noted to be dry during the July and October events in 2025.

The VOC results were similar to previous years with parameters present within the leachate (MW7) and select downgradient wells, although the concentrations and numbers found within the downgradient locations were much less than at MW7 as summarized in the following table.

**Table 14: 2025 VOC Detection and Exceedance Summary**

| Parameter | ODWQS / PWQO | MW12 | MW16 | MW26 | MW26-1 | WP-3 |
|---|---|---|---|---|---|---|
| C1,2-Dichloro-ethene | / 200 | **0.6 /** ND | **1.5 /** NS | **3.7 / 1.5** | **3.9 / 1.9** | ND |
| Benzene | 5 / 100 | ND | ND | ND | ND | **0.6 / 0.7** |
| Vinyl Chloride | 2 / 600 | ND | ND | **0.2 /** ND | **0.3 /** ND | ND |

samples from MW7, MW12, MW14, MW15, MW15A, MW15B, MW16, MW26, MW26-1, MW26-2, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, WP1, WP2, WP3, WP4, WP5, WP6, SW2, SW3 & SW4
Toluene samples collected at SW12, SW13, SW14 & SW15
Bold indicates detection, shaded indicates exceedance
ND - non detect in either monitoring event
all concentrations in µg/L

No downgradient concentrations were noted to exceed their associated ODWQS, although there have been consistent detections for cis-1,2-Dichloroethene at a few downgradient locations with the most elevated concentrations and regularly detected found at MW26 at all

three (3) intervals. Although some trace detections have also been found for these parameters at other downgradient monitoring wells including MW12, MW15A and MW16 over the period of record, the source maybe landfill related from a historical source; however, the concentrations and distribution within the monitoring well network would suggest an alternative source is present. A trace detection of vinyl chloride was noted during the April monitoring event at MW26 & MW26-1; however, similar trace detections have been observed occasionally at these locations in the past at similar concentrations. The remaining detections in 2025 were related to benzene at WP-3. Sporadic detections of this parameter have been observed at this and other perimeter locations in the past, which given the perimeter location is not surprising, but not reflective of a large organic source within the landfill. This is supported by no VOC detections at the leachate well MW7 in 2025.

Overall, the detection of parameters at the downgradient locations are at trace or very low concentrations. The limited concentrations of these parameters (especially in the source area) do suggest that the landfill is not creating impacts further downgradient of the Site. As discussed previously, the poor hydraulic connection between the waste and underlying aquifers (*i.e.,* leachate mound) limits the contaminant mass flux. Generally, the results are consistent with previous years indicating there are residual organic sources in the landfill; however, the concentrations are low and not migrating much past the periphery of the waste mound. Monitoring should continue to assess the downgradient conditions, but given the lack of detections in the surface water, and surrounding wetland points, would suggest that the organic sampling could be eliminated as it is perceived that any pathway would likely be through the overburden to the southeast.

### 5.6 Graphical Analysis

An alternate evaluation technique (to identify unique waters) is to compare the major ion chemistry of different waters or waters that have been mixed with two or more sources. A comparison was done of the ratios of major ion constituents between locations in 2025. The assessment of ratios and plotting on a Piper diagram will show the consistency of the geochemical signatures and trends that demonstrate mixing or chemical reactions over time. As a result, the data tends to cluster in one location on the diagram for most monitors. Any deviation from this cluster can be readily observed and evaluated as a possible trend or influence from an alternate source (Appendix I).

For reference, MW11A (overburden) as well as the office well (bedrock) were utilized for background signatures. There is not a distinguishable difference in signature between overburden and bedrock locations. The leachate signature is defined by MW7, which shows a significant deviation from the majority of other locations.

Based on the relative signatures noted above, there are a number of locations that do show some minor evidence of leachate. These include MW3, MW5, MW6, MW10, MW22A, MW22B, WP4 and WP5. These results are not surprising given that they are all within or immediately surrounding the waste area. The fact the rest of the monitoring network does not show similar trends would indicate that the leachate influence at the Site is localized to a short distance around the waste mound and attenuative processes are active and working.

The surface water stations were also evaluated as both the western wetland and Martin Creek have been interpreted as discharge points for ground water originating from the landfill site.

The signatures plotted for both the upstream and downstream locations within Martin Creek were noted to be very similar and consistent over time. It should also be noted that the signature is similar to that found in the downgradient ground water monitors (all three stratigraphic units), which would support the previous interpretation that this feature is ground water sourced. The perimeter surface water locations also matched relatively closely to the remaining surface water signatures including the upstream location (SW2). These results fit within the SCM for ground water flow, while they also indicate that there is limited radial influence around the remainder of the landfill perimeter.

### 5.7 Per- and Polyfluoroalkyl Substances (PFAS) Sampling Results

Azimuth undertook Per- and Polyfluoroalkyl Substances (PFAS) sampling as part of the routine fall monitoring program in 2023 for both ground and surface water samples, while subsequent samples were collected during the April 2025 monitoring event at select locations which were dry during the 2023 PFAS monitoring event. Selected locations at the Site were targeted to represent reference leachate, background, perimeter and downgradient locations as summarized in Table 15. The results and findings were previously presented in a letter response prepared by Azimuth (2023b) to support the expansion of the Fenelon Landfill.

Detections and elevated concentrations for PFAS were reported at MW7 (leachate well), MW22B (in waste area) and wetland perimeter locations (WP2-10, WP3-10 and WP4-10). These results generally correlate with the long-term water quality results for the Site which all show a very definable leachate influence. An exception is noted at WP3-10 which has the highest PFAS concentrations and more dilute leachate signature being noted in the general water quality results. This variance is likely owing to the observed variability in the leachate strength found across the Site.

The remaining locations with detections had lower concentrations with only single parameter detections. The locations are found southeast of the waste mound and are generally located within the centerline of the dilute leachate plume. The plume has been interpreted to extend from the waste mound in the direction ground water flow. This same trend is noted general water quality data for the Site. Minor PFAS detections in the lower overburden and shallow bedrock at MW18 suggests a preferential pathway deeper in the stratigraphic profile. This supports the Site's interpretation of a plunging leachate plume with distance from the Site. Again, the relatively low PFAS concentrations compared to the waste area also supports the historical interpretation that a dilute leachate signature is found at this location and at MW19.

The limited detections to the west at MW13 shows that the plume orientation is more southeast trending and following the primary ground water flow pathway. Despite detections along the flow pathway away from the landfill, the minor detections at MW18 and MW19 indicate that attenuative processes are active in limiting the leachate migration west and east of Mark Road. This again, falls in line with the overall Site interpretation presented in the annual monitoring reports for the past number of years.

**Table 15: 2023 & 2025 PFAS Results Summary**

| Monitor No. | Location | Total PFAS Concentration (µg/L) | No. of Parameters Detected |
|---|---|---|---|
| MW7 | Leachate | **1.114** | 6 |
| MW11A | Background - Shallow OB | <1.1 | 0 |
| MW13 | Downgradient - Shallow OB | <1.1 | 0 |
| MW15 | Downgradient - Shallow OB | <1.1 | 0 |
| MW15A | Downgradient - Deep OB | <1.1 | 0 |
| MW15B | Downgradient - Bedrock | <1.1 | 0 |
| MW18 | Downgradient - Shallow OB | <1.1 | 0 |
| MW18A | Downgradient - Bedrock | 0.024 | 1 |
| MW18B | Downgradient - Deep OB | 0.036 | 1 |
| MW19 | Downgradient - Deep OB | 0.03 | 1 |
| MW22B | Leachate | **0.906** | 4 |
| MW26 | Downgradient - Distant | <1.1 | 0 |
| MW26-1 | Downgradient - Bedrock | <1.1 | 0 |
| MW26-2 | Downgradient - Deep OB | <1.1 | 0 |
| MW27-I | Downgradient - Bedrock | <1.1 | 0 |
| MW27-II | Downgradient - Deep OB | <1.1 | 0 |
| MW27-III | Downgradient - Shallow OB | <1.1 | 0 |
| MW28-I | Downgradient - Bedrock | <1.1 | 0 |
| MW28-II | Downgradient - Deep OB | <1.1 | 0 |
| MW28-III | Downgradient - Shallow OB | <1.1 | 0 |
| WP1-10 | Background | Dry | |

**Table 15: 2023 & 2025 PFAS Results Summary**

| Monitor No. | Location | Total PFAS Concentration (µg/L) | No. of Parameters Detected |
|---|---|---|---|
| WP2-10 | Perimeter - North | **0.234** | 5 |
| WP3-10 | Perimeter - West | **2.072** | 7 |
| WP4-10 | Perimeter - South | **0.706** | 5 |
| WP1 (30m)* | Background | **0.004** | 1 |
| WP2 (30m)* | Perimeter - North | <1.1 | 0 |
| WP2 (30m)* | Perimeter - North | **0.0041** | 1 |
| WP3 (30m)* | Perimeter - West | <1.1 | 0 |
| WP3 (30m)* | Perimeter - West | **0.0077** | 3 |
| WP4 (30m)* | Perimeter - South | Dry in 2024 and 2025 | |
| WP5 (30m)* | South of Waste Area | **0.3617** | 10 |

* - Surface water locations

Bold indicates MECP Guideline of 0.07 µg/L

OB - Overburden

Underlined locations indicate samples collected in April 2025 due to being dry in 2024

General chemistry at MW27-I has shown strongly elevated concentrations of many key parameters, including several LIPS, at even more elevated concentrations than those observed in the leachate (*i.e.,* chloride, sodium, strontium and barium). Since PFAS were not reported at this location, the geochemistry is likely influenced by naturally mineralized ground water found in the bedrock. Based on this finding, this location was approved for removal from the program in 2025 by the MECP.

Further to this, surface water samples were collected at a number of perimeter locations, at the 30m distance mark to assess the horizontal extent of leachate from the waste mound. The results indicated that detections were present in all perimeter locations, including the background location WP-1(30m), which would indicate that the low-level detections may be a reflection of outside influences during sample collection. As PFAS chemicals are present in most items, including clothing and plastics, outside contamination during sample collection can be difficult to completely eliminate. Beyond the trace concentrations observed at the background location, only WP-5(30m) had concentrations in line with those found in the leachate at MW7 with similar parameters showing elevations. It is noted that the detection limits for the 2025 analysis were lower than for the 2023 results such, that some additional parameters were detected then previously, which is a function of the detection limits between events. Over, the results support previous interpretations and discussions regarding leachate influence in the wetland surrounding the waste mound in that trace influence is observed, but it is negligible with distance relative to the leachate source.

## 5.8 Ground Water Trigger Mechanism

The groundwater trigger mechanism is presented in Appendix H of the Updated Design and Operations Report (Golder, 2015) and referenced in Sections 8 of the ECA.

Given that potential receptors of contaminant migration from the landfill also include the Martin Creek Wetland complex and Martin Creek to the south/southeast of the landfill, the trigger program provides early warning of potential adverse impacts to surface water.

The trigger mechanism has three (3) parts, with the objective of providing early warning of the potential development of either of the following conditions:

- exceedance of the Reasonable Use Policy (RUP) at the downgradient (southeast) boundary of the CAZ;
- exceedance of Provincial Water Quality Objectives and/or Canadian Water Quality Guidelines in the wetland downgradient (southeast) of the landfill (east of Mark Road); and
- exceedance of Provincial Water Quality Objectives and Canadian Water Quality Guidelines in Martin Creek.

The following sections summarize the ground water trigger mechanism and their application to the 2025 ground water monitoring data.

### 5.8.1 Reasonable Use Policy Compliance Trigger Parameters/Locations

Calculations with respect to MECP's Reasonable Use Policy (RUP) B–7 were performed using the 2025 monitoring program results at MW11A for background shallow overburden and Office well for the background lower overburden and bedrock. These locations are similar to what have been used historically.

The MECP's Reasonable Use Policy states that, in accordance with the appropriate criteria for particular uses, a change in quality of the ground water on an adjacent property will be accepted only as follows:

> *The quality cannot be degraded by an amount in excess of 50% of the difference between background and the Ontario Drinking Water Standards for non-health related parameters and in excess of 25% of the difference between background and the ODWS for health-related parameters. Background is considered to be the quality of the groundwater prior to any man-made contamination.*

*MOE Procedure B-7-1. (MOE, 1994a)*

The maximum concentration of a particular contaminant that is considered acceptable in the ground water beneath an adjacent property is calculated in accordance with the following relationship:

$$C_m = C_b + x\,(C_r - C_b)$$

where:

$C_m$ = maximum concentration accepted
$C_b$ = background concentration
$C_r$ = Maximum concentration permitted in accordance with the Ontario Drinking Water Quality Standards
$x$ = a constant that reduces the contamination to a level that is considered by the MECP to have a negligible effect on water use.
*i.e.,* 0.5 for non-health related parameters
0.25 for health-related parameters.

In 2025, the RUP values were calculated using the values of the 5-year average background concentration ($C_b$). The maximum allowable concentration ($C_m$) of any particular parameter was calculated using the background concentration of that parameter from a monitor upgradient of the Site, the designated ODWQS value for that parameter, and a constant that reflects whether the parameter is health or aesthetic-related as defined by the ODWQS. Where background concentrations were less than the laboratory method detection limit, the method detection limit was used as the background value. Where locations were noted to exceed ODWQS in the background, these parameters were discounted from the evaluation. These include iron, DOC, manganese, hardness and aluminum. The calculated $C_m$ values for the Site were set as the RUP values and are included in the chemistry summary tables (Appendix E) for both the shallow and overburden and lower overburden / bedrock.

Since this assessment is based on compliance at the downgradient property / CAZ boundaries, MW26 and MW27-III were used for the shallow overburden and MW26-1, MW26-2 and MW27-II were used for the lower overburden / bedrock. Specific exceedances for RUP are illustrated in the summary chemistry table below.

**Table 16: Reasonable Use Policy Exceedance Summary Table**

| Location | Screened Unit | Parameter | ODWQS | RUP | Concentrations Exceeding RUP* | |
|---|---|---|---|---|---|---|
| | | | | | April, 2025 | October, 2025 |
| **MW26** | Shallow OB | No Exceedances | | | | |
| **MW26-1** | Bedrock | TDS | 500 | 374 | 368 | **412** |
| | | Hardness | 500 | 362 | 348 | **363** |
| **MW26-2** | Lower OB | Alkalinity | 500 | 363 | **376** | **387** |
| | | TDS | 500 | 374 | **460** | **469** |
| | | Hardness | 500 | 362 | **394** | **409** |
| | | Aluminum | 0.1 | 0.07 | 0.04 | **0.08** |
| **MW27-II** | Lower OB | No Exceedances | | | | |
| **MW27-III** | Shallow OB | No Exceedances | | | | |

Notes: All values are in mg/L
* - Concentrations in bold exceed RUP and Underline for ODWQS

The results fall in-line with previous years. The TDS exceedances at MW26-1 and MW26-2 are at least partly sourced to road salting along Mark Road due to corresponding elevations in both sodium and chloride. The remaining parameters alkalinity, hardness and aluminum are only marginally elevated above the criteria and considered naturally sourced given the lack of other notable and more defined LIPs concentrations (*i.e.,* ammonia & boron)

Finally, it is interpreted that ground water discharges into Martin Creek and associated wetland feature, which intersects along the southern property boundary such that any exceedances would not extend beyond the southern property boundary.

Based on these items, it is concluded that the Site is in compliance with RUP and that no further action is required to address these exceedances.

### 5.8.2 Martin Creek / Wetland Protection Trigger Parameters/Locations

To provide early warning of potential adverse impacts to Martin Creek southeast of the landfill, the Martin Creek trigger monitoring wells are the Wetland Probe WP6 and the shallow overburden wells MW26, MW27-III and MW28-III, all of which are the closest monitoring points upgradient of Martin Creek. The Martin Creek Wetland Trigger monitoring wells are shallow overburden wells MW12, MW14, MW15 and MW16. As illustrated on Figure 2, these wells are located along the west side of Mark Road in close proximity to the wetland east of the esker.

The trigger parameters for protection of Martin Creek and the wetland are chloride, un-ionized ammonia, boron and toluene as identified in previous reporting (Golder, 2019). These parameters are at elevated concentrations in leachate compared to background levels and surface water criteria, are relatively mobile/persistent and have less natural variability. The trigger concentrations based on Provincial Water Quality Objectives and Canadian Water Quality Guidelines are as follow:

**Table 17: Shallow Overburden Triggers for Martin Creek**

| Trigger Parameter | Trigger Concentrations (mg/L) |
|---|---|
| Chloride | 120 (CWQG) |
| Ammonia (unionized) | 0.02 (PWQO) |
| Boron | 0.2 (PWQO) |
| Toluene | 0.0008 (PWQO) |

The reported data for 2025 indicates that all trigger concentrations were met at all locations during the most recent monitoring period.

### 5.9 Surface Water Trigger Mechanism

In addition to the ground water trigger program outlined in Section 5.8, which is in place to provide protection against leachate impacts reaching the local surface water features, a surface water trigger program has also been established. This program has similar criteria as that outlined in Table 17, with the exception of toluene, which is not included in the surface water trigger program. The trigger locations are the 30 m offset locations at SW13, SW15 and WP4. During 2025, no locations indicated an exceedance for any trigger parameter concentration.

### 5.10 Landfill Gas

Passive landfill gas venting occurs vertically through the landfill cover. Given the shallow depth to the ground water table, surrounding wetland feature and the distance between the waste fill area and the nearest residences (*i.e.,* approximately 450 m north and 700 m south of the waste fill area), the potential for lateral migration of landfill gas outside the waste footprint to the closest residential buildings is considered negligible. Permanent methane monitors were installed in the on-site buildings in March 2016 and are currently operating. Landfill gas has not been detected in any of the buildings to date.

## 6.0 SITE OPERATIONS

As the Site is active, it is accessed by the public at the main entrance gate and information signage exists which states the hours of operation, permitted users, and types of waste accepted at the Site. The facility is approved to accept solid non-hazardous wastes from the City of Kawartha Lakes, although most of the waste originates from residents within the local area.

The hours of operation for the Site in 2025 were 9:00 AM to 5:00 PM Mondays, Wednesdays and Saturdays from May 1st to October 15th, with the Site being closed for the remainder of the year.

### 6.1 2025 Site Maintenance & Activities

The Site inspection logs are included in Appendix I, which were completed as part of the monitoring events during April, July and October, as well as a separate inspection completed in January by City staff. These reports did not identify any concerns requiring action or mitigation measures, beyond adding of some fill material in the area of MW5 to facilitate easier access to the monitoring well, which was addressed by the October monitoring event.

No public complaints were received, no operational issues were encountered at the Site during 2025 and the monitoring well network was noted to be in good working order.

### 6.2 2025 Waste Volumes / Site Capacity

Historically, annual waste quantities, capacity and remaining lifespan have been derived through annual tonnage measured at the Site scales. However, with the recent expansion and amendment to the ECA, a review of remaining capacity was completed through volumetric capacity evaluation to support the expansion (WSP, 2024). The resulting remaining capacity as of 2024 was established as 76,800 $m^3$. Annual volumetric calculations were completed based on topographic surveys completed at the Site in November, 2022, January, 2024 and December 2024. The resulting annual volumes for 2023 and 2024 were 7,274 $m^3$ and 7,000 $m^3$ respectively. A similar calculation was done for 2025 using the 2024 and 2025 topographic surveys, which yielded an annual volume of 7,338 $m^3$. Based on the remaining capacity 69,462 $m^3$ and an annual average waste and interim cover material volume of 7,000 $m^3$, there is ~10 years of capacity remaining within the Phase II area of the Site.

Beyond the volumetric capacity, annual tonnage is recorded at the waste scales, which has been summarized below.

**Table 18: Summary of Waste Amounts in Phase II Area**

| Year | Annual Tonnage (tonnes) |
|---|---|
| 2017 | 7,895 |
| 2018 | 10,070 |
| 2019 | 15,202 |
| 2020 | 8,658 |
| 2021 | 9,778 |
| 2022 | 4,337 |
| 2023 | 4,206 |
| 2024 | 3,968 |
| 2025 | 3,638 |

### 6.3 Recyclable Materials Summary

The Site also operates as a waste disposal and recycling transfer site. According to City records, the following amounts of recyclable materials were received at the Site in 2025.

**Table 19: Summary of Recyclable Materials Received in 2025**

| Item | Number of Units | Units |
|---|---:|---|
| Recycling (containers) | 6.6 | Tonnes |
| Recycling (fibres) | 16.9 | Tonnes |
| Leaf and Yard Waste | 559 | Tonnes* |
| Electronics | 11.6 | Tonnes |
| Scrap Metal | 55.0 | Tonnes |
| Textiles | 1.5 | Tonnes |
| Household Hazardous Waste | 35.9 | Tonnes |

* - total amount was used as cover material, so not diverted in 2025

Based on the diversion quantities listed above, and 3,638 tonnes of waste received in 2025, the total divertible material received at the Site in 2025 was approximately 128 tonnes. Of the material received at the Fenelon WDS, approximately 19% of the received waste material was diverted.

### 6.4 Compost Operations

On December 8, 2009, the City received approval from the MECP for the establishment of an outdoor open windrow composting facility for leaf and yard waste. The leaf and yard waste composting facility consisted of a 50 m by 90 m wood chip pad at the east end of Phase 2 for aerated static pile composting. Windrows are formed with adequate spacing between them for

turning. The maximum approved receiving capacity of the composting facility is 250 tonnes per day and 2,000 tonnes annually. The maximum approved quantity of material in the composting facility at any one time is 1,500 tonnes. Approximately 559 tonnes of leaf and yard waste was received at the Site in 2025, while the 250 tonnes daily limit was not exceeded in 2025.

As the progression of filling within Phase 2 had continued towards the composting area, the leaf and yard waste composting facility was relocated in 2023 to the north west end of the site such that base grades and berms could be established at the east end of Phase 2 for filling.

Composting of leaf and yard waste at the site is required to be conducted in accordance with Sections 31 to 33 of Regulation 101/94, Part V – Leaf and Yard waste Composting Sites and Condition 10 of the ECA.

There were no major environmental or operational problems encountered at the leaf and yard waste composting facility in 2025. Furthermore, there were no complaints received from the public relating to odours or vermin associated with the composting facility in 2025.

### 6.5 Household Hazardous Waste Depot

The HHW Depot is located at the entrance to the Site adjacent to the attendant building and adjoins the Site Reuse Centre (Figure 2). It began receiving household hazardous waste on November 3, 2001. The service area for the HHW Depot includes all residents of the municipality. Industrial, commercial and institutional establishments are not permitted to use the HHW Depot. In accordance with Condition 11 of the ECA, waste storage at the HHW Depot is limited to 7,000 litres of liquid waste and 40 tonnes of solid waste at any one time. The maximum storage duration at the HHW Depot is three (3) months.

The HHW Depot is operated in accordance with the City of Kawartha Lakes Household Hazardous Waste Depot Operations Manual (2018). In 2025, the depot was operated each day that the landfill was open. The City was responsible for the receipt, handling, packing, and safe storage of waste, as well as general housekeeping of the HHW Depot and emergency/spill response. GFL Environmental Inc was contracted in 2025 to transport and dispose the HHW off-site.

All HHW materials are evaluated by the attendant. Approved wastes are sorted by waste type and segregated according to chemical compatibility for lab packing or bulking. Every effort is made to prevent spills. As a contingency, the building is designed with a 250 mm (5”) curbing that extends around the perimeter of each of the two rooms and has a containment capacity of

110% per room. The floor and curbing are sealed with an epoxy. The oil bulking tank located west of the HHW Depot is constructed with 100% secondary containment.

The HHW Depot is registered under Ontario's Hazardous Waste Program ("HWP") Registry, administered by the Resource Productivity and Recovery Authority ("RPRA"). Hazardous waste manifests are prepared electronically through the RPRA registry system. Wastes that are accepted at the HHW Depot are classified according to their Waste Class as defined in the MECP "New Ontario Waste Classes", dated January 1986.

In 2025, the HHW Depot accepted approximately 36 tonnes of HHW. There were no PCB contaminated materials, radioactive wastes or pathological wastes (other than syringes, lancets and needles) received at the HHW Depot in 2025.

## 6.6 Active Waste Area

As shown in Figure 12, the active fill area during 2025 was located at the centre part of Phase 2. Also shown in Figure 12 are the topographic contours for the waste fill area at the end of 2025.

### 6.6.1 Daily/ Interim Cover

As documented and completed in previous years, daily cover is added immediately following spreading and compaction of incoming wastes on any given day. Approximately 150 mm of cover material or large steel plates were applied to the landfilled waste for litter and odour control.

The soil used for daily cover consisted of imported sandy soil from a private source located within the City. The amount of soil imported was recorded and tracked by landfill staff. Based on the sensitivity and proximity of the Martin Creek Wetland to the limit of waste, the current ECA (Condition 7[19]) does not allow the use of contaminated (non-hazardous) soils for daily cover.

Condition 7(13) of the ECA describes the process by which proposed alternative daily cover materials may be approved for use at the site. Alternative daily cover materials that have been approved include compost, wood chips, foundry sand, shingles, non-hazardous wood/construction waste (fines), paper fibre and flexible membranes (*e.g.,* tarps, Enviro Cover System) as well as large metal plates which was approved in 2019.

### 6.6.2 Final Cover

The purpose of the final cover is to provide a physical barrier over the waste that will reduce infiltration into the waste and support vegetation growth. Condition 7 (11c) of the ECA requires that the final cover be constructed progressively as areas of landfilling reach the final waste contours. The final cover is required to be placed within twelve months after reaching the final contours in any given area and to consist of a minimum 600 mm thick layer of "medium permeability" soil overlain by 150 mm of natural topsoil. The ECA does not allow the use of composted leaf and yard material either on its own or mixed with natural soils as an alternative to the use of 100% natural topsoil. Finally, the topsoil is required to meet O. Reg. 153 Table 9 standards. The Table 9 standards apply because the landfill is situated within 30 m of a water body (*i.e.,* Martin Creek Wetland).

Figure 12 shows the area of the landfill that has final cover in place as of the end of 2025. No additional final cover was placed during 2025.

### 6.7 Other Site Activities / Incidents

As documented by the City, the only maintenance or operations items that took place in 2025 was calibration of their weigh scales.

## 7.0 CONCLUSIONS

Based on the interpretation presented in the above sections, the environmental setting at the Fenelon Landfill Site is well understood. The data trends over this monitoring period have generally yielded a relatively consistent geochemical signature at most monitoring locations, although some increasing trends are present at locations in close proximity the current active waste area with MW22 indicating increased concentrations since the waste area has moved east towards this monitoring location. Despite these localized trends, the relative consistency in water quality within the downgradient monitoring network in all three (3) aquifer units indicates that the underlying environmental setting has characteristics of a steady state condition.

Results from monitoring wells southeast of the waste mound appear to show a modest leachate influence, although at much lower concentrations than those observed in closer proximity wells. This same trend is not observed (or is essentially negligible) within the Site property west of Mark Road. Under recommendation from the MECP, the downgradient water quality was further evaluated by undertaking PFAS sampling, which includes parameters which would not be naturally sourced, thus confirming the presence of leachate downgradient of the Site. Similar spatial trends with respect to PFAS detection and relative concentrations to those

from the general water quality analysis were found, supporting the site conceptual model which has historically been presented for the Site with downgradient leachate influence is observed but dilute and bound within the current Site boundaries.

The Site is located in an area which can be characterized as wetland with rather slow movement of ground water. The same can be said for the surface water conditions. The abundance of peat materials in the Site vicinity attests to this condition. The slow ground water movement and organic-rich peat materials create a naturally reduced geochemical environment, which also portrays an elevated dissolved organic signature. This natural condition can be difficult to distinguish with from the geochemically reduced conditions created by the landfill setting and therefore caution must be exercised in interpreting results, especially those found within the surface water and shallow overburden environments.

The geochemically reducing conditions generated within the landfill have also created additional indicators which extend beyond the overall water quality at the site. These reduced conditions allow for the mobilization of naturally occurring earth elements such as iron and manganese. However, the landfill also generates an ammonia signature and has an elevated chloride concentration. The absence of these two particular components of the landfill leachate signature distinguishes that signature from the natural setting. Thus, while downgradient locations may show elevated iron and manganese concentrations, as well as elevated DOC; it was interpreted to represent the natural peat environment. As these natural conditions have been observed in downgradient locations, as well as within Martin Creek.

Attenuative processes at this Site are very active and have abated the influence of the leachate contaminant plume within a short distance of the waste mound and within the Site lands. It is also recognized that the contaminant flux from the landfill site is rate-limited by the waste permeability relative to the underlying geology. As such, these conditions prevent a significant contaminant plume extending away from the landfill and leachate influences are completely retained within approximately 200 m from the waste mound. Reasonable Use is considered met at the Site in 2025. Some exceedances were noted; however, these were more related to natural variation and road salt such that they were not interpreted to be landfill sourced.

Detections of organic parameters have been noted in the downgradient monitors, similar to what has been seen historically; however, the concentrations and distribution within the monitoring well network would suggest an alternative source is present as similar concentrations were not observed in the leachate well or perimeter locations. Nonetheless concentrations are very low and not interpreted to be of concern although ongoing monitoring is recommended to confirm this conclusion.

Although ground water contribution is apparent within Martin Creek based on the water quality, the overall water quality within this feature is not degraded as a result. Downstream water quality has historically shown to be relatively consistent over time as well as generally consistent with upstream quality. The slight increases in concentration of some parameters downstream are a result of increased ground water contributions rather than from leachate influence as most notable leachate indicator parameters such as ammonia and boron do not show a measurable increase in the downstream location

The ground water elevation data and the water quality within the ground and surface water along the northern and western perimeters of the waste area does suggest the potential for low level leachate migration to the southeast. However, the parameters noted within the surface water locations do suggest that sediment entrainment during some sampling events is likely responsible for many of the exceedances that have been observed historically. In addition, the transect monitoring program completed over the past several years has indicated a defined decrease in leachate influence with distance from the waste mound.

In general, surface water quality is shown to fall within the background range generally within 10 to 30 m from the waste edge indicating the leachate toe seepage has a limited radial extent. Furthermore, surface water quality at the perimeter locations has shown a gradual, but consistent, downward trend in leachate influence. This is likely owing to the fact the active waste area has moved east away from the wetland edge and that the western section of the waste mound has been capped. As such, a further decline in leachate influence is expected over time as the leachate source becomes more limited. Additional PFAS sampling was done at the perimeter wetland surface water locations in April 2025 as the previous PFAS sampling program was unable to get samples at all of these locations as they were dry. The PFAS results fall in line with the previous PFAS sampling that was done and overall interpretation of the wetland water quality in that leachate influence is observed, but it is at negligible concentrations generally within 30 m of the edge of the waste mound.

The trigger programs for the Site which are targeted around protection of the adjacent surface water features, being Martin Creek and Martin Creek Wetland was not activated in 2025.

Based on the remaining capacity (69,462 $m^3$) and an annual average waste and interim cover material volume of 7,000 $m^3$, there is ~10 years of capacity remaining within the Phase II area of the Site. This includes the additional capacity provided through the vertical expansion and amendment to the ECA completed in March 2025, as well as overfill in the Phase 1 area.

## 8.0 RECOMMENDATIONS

The monitoring program recommended for 2026 is identified in Table 20 and is based on the current data set and Site understanding and previous AMRs. The current monitoring network is found to be sufficient in characterizing the ground water quality downgradient of the Site in all three aquifer units such that no new monitoring points are recommended. The surface water monitoring network is also deemed to be sufficient in characterizing the surface water quality in both Martin Creek and the adjacent wetland feature.

As a requirement of the amended ECA in 2025, there was a new monitoring well installed near the western property boundary to ensure compliance with Guideline B7 - Reasonable Use at the western property boundary. As this monitor was only installed in December 2025, water quality samples will be included in the 2026 monitoring program.

**Table 20: Proposed 2026 Monitoring Program**

| Monitoring Station | Frequency | Parameters |
|---|---|---|
| *Ground Water*<br>MW1*, MW2*, MW3*, MW3A*, MW5*, MW5A*, MW6*, MW6A*, MW-7*, MW10, MW11A, MW12, MW13, MW14, MW15, MW15A, MW15B, MW16, MW17, MW18, MW18A, MW18B, MW19, MW22, MW22A, MW22B, MW23, MW23A, MW23B, MW26, MW26-1, MW26-2, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, Office, WP1, WP2, WP3, WP4, WP5 & WP6, WP7 (new western property boundary well) | Semi-Annual (April / May & September / October) | Total Kjeldahl Nitrogen (TKN), Nitrate, Nitrite, Ammonia, Unionized Ammonia, Alkalinity, Hardness, Chloride, Calcium, Magnesium, Total Phosphorous, Phosphorous, Sulfate, Phenols, Dissolved Organic Carbon (DOC), Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, pH, Conductivity, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD).<br><br>* - Water Level Measurements Only During Fall Monitoring Event |

**Table 20: Proposed 2026 Monitoring Program**

| Monitoring Station | Frequency | Parameters |
|---|---|---|
| MW-7, MW12, MW14, MW15, MW15A, MW15B, MW16, MW26, MW26-1, MW26-2, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, WP1, WP2, WP3, WP3, WP4, WP5 & WP6 | | VOCs |
| *Surface Water*<br>SW2*, SW3*, SW4*, SW12 (10m), SW13 (10m), SW15 (10m), SW13 (30m), SW14, SW15 (30 m), SW16*, SW17 & WP4 (30 m) | Seasonal (April / May, July & September / October)<br><br>* Martin Creek locations only sampled April / May & September / October | Total Kjeldahl Nitrogen (TKN), Nitrate, Nitrite, Ammonia, Unionized Ammonia, Alkalinity, Hardness, Chloride, Calcium, Magnesium, Total Phosphorous, Phosphorous, Sulfate, Phenols, Dissolved Organic Carbon (DOC), Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, pH, Conductivity, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), Free Cyanide, Colour, Turbidity, Total Suspended Solids (TSS),<br><br>* - Additional filtered metals analysis for all locations except SW2, SW3 & SW4. |
| SW12 (10m), SW13 (10m), SW15 (10m), SW14 | | Toluene |

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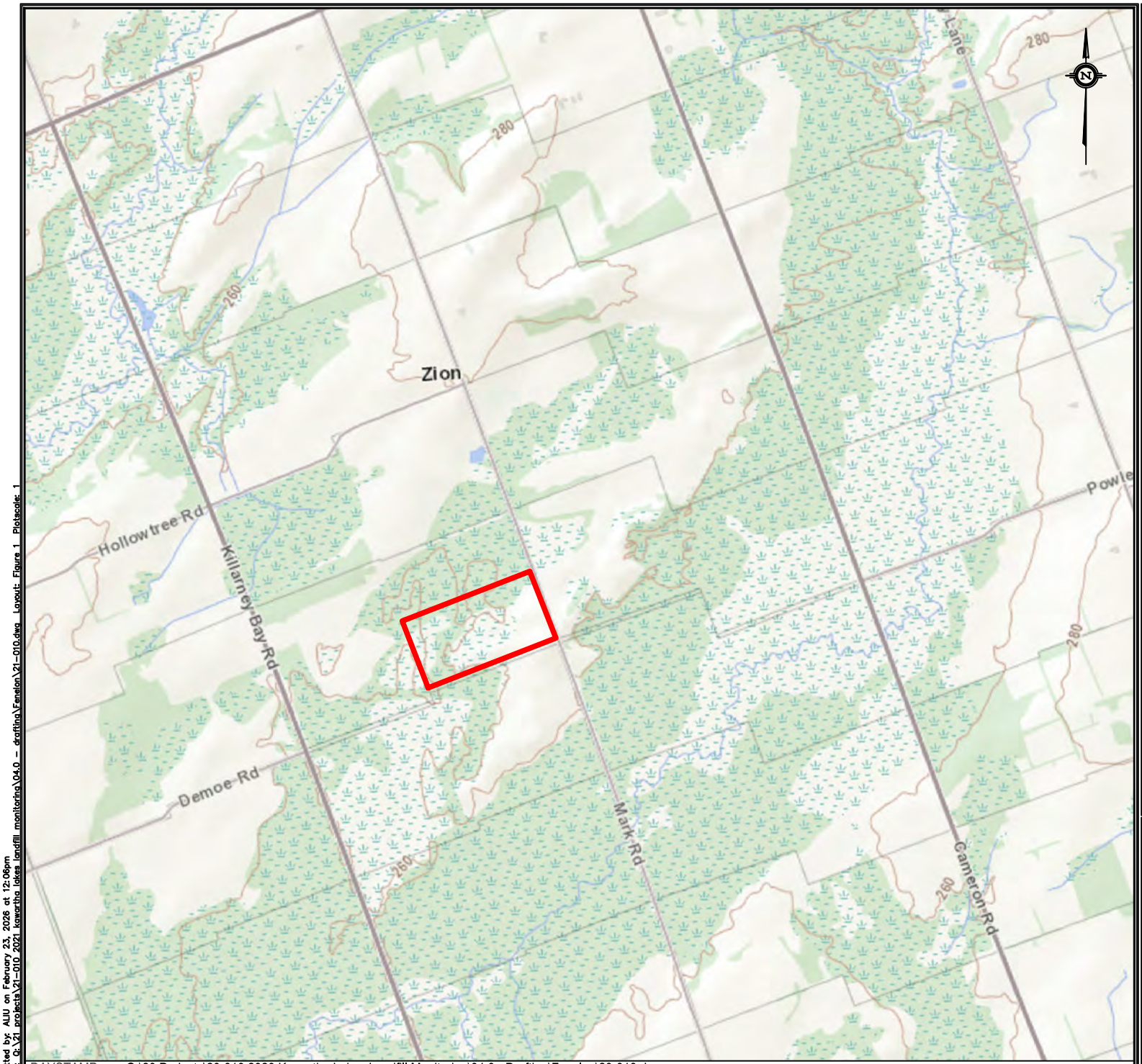
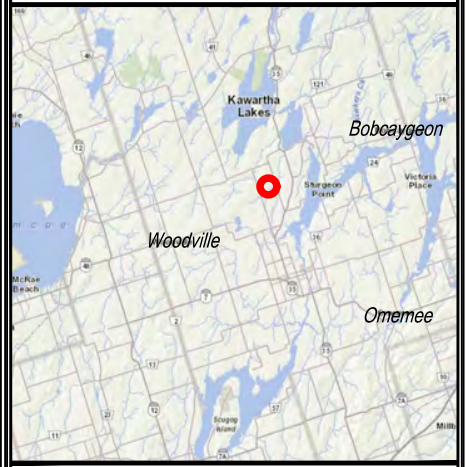
**FIGURES**




LEGEND:

Approx. Property Boundary




REG MAP

250m 0 750m

HORIZONTAL SCALE 1:25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Study Area Location

Fenelon Falls Landfill,
Fenelon Falls, ON

| | |
|---|---|
| DATE ISSUED: *February 2026* | Figure No. |
| CREATED BY: *JLM* | |
| PROJECT NO.: *26-010* | 1 |
| REFERENCE: *MNRF* | |

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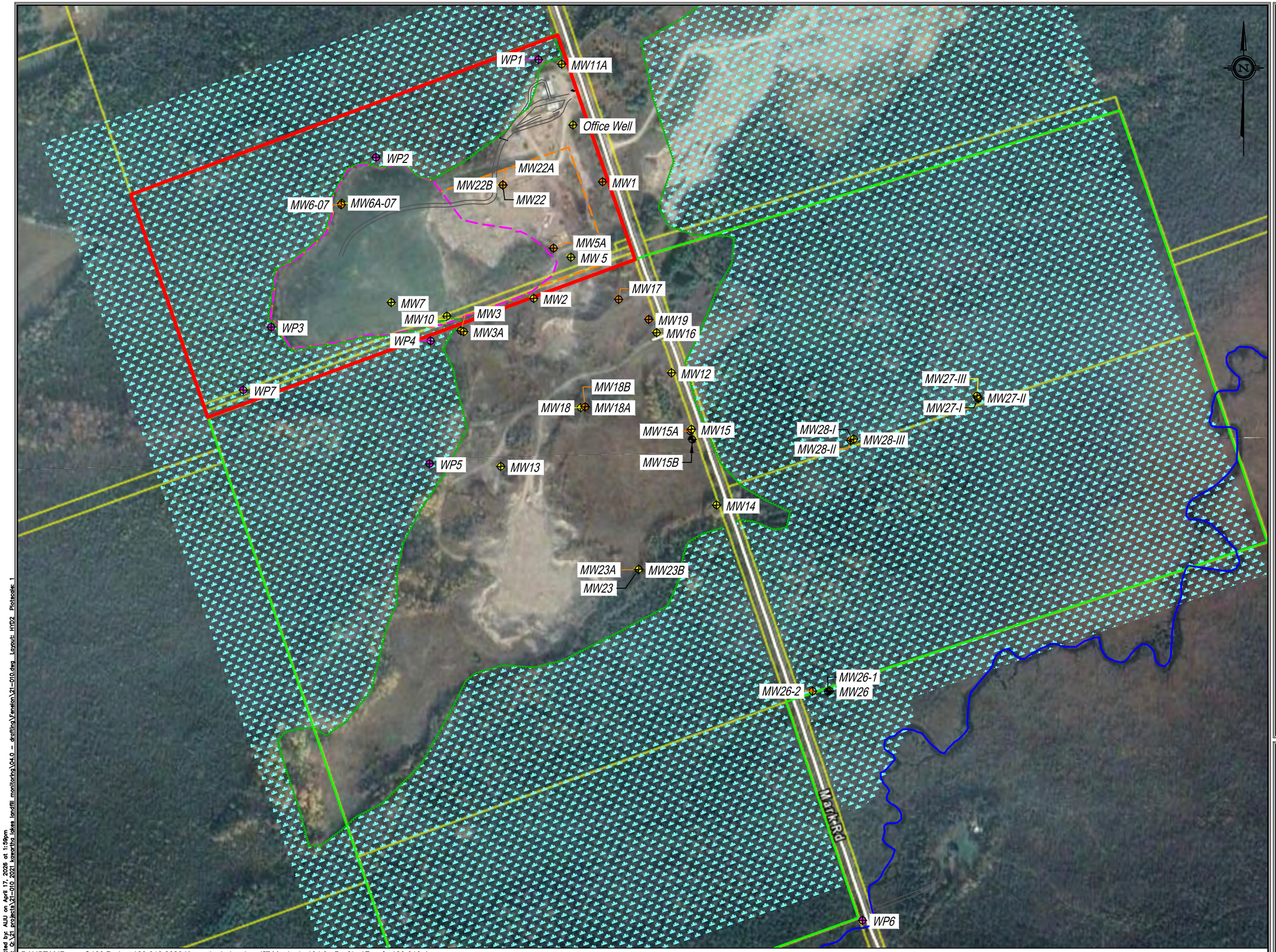


LEGEND:

- Approx. Property Boundary (~XXha)
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Ground Water Monitoring Network

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | March 2026 | Figure No. |
| CREATED BY: | JLM | 2 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

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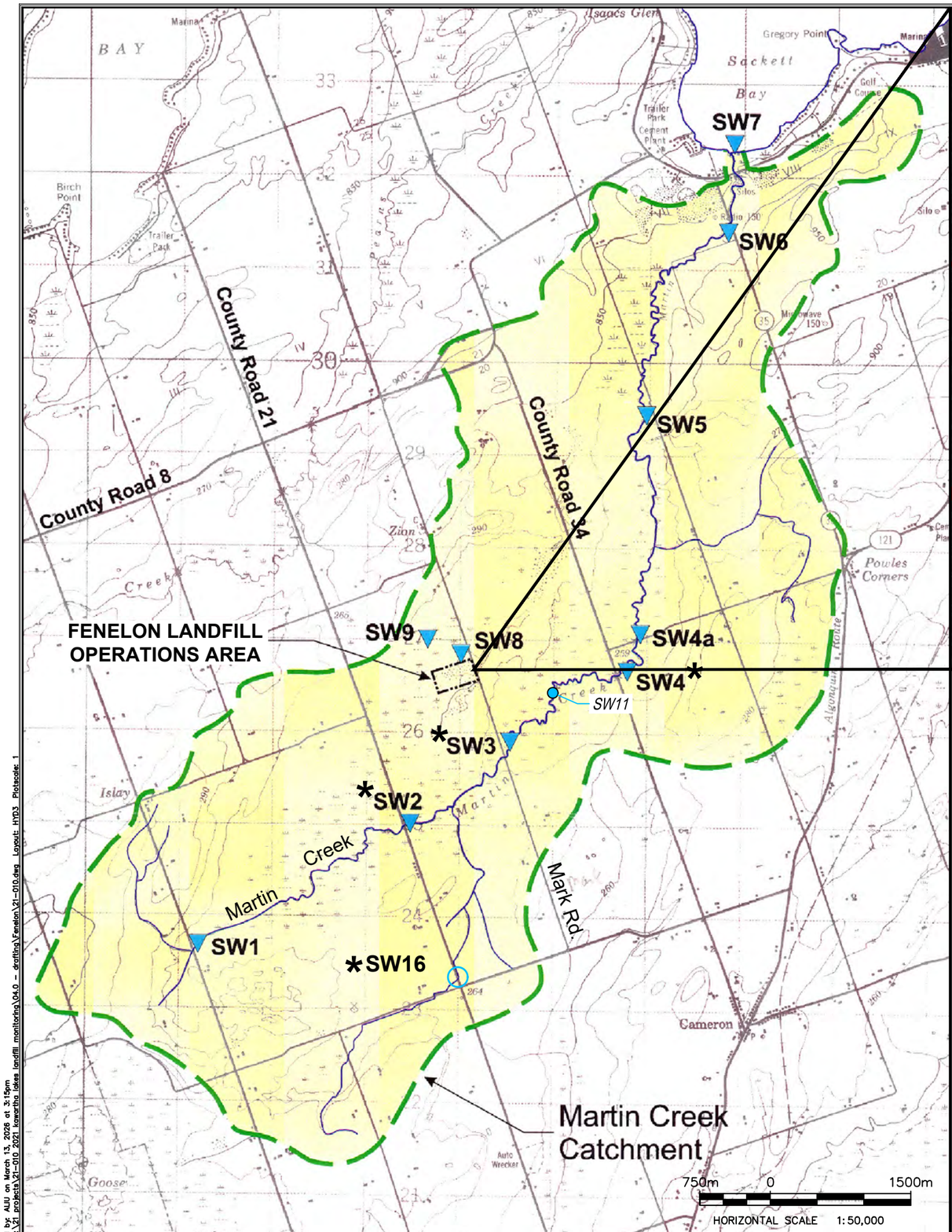
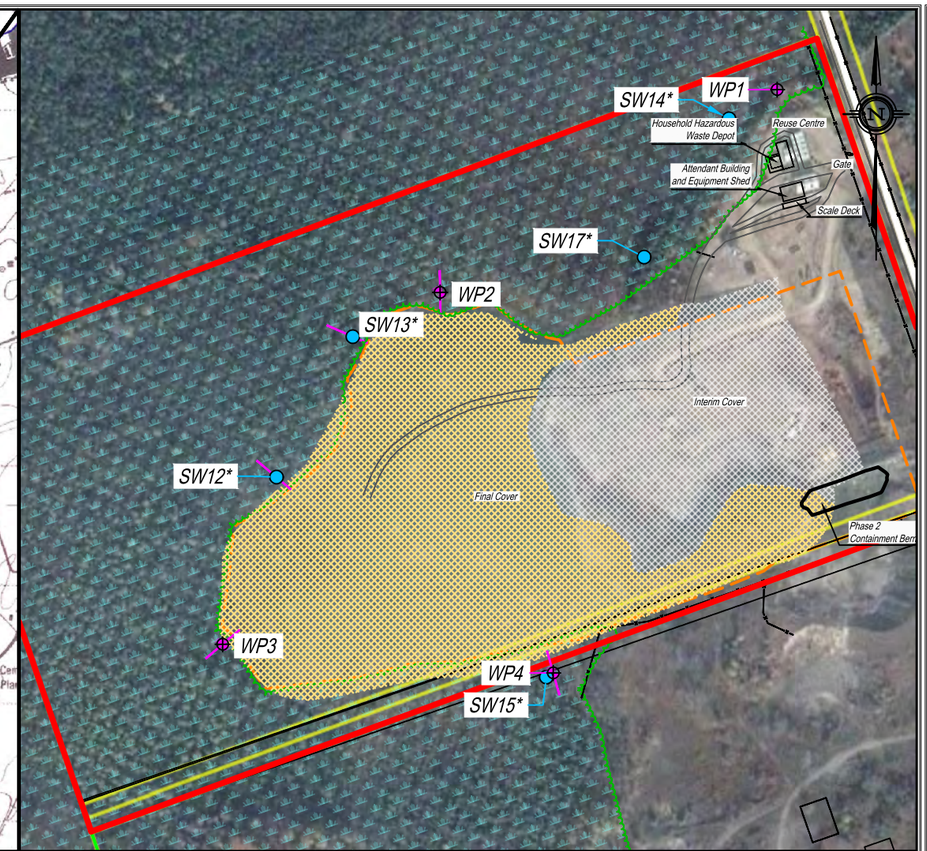



LEGEND:

- Approx. Property Boundary
- Historical Surface Water Monitoring Station
- Surface Water Station Established in 2005
- * Denotes Current Surface Water Monitoring Location
- New Background Station (2013)
- Wetland Monitor Locations

REFERENCE:

1. MAP BASED ON FIGURE 3 TITLED "SURFACE WATER FEATURES" FROM REPORT NO. GLL 99-521, "FENELON LANDFILL SITE - DESIGN AND OPERATIONS REPORT", DATED MARCH 2000, BY GARTNER LEE LTD.
2. CONTOURS FOR THE ACTIVE FILL AREA UPDATED TO REFLECT 2012 LANDFILL SURFACE CONTOURS PROVIDED BY THE CITY OF KAWARTHA LAKES, SURVEYED BY COE, FISHER, CAMERON DATED DECEMBER 4, 2012.

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

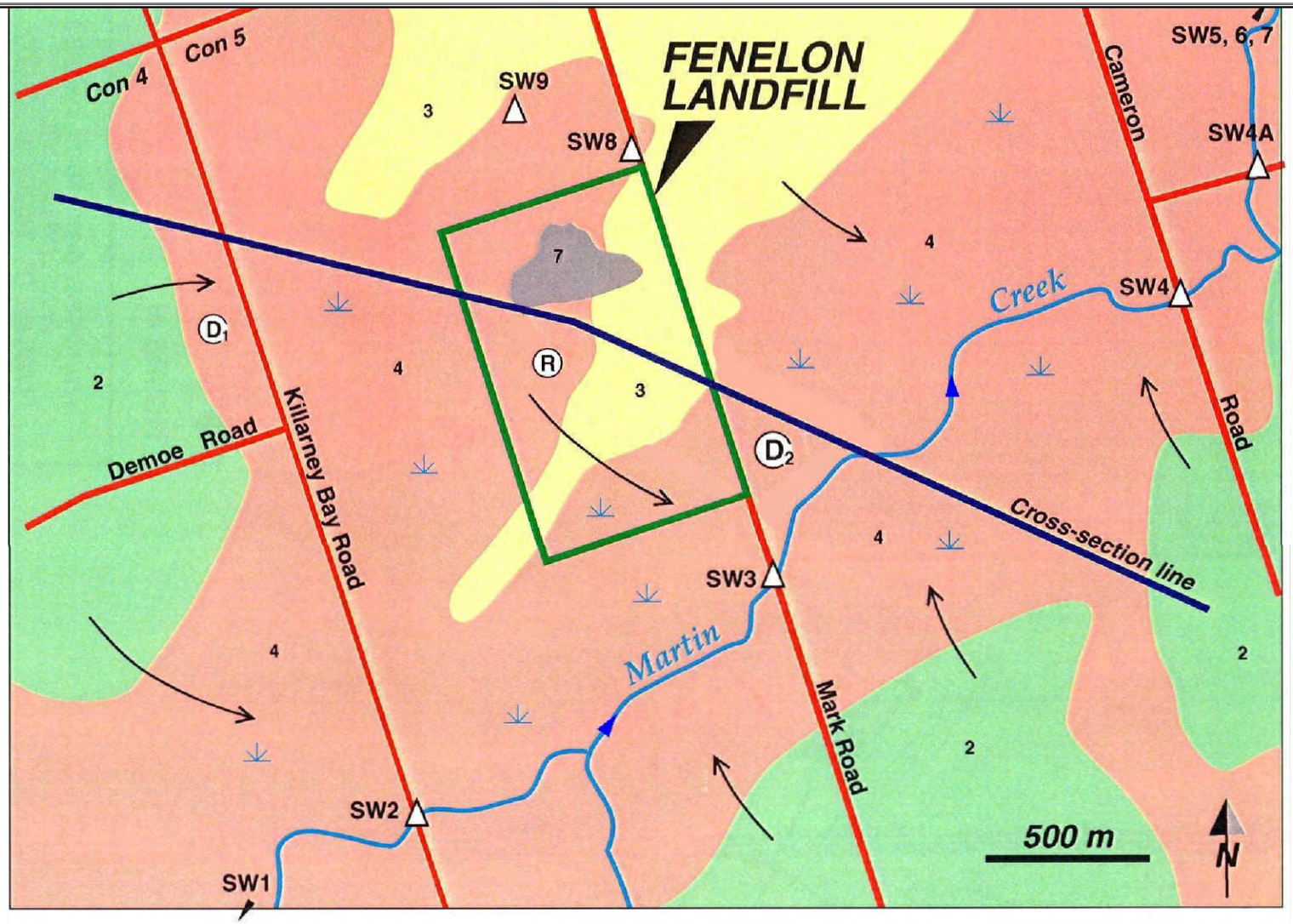
Surface Water Monitoring Network

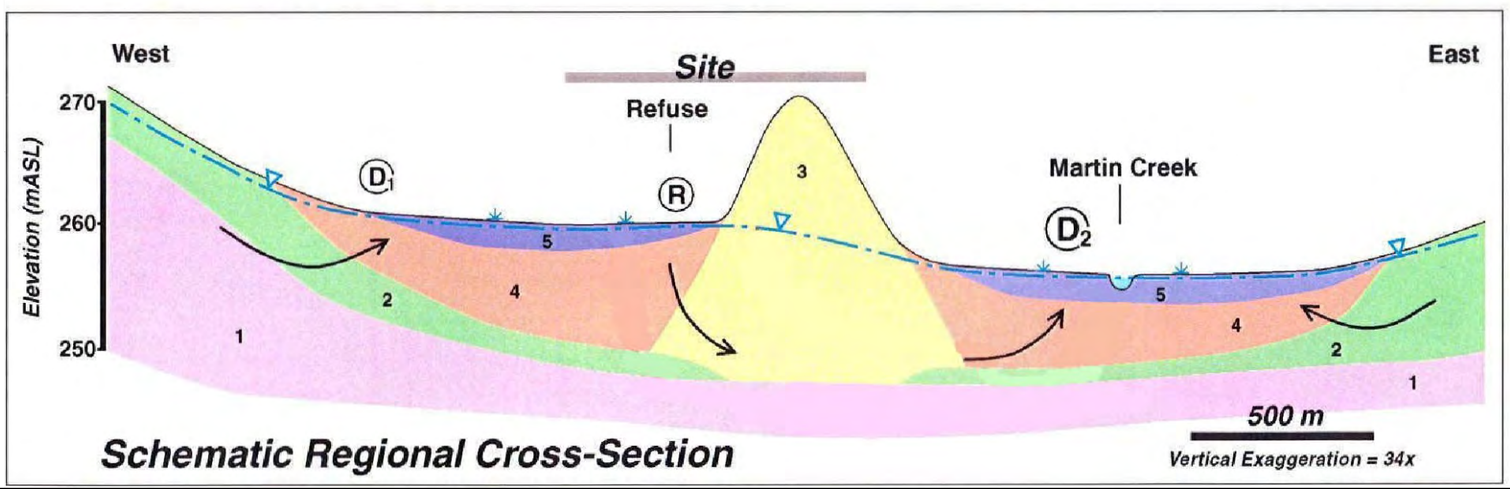
Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | March 2026 | Figure No. |
| CREATED BY: | JLM | 3 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: AJU on March 13, 2026 at 3:15pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: HYD3 Plotscale: 1




**Schematic Regional Cross-Section**

LEGEND:

***Geological Units***

| | |
|---|---|
| 7 | Refuse |
| 5 | Bog deposit: peat |
| 4 | Glaciolacustrine sediments: silty fine sand |
| 3 | Glaciofluvial (esker) sediments: fine-medium sand |
| 2 | Till |
| 1 | Limestone |

***Note:*** On-site fill not shown

Geology based on Gravenor, 1957.

***Symbols***

- Water Table
- Schematic groundwater flow
- Discharge area
- Recharge area
- Wetland
- Surface Water Sampling Station

*Source: Golder, 2019*

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

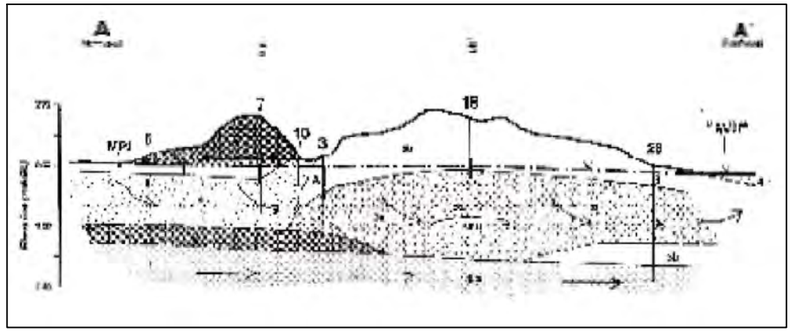
Regional Hydrogeology

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | *February 2026* | Figure No. |
| CREATED BY: | *JLM* | 4 |
| PROJECT NO.: | *26-010* | |
| REFERENCE: | *Golder, 2019* | |

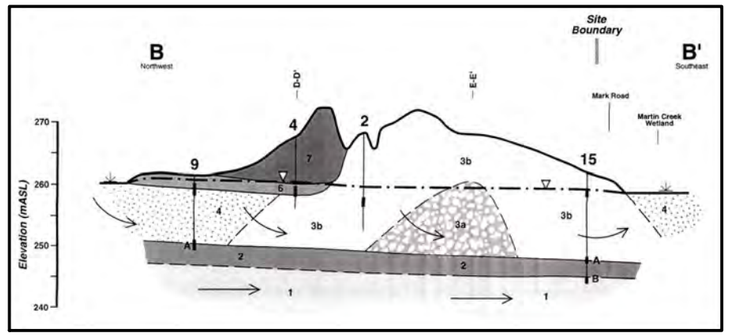
DAYSTAMP: April 2024

Plotted by: AUU on February 23, 2026 at 12:06pm
File: G:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: HYD4 Plotscale: 1

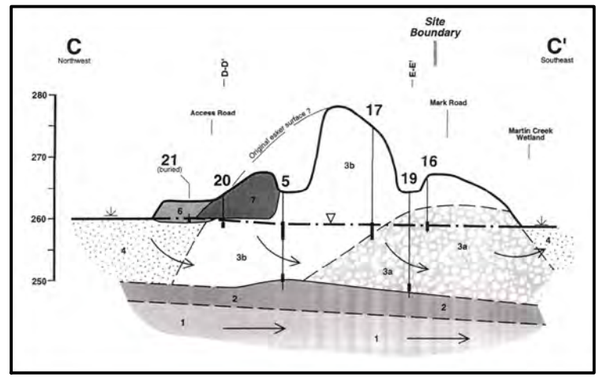



CROSS-SECTION A-A'

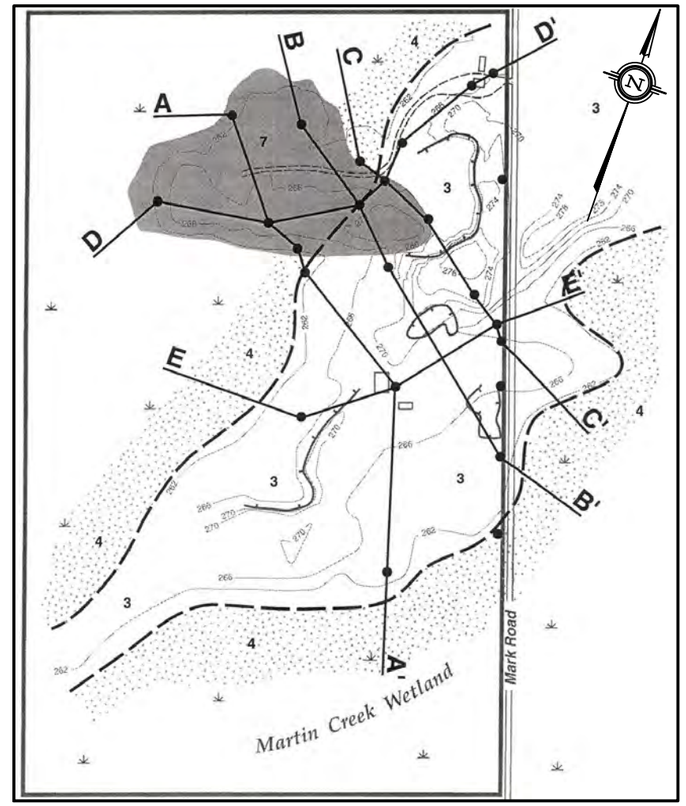
| Geological Units | | Symbols | |
|---|---|---|---|
| 7 | Refuse | | Well with intake interval |
| 6 | Fill: sand | 10 | Well number |
| 5 | Bog deposit: peat | | Water Table |
| 4 | Glaciolacustrine sediments: silty fine sand | | Schematic groundwater flow |
| 3b | Glaciofluvial (esker) sediments: fine-medium sand | | Geological contact (defined, inferred) |
| 3a | Glaciofluvial (esker) sediments: sandy gravel | | |
| 2 | Till | | |
| 1 | Limestone | | |



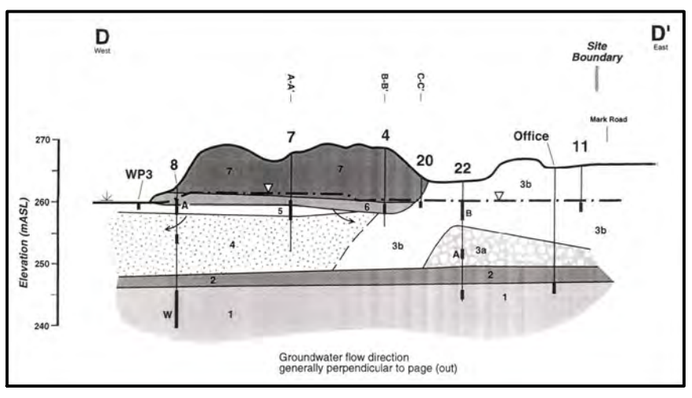

CROSS-SECTION B-B'



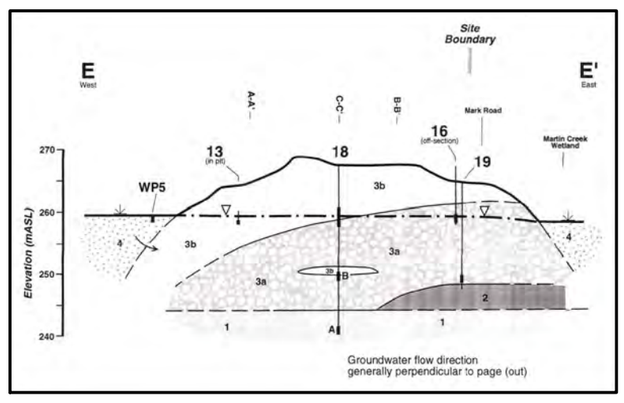

CROSS-SECTION C-C'




SURFICIAL GEOLOGY




CROSS-SECTION D-D'




CROSS-SECTION E-E'

LEGEND:

REFERENCES:
1. SURFICIAL GEOLOGY AND CROSS-SECTIONS A-A' TO E-E' BASED ON FIGURES 4 TO 9 FROM REPORT NO. 00-201 TITLED, "HYDROGEOLOGY STUDY, PHASE 3, FENELON LANDFILL, FENELON TOWNSHIP, VICTORIA COUNTY", DATED MARCH 2000, BY MIDDLE EARTH HYDROGEOLOGY INC.

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

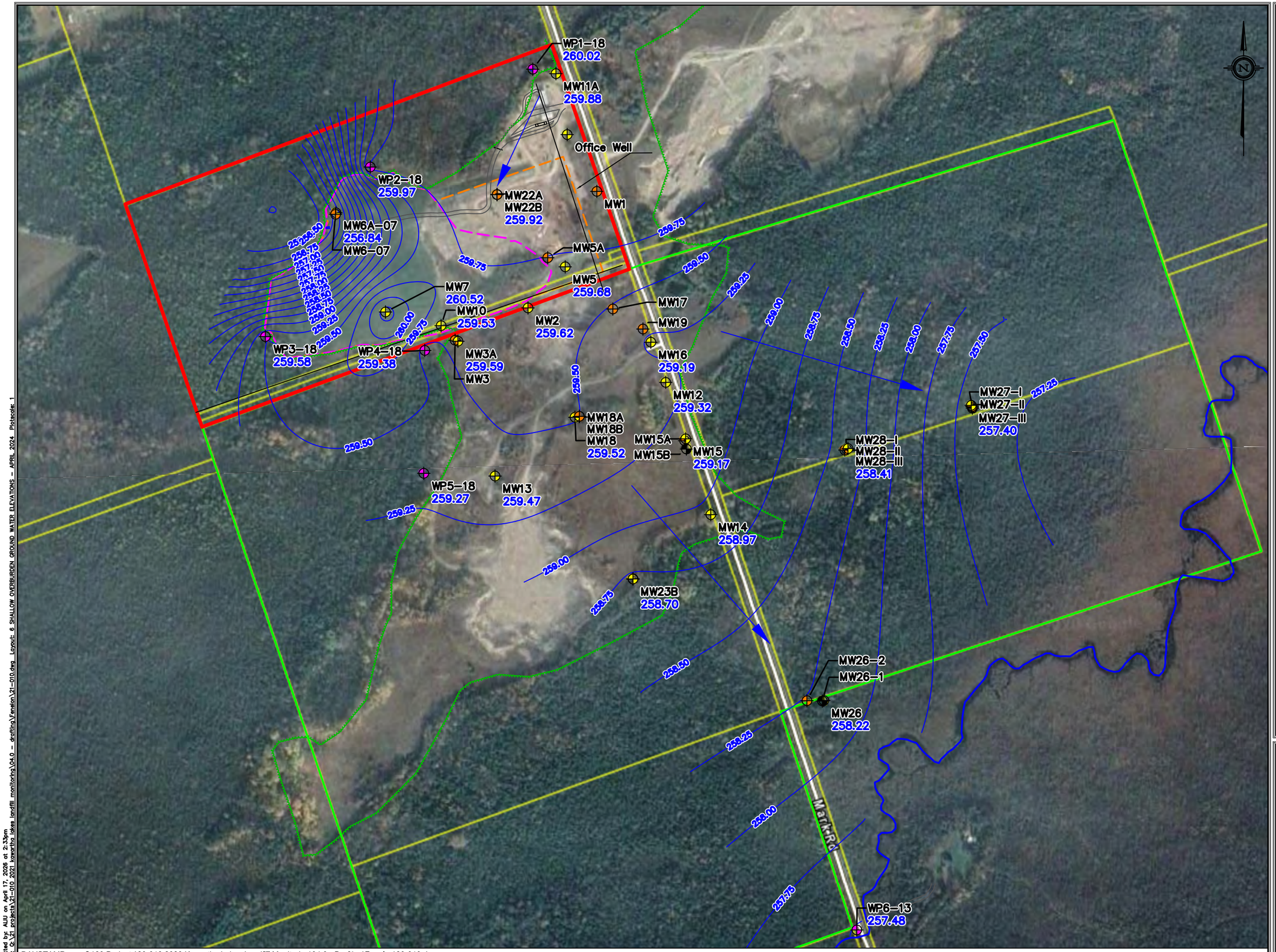
Geological Cross-Sections

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 5 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: AUU on February 23, 2026 at 12:06pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: HYD5 Plotscale: 1




LEGEND:

- Approx. Property Boundary (~XXha)
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations
- Inferred Direction of Ground Water Flow
- 293.5 Ground Water Elevation (April 2025)
- 0.5m Ground Water Contour

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

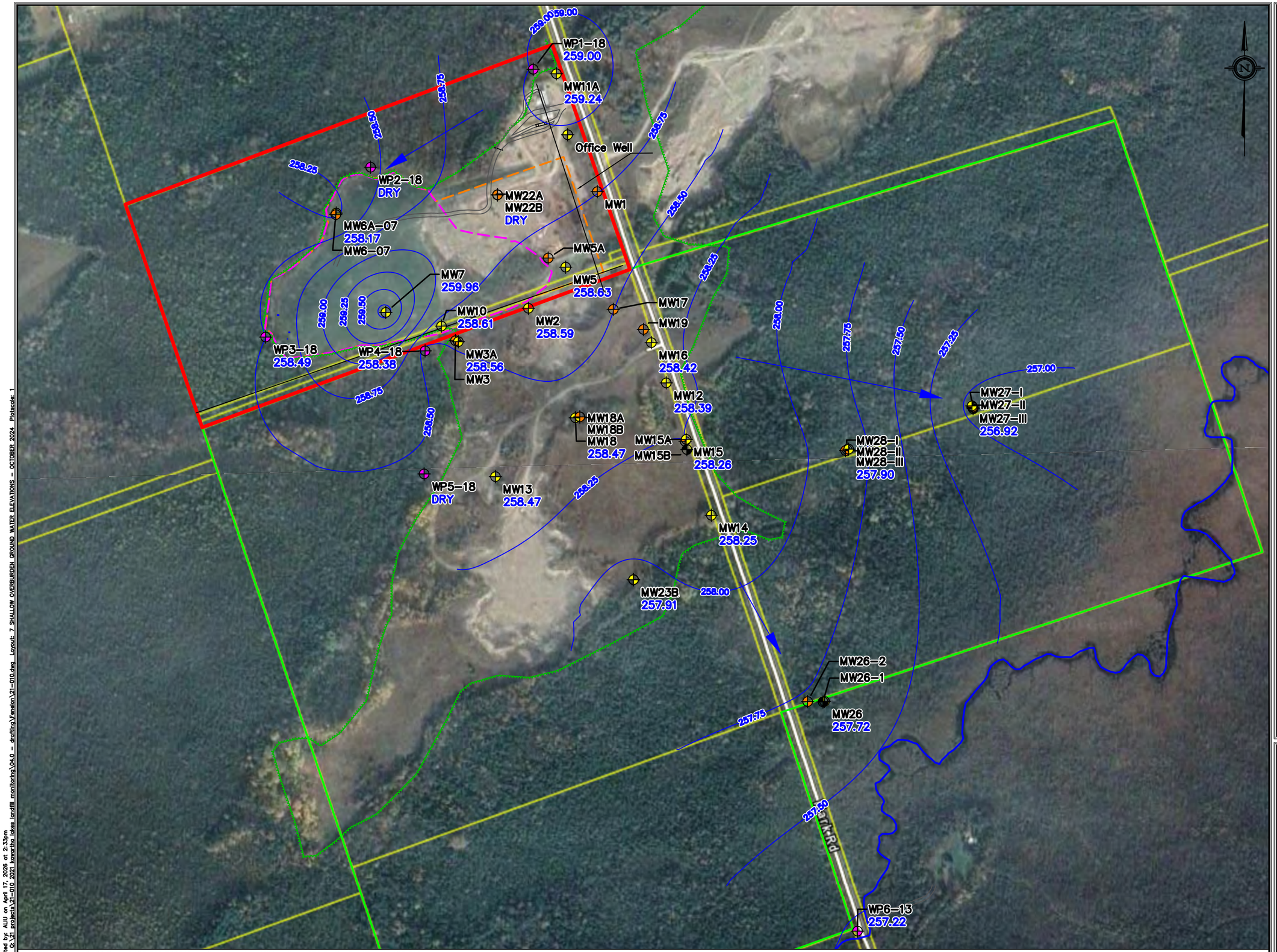
Shallow Overburden Ground Water Elevations
April 2025

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 6 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: AUII on April 17, 2026 at 2:33pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: 6 SHALLOW OVERBURDEN GROUND WATER ELEVATIONS - APRIL 2024 Plotscale: 1




LEGEND:

- Approx. Property Boundary (~XXha)
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations
- Inferred Direction of Ground Water Flow
- 293.5 Ground Water Elevation (October 2025)
- 0.5m Ground Water Contour

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

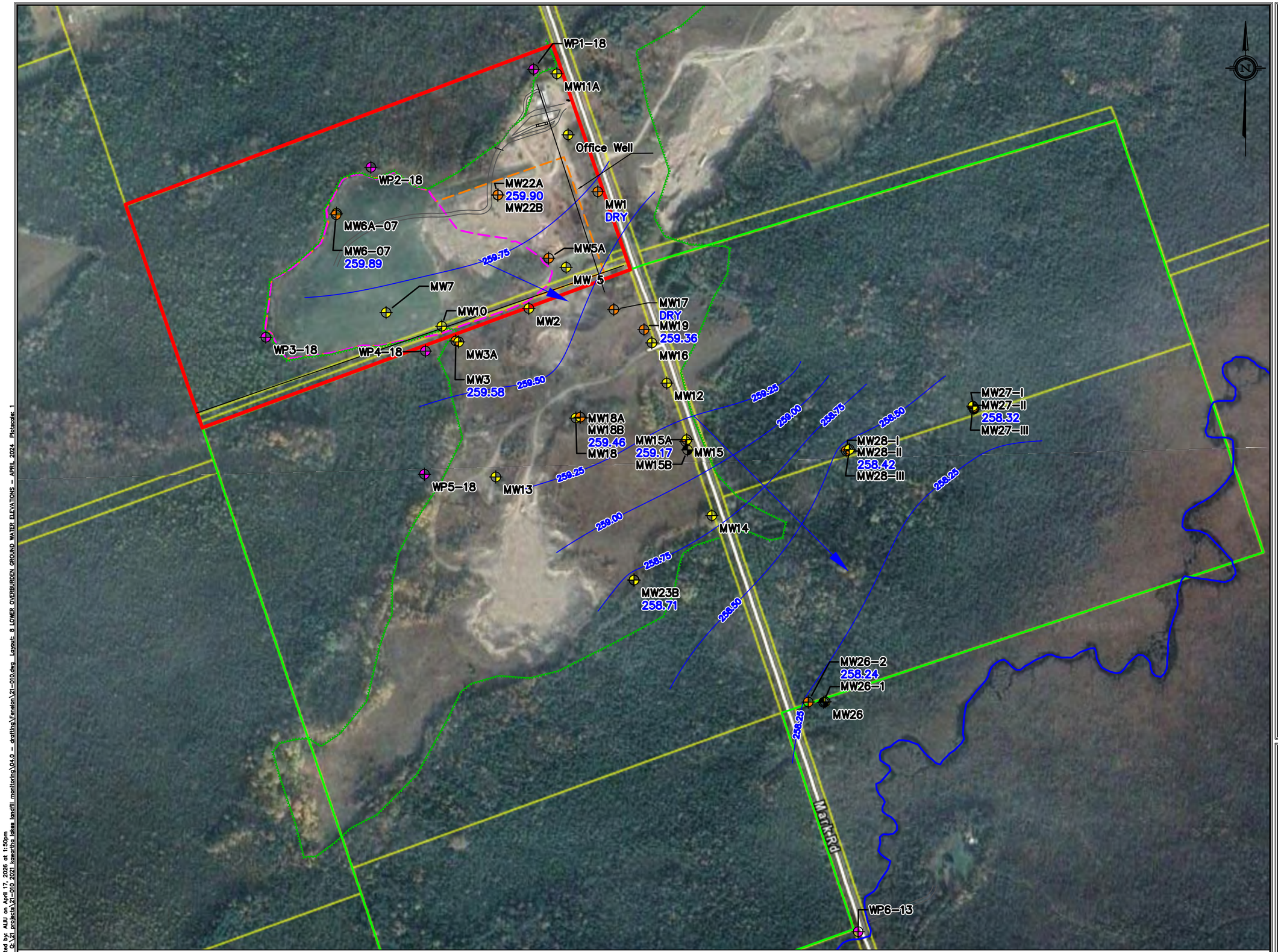
Shallow Overburden Ground Water Elevations
October 2025

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 7 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: AJU on April 17, 2026 at 2:33pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: 7 SHALLOW OVERBURDEN GROUND WATER ELEVATIONS - OCTOBER 2024 Plotscale: 1




LEGEND:

- Approx. Property Boundary (~XXha)
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations
- Inferred Direction of Ground Water Flow
- 293.5 Ground Water Elevation (April 2025)
- 0.25m Ground Water Contour

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Lower Overburden Ground Water Elevations
April 2025

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 8 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: ALIU on April 17, 2026 at 1:50pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: 8 LOWER OVERBURDEN GROUND WATER ELEVATIONS - APRIL 2024 Plotscale: 1

LEGEND:

- Approx. Property Boundary (~XXha)
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations
- Inferred Direction of Ground Water Flow
- 293.5 Ground Water Elevation (October 2025)
- 0.25m Ground Water Contour

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

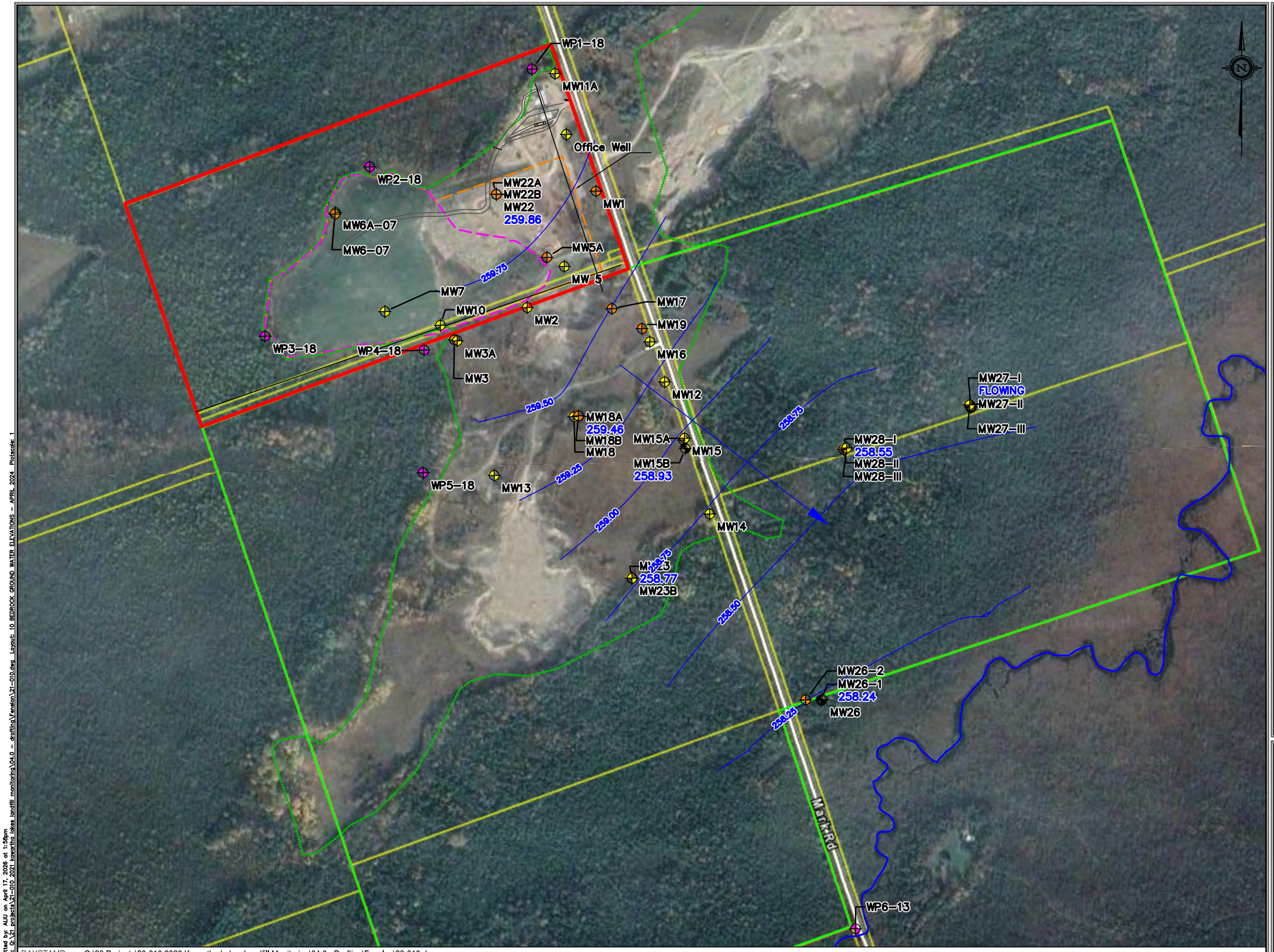
Lower Overburden Ground Water Elevations
October 2025

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 9 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: ALIU on April 17, 2026 at 1:50pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: 9 LOWER OVERBURDEN GROUND WATER ELEVATIONS - OCTOBER 2024 Plotscale: 1




LEGEND:

- Approx. Property Boundary (~XXha)
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations
- Inferred Direction of Ground Water Flow
- 293.5 Ground Water Elevation (April 2025)
- 0.25m Ground Water Contour

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Bedrock Ground Water Elevations
April 2025

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 10 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: ALIU on April 17, 2026 at 1:59pm
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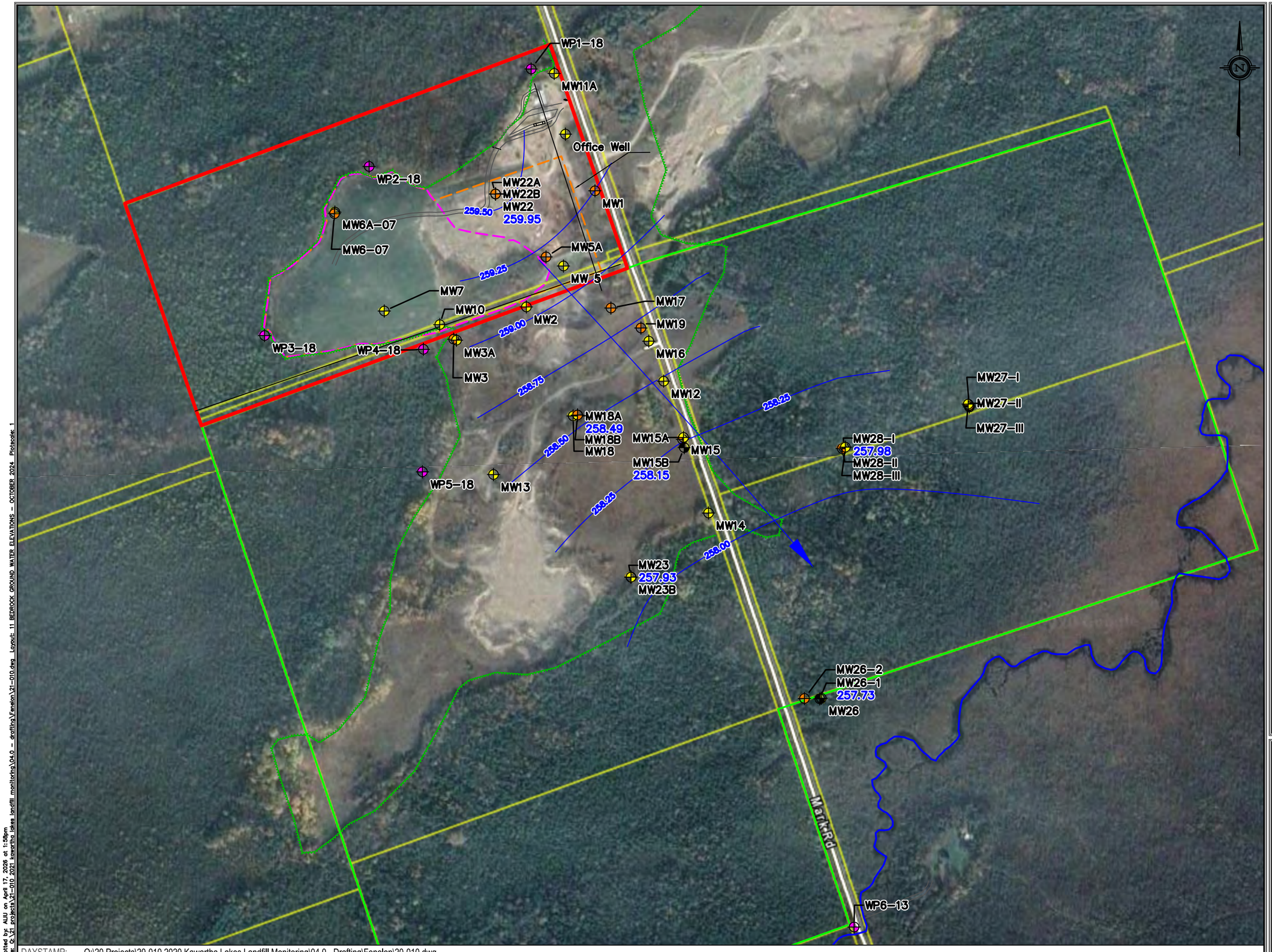


LEGEND:

- Approx. Property Boundary (~XXha)
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations
- Inferred Direction of Ground Water Flow
- 293.5 Ground Water Elevation (October 2025)

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Bedrock Ground Water Elevations
October 2025

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 11 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: AUU on April 17, 2026 at 1:58pm
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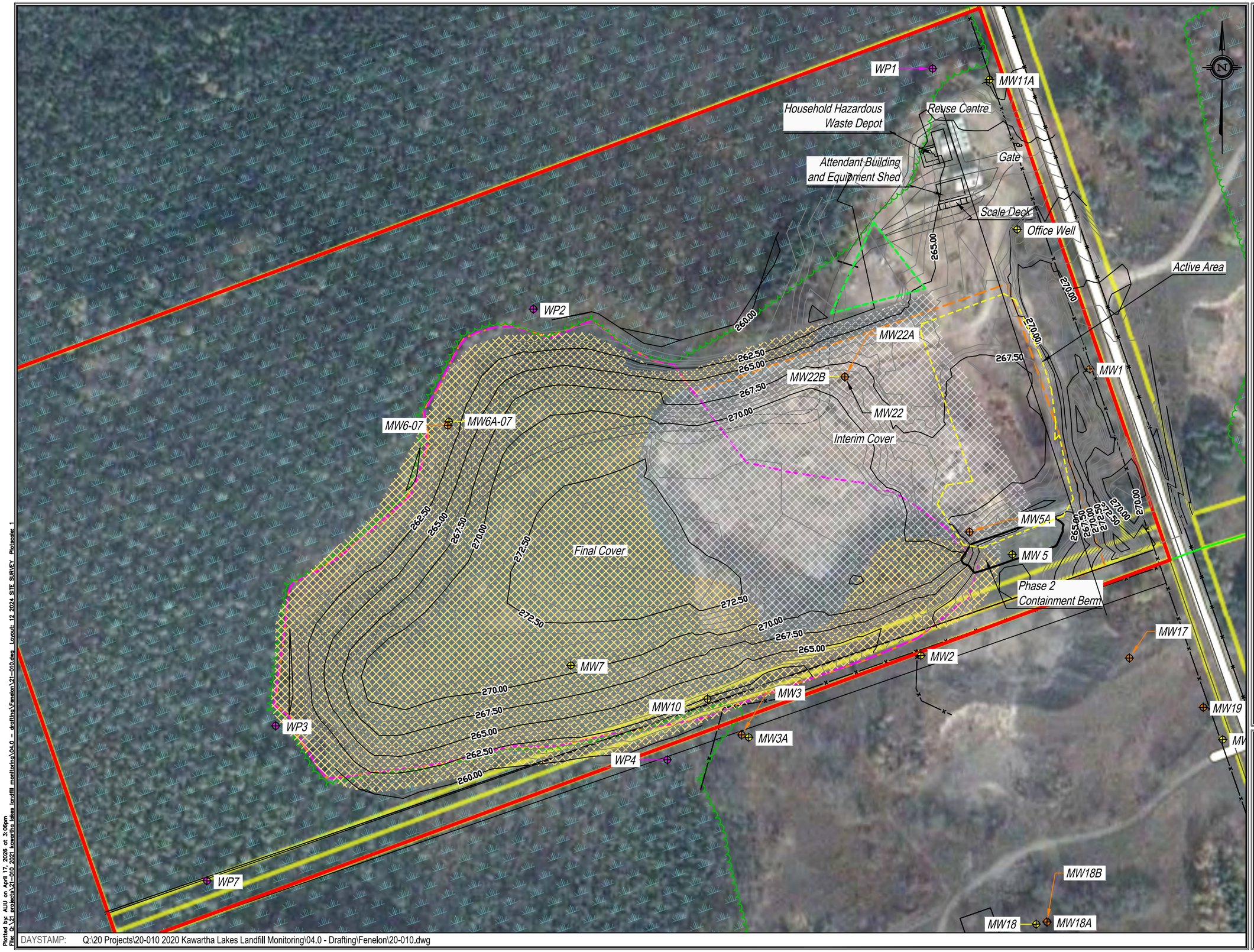



LEGEND:

- Approx. Property Boundary (~XXha)
- Interim Cover
- Final Cover
- Contaminant Attenuation Zone
- Watercourse
- Landfill Limits Phase I
- Landfill Limits Phase II
- Compost Area
- Active Waste Area
- Shallow Overburden Well Locations
- Lower Overburden Well Locations
- Bedrock Well Locations
- Wetland Monitor Locations
- 0.5m Contours, 2025 (masl)
- 2.5m Contours, 2025 (masl)

30m 0 60m

HORIZONTAL SCALE 1:2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

2025 Site Survey

Fenelon Falls Landfill,
Fenelon Falls, ON

| | | |
|---|---|---|
| DATE ISSUED: | February 2026 | Figure No. |
| CREATED BY: | JLM | 12 |
| PROJECT NO.: | 26-010 | |
| REFERENCE: | First Base Solutions | |

DAYSTAMP: Q:\20 Projects\20-010 2020 Kawartha Lakes Landfill Monitoring\04.0 - Drafting\Fenelon\20-010.dwg

Plotted by: ALIU on April 17, 2026 at 3:06pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: 12 2024 SITE SURVEY Plotscale: 1

## APPENDICES

| | |
|---|---|
| **Appendix A:** | **ECA and MECP Communications** |
| **Appendix B:** | **Borehole Logs** |
| **Appendix C:** | **Ground Water Elevation Tables** |
| **Appendix D:** | **Laboratory Certificate of Analysis** |
| **Appendix E:** | **Chemistry Summary Tables** |
| **Appendix F:** | **Chemistry Over Time Graphs** |
| **Appendix G:** | **Surface Water Photos** |
| **Appendix H:** | **Piper Diagrams** |
| **Appendix I:** | **Site Inspection Forms** |
| **Appendix J:** | **MECP Landfill Reporting Submission Forms** |

# APPENDIX A

## ECA and MECP Communications

Ontario

**Ministry of the Environment and Climate Change**
**Ministère de l'Environnement et de l'Action en matière de changement climatique**

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**
NUMBER A321206
Issue Date: January 20, 2016

The Corporation of the City of Kawartha Lakes
12 Peel St
Lindsay, Ontario
K9V 3L8

Site Location: Fenelon Landfill Site
341 Mark Rd Lot 16, Concession 4, former Township of Fenelon
Kawartha Lakes City,

*You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:*

the use and operation of 21.3 hectare waste disposal/transfer/composting and reuse site, and 102.6 hectares of contaminant attenuation zone for the following types of waste:

**solid non-hazardous waste** as defined in Reg. 347, generated within the boundaries of the City of Kawartha Lakes.

Note: Use of the Site for any other type of waste is not authorized under this Approval, and requires obtaining a separate amendment for this Approval.

*For the purpose of this environmental compliance approval, the following definitions apply:*

"Approval" or "ECA" means this Environmental Compliance Approval and any Schedules to it, including the application and supporting documentation listed in Schedule "A".

"Contaminating Life Span" means contaminating life span as defined in Ontario Regulation 232/98;

"Compost" means Leaf and Yard Waste that has been composted and fully cured and tested to confirm it meets the criteria in Table 1 of O.Reg. 101/94. Compost is not considered a waste if testing for the compost quality criteria is completed and compliance with the criteria is demonstrated;

"Depot" means the Household Hazardous Waste Depot, and includes any building, drop-off areas,

storage areas and any other structures, areas and facilities associated with the handling, consolidation, storage, transfer and transport of HHW.

"Director" means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the EPA;

"District Manager" means the District Manager of the local district office of the Ministry in which the Site is geographically located;

"EPA" means Environmental Protection Act, R.S.O. 1990, c. E. 19, as amended;

"HHW" means household hazardous waste (also known as municipal hazardous and special waste) ;

"Leaf and Yard Waste" means waste consisting of leaves, grass clippings, natural Christmas trees and other plant materials, generally less than seven (7) centimetres in diameter;

"Coarse Leaf and Yard Waste" means Leaf and Yard Waste that consists of tree stumps, limbs or other woody materials in excess of seven (7) centimetres in diameter;

"Ministry" means the Ontario Ministry of the Environment and Climate Change;

"NMA" means Nutrient Management Act, 2002, S.O. 2002, c. 4, as amended;

"Operator" means any person, other than the Owner's employees, authorized by the Owner as having the charge, management or control of any aspect of the Site and includes its successors or assigns;

"Owner" means any person that is responsible for the establishment or operation of the Site being approved by this Approval, and includes The Corporation of the City of Kawartha Lakes its successors and assigns;

"OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;

"PA" means the Pesticides Act, R.S.O. 1990, c. P-11, as amended;

"PRC" means the Public Review Committee for this site, as described in the conditions in this Approval.

"Provincial Officer" means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the OWRA or Section 5 of the EPA or Section 17 of PA or Section 4 of NMA or Section 8 of SDWA.

"PWQO" means the Provincial Water Quality Objectives, dated July 1994, as amended;

"Reasonable Use Guideline" means the Ministry Guideline B-7 entitled "Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities", dated April 1994, as amended;

"Regional Director" means the Regional Director of the local Regional Office of the Ministry in which the Site is located.

"Regulation 101" means Regulation 101/94, Recycling and Composting of Municipal Waste, as amended;

"Regulation 347" or "Reg. 347" means Regulation 347/90, as amended;

"SDWA" means Safe Drinking Water Act, 2002, S.O. 2002, c. 32, as amended;

"Site" means the entire waste disposal site including the landfilling area, buffer lands, Household Hazardous Waste Depot, Reuse Centre, Leaf and Yard Waste Compost facility authorized by this Approval located at 341 Mark Rd Lot 16, Concession 4, former Township of Fenelon, City of Kawartha Lakes; and

"Trained personnel" means personnel knowledgeable in the following through instruction and/or practice:

a. relevant waste management legislation, regulations and guidelines;
b. major environmental concerns pertaining to the waste to be handled;
c. occupational health and safety concerns pertaining to the processes and wastes to be handled;
d. management procedures including the use and operation of equipment for the processes and wastes to be handled;
e. emergency response procedures;
f. specific written procedures for the control of nuisance conditions;
g. specific written procedures for refusal of unacceptable waste loads; and
h. the requirements of this Approval.

*You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:*

TERMS AND CONDITIONS

## 1. GENERAL

### Compliance

(1) The Owner and Operator shall ensure compliance with all the conditions of this Approval and shall ensure that any person authorized to carry out work on or operate any aspect of the Site is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Approval.

**In Accordance**

(3) Except as otherwise provided by this Approval, the Site shall be designed, developed, built, operated and maintained in accordance with the documentation listed in the attached Schedule "A".

**Interpretation**

(4) Where there is a conflict between a provision of any document listed in Schedule "A" in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.

(5) Where there is a conflict between the application and a provision in any document listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the Ministry approved the amendment.

(6) Where there is a conflict between any two documents listed in Schedule "A", the document bearing the most recent date shall take precedence.

(7) The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

**Other Legal Obligations**

(8) The issuance of, and compliance with, this Approval does not:
   (a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
   (b) limit in any way the authority of the Ministry to require certain steps be taken or to require the Owner and Operator to furnish any further information related to compliance with this Approval.

**Adverse Effect**

(9) The Owner and Operator shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the Site, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

(10) Despite an Owner, Operator or any other person fulfilling any obligations imposed by this Approval the person remains responsible for any contravention of any other condition of this Approval or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

**Change of Ownership**

(11) The Owner shall notify the Director, in writing, and forward a copy of the notification to the District Manager, within 30 days of the occurrence of any changes in the following information:

(a) the ownership of the Site;
(b) the Operator of the Site;
(c) the address of the Owner or Operator; and
(d) the partners, where the Owner or Operator is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R. S. O. 1990, c. B.17, shall be included in the notification.

(12) No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance and sufficient financial assurance is deposited with the Ministry to ensure that these conditions will be carried out.

(13) In the event of any change in Ownership of the Site, other than change to a successor Owner, the Owner shall notify the successor of and provide the successor with a copy of this Approval, and the Owner shall provide a copy of the notification to the District Manager and the Director.

**Certificate of Requirement/Registration on Title**

(14) The Owner shall:

(a) Within six (6) months of the date of the issuance of this Approval, submit to the Director for review, two copies of a completed Certificate of Requirement with a registerable description of the Site; and
(b) Within 10 calendar days of receiving the Certificate of Requirement authorized by the Director, register the Certificate of Requirement in the appropriate Land Registry Office on title to the Site and submit to the Director and the District Manager the duplicate registered copy immediately following registration.

(15) Pursuant to Section 197 of the Environmental Protection Act, neither the Owner nor any person having an interest in the Site shall deal with the Site in any way without first giving a copy of this Approval to each person acquiring an interest in the Site as a result of the dealing.

**Registration on Title Requirement - Contaminant Attenuation Zone (CAZ)**

(16) For any new lands added, or if not done previously for existing CAZ lands, the Owner shall, within six (6) months from the date of issuance of this Approval, submit to the Director documents confirming that a contaminant attenuation zone (CAZ) has been established, in either fee simple or by way of a groundwater easement.

(a) If rights are obtained in fee simple, the Owner shall provide:
  (i) documentation evidencing ownership of the CAZ obtained in compliance with O.Reg. 232/98, as amended;
  (ii) a completed Certificate of Requirement and supporting documents containing a registerable description of the CAZ; and
  (iii) a letter signed by a member of the Law Society of Upper Canada; or other qualified legal practitioner acceptable to the Director, verifying the legal description of the CAZ.

(b) within fifteen (15) calendar days of receiving a Certificate of Requirement signed or authorized by the Director,the Owner shall:
  (i) register the Certificate of Requirement in the appropriate Land Registry Office on the title to the property; and
  (ii) submit to the Director a written verification that the Certificate of Requirement has been registered on title.

(c ) The Owner shall not amend or remove or consent to the removal of the easement or CAZ from title without the prior written consent of the Director.

**Inspections by the Ministry**

(17) No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the OWRA, the EPA, the PA, the SDWA or the NMA, of any place to which this Approval relates, and without limiting the foregoing:

(a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;

(b) to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;

(c) to inspect the Site, related equipment and appurtenances;

(d) to inspect the practices, procedures, or operations required by the conditions of this Approval; and

(e) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA, the OWRA, the PA, the SDWA or the NMA.

**Information and Record Retention**

(18) (a) Except as authorized in writing by the Director, all records required by this ECA

shall be retained at the Site for a minimum of two (2) years from their date of creation.

(b) The Owner shall retain all documentation listed in Schedule "A" for as long as this ECA is valid.

(c) All daily logs are to be kept at the Site for the current operating year.

(d) The Owner shall retain employee training records as long as the employee is working at the Site.

(e) The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

(19) The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Approval or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:

(a) an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any term or condition of this Approval or any statute, regulation or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

(20) (a) The Owner shall ensure that a copy of this Approval, in its entirety and including all its Notices of Amendment are retained at the Site at all times.

(b) Copies of all documentation listed in Schedule "A" shall be retained in the Solid Waste Services administration office.

(21) Any information related to this Approval and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

## 2. SITE OPERATION

### Operation

(1) The Site shall be operated and maintained at all times including management and disposal of all waste, in accordance with the EPA, Regulation 347, and the conditions of this Approval. At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

### Signs

(2) A sign shall be installed and maintained at the main entrance/exit to the Site on which is

legibly displayed the following information:

(a) the name of the Site and Owner;
(b) the number of the Approval;
(c) the name of the Operator;
(d) the normal hours of operation;
(e) the allowable and prohibited waste types;
(f) the telephone number to which complaints may be directed;
(g) a warning against unauthorized access;
(h) a twenty-four (24) hour emergency telephone number (if different from above); and
(i) a warning against dumping outside the Site.

(3) The Owner shall install and maintain signs to direct vehicles to working face, recycling, re-use and transfer area.

(4) The Owner shall provide signs at recycling storage areas, HHW Depot and re-use centre informing users what materials are acceptable and directing users to appropriate storage areas.

**Vermin, Vectors, Dust, Litter, Odour, Noise and Traffic**

(5) The Site shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

**Burning Waste Prohibited**

(6) (a) Burning of waste at the Site is prohibited.

(b) Notwithstanding Condition 2. (6) (a) above, burning of segregated, clean wood and brush at the landfill may be carried out in strict compliance with the Ministry of the Environment Document titled "Guideline C-7, Burning at Landfill Sites" dated April 1994.

**Site Access**

(7) The operating hours for the Site for the receipt of waste for disposal , site preparation, site maintenance and daily cover activities are Monday through Saturday between the hours of 7:00 a.m. and 7:00 p.m.

(8) On-site equipment used for daily site preparation and closing activities may be operated one (1) hour before and one (1) hour after the hours of operation approved by this Approval.

(9) With the prior written approval from the District Manager, the time periods may be extended to accommodate seasonal or unusual quantities of waste.

**Site Security**

(10) No waste shall be received, landfilled or removed from the Site unless a site supervisor or an attendant is present and supervises the operations during operating hours. The Site shall be closed when a site attendant is not present to supervise landfilling operations.

(11) The Site shall be operated and maintained in a safe and secure manner. During non-operating hours, the Site entrance and exit gates shall be locked and the Site shall be secured against access by unauthorized persons.

**Public Review Committee (PRC)**

(12) The Owner shall forthwith take all reasonable steps to establish, maintain and participate in a Public Review Committee (PRC), which is to function within terms of reference for the PRC, as prepared by the Owner, and as amended from time to time according to appropriate amending procedures. A copy of the terms of reference shall be provided to the District Manager. The PRC shall serve as a focal point for dissemination, consultation, review and exchange of information regarding the operation of the Site.

(13) The Owner shall develop Terms of Reference for the PRC. The membership of the PRC shall include at least one member from the Owner and at least two members from interested parties.

(14) Copies of all reports or other submissions required by the conditions of this Approval shall be made available to the PRC.

(15) The Owner shall provide to members of the PRC and to any neighbouring residents reasonable notice and opportunities to make comments regarding any proposed amendment to this Approval. The Owner shall forward to the Director for consideration any written comments received by the Owner.

(16) The PRC shall meet twice annually.

## 3. EMPLOYEE TRAINING

(1) A training plan for all employees that operate any aspect of the Site shall be developed and implemented by the Operator. Only Trained Personnel shall operate any aspect of the Site or carry out any activity required under this Approval.

## 4. COMPLAINTS RESPONSE PROCEDURE

(1) If at any time the Owner receives complaints regarding the operation of the Site, the Owner shall respond to these complaints according to the following procedure:

(a) The Owner shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;

(b) The Owner, upon notification of the complaint, shall initiate appropriate steps to determine possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

(c) The Owner shall complete a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

## 5. EMERGENCY RESPONSE

(1) Any spills, fires or other emergency situations shall be forthwith reported directly to the Ministry's Spills Action Centre (1-800-268-6060) and shall be cleaned up immediately.

(2) In addition, the Owner shall submit, to the District Manager a written report within one (1) week of the emergency situation, outlining the nature of the incident, remedial measures taken, handling of waste generated as a result of the emergency situation and the measures taken to prevent future occurrences at the Site.

(3) All wastes resulting from an emergency situation shall be managed and disposed of in accordance with O.Reg. 347, unless otherwise specified by the District Manager.

(4) The Owner shall ensure that adequate fire extinguishers and contingency spill clean up material is available and that emergency response personnel are familiar with its use and location.

## 6. RECORD KEEPING AND REPORTING

### Daily Log Book

(1) A daily log shall be maintained and shall include the following information:

(a) the type, date and time of arrival, hauler, and quantity (tonnes) of all waste and cover material received at the Site;

(b) the area of the Site in which waste disposal operations are taking place;

(c) a record of litter collection activities and the application of any dust suppressants;

(d) a record of the daily inspections; and

(e) a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore

and maintain service.

(f) A record shall be kept in the daily log book of all refusals of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

(g) A daily inspection of the Site and all equipment on the site shall be conducted to ensure that: the Site is secure; that the operations of the Site is not causing any nuisances and that the Site is being operated in compliance with this Approval. Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the Site if needed.

(2) Any information requested, by the Director or a Provincial Officer, concerning the Site and its operation under this Approval, including but not limited to any records required to be kept by this Approval shall be provided to the Ministry, upon request.

**Inspections and Log Book**

(3) (a) A comprehensive Site inspection shall occur semi-annually. Inspections shall consider, at a minimum, leachate break-outs, condition of vegetation, erosion, condition of Site access roads, ditches, berms and swales, signs, evidence of nuisance factors such as litter and odours. The results of Site inspections shall be recorded as part of the Condition 6 (4).

(b) Within ten (10) business days within noting a leachate outbreak during an inspection, the Owner shall notify the District Manager in writing, including the location of the outbreak on a map of the Site and remedial measures taken.

(4) A record of the inspections shall be maintained and include:

(a) the name and signature of person that conducted the inspection;
(b) the date and time of the inspection;
(c) the list of any deficiencies discovered;
(d) the recommendations for remedial action; and
(e) the date, time and description of actions taken.

**Annual Report**

(5) A written report on the development, operation and monitoring of the Site, shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the District Manager, by May 31st of the year following the period being reported upon.

(6) The Annual Report shall include the following:

(a) the results and an interpretive analysis of the results of all leachate, groundwater, surface water and landfill gas monitoring, including an assessment of the need to amend the monitoring programs;

(b) an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the Site, and the adequacy of and need to implement the contingency plans;

(c) site plans showing the existing contours of the Site; areas of landfilling operation during the reporting period; areas of intended operation during the next reporting period; areas of excavation during the reporting period; the progress of final cover, vegetative cover, and any intermediate cover application; facilities existing, added or removed during the reporting period; and site preparations and facilities planned for installation during the next reporting period;

(d) calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the Site during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;

(e) a calculation of the remaining capacity of the Site and an estimate of the remaining Site life;

(f) total annual quantity (tonnes) of waste received at the Site;

(g) a summary of any complaints received and the responses made;

(h) a discussion of any operational problems encountered at the Site and corrective action taken;

(i) any changes to the Design and Operations Report and the Closure Plan that have been approved by the Director since the last Annual Report;

(j) a report on the status of all monitoring wells requiring decommissioning or repair during the reporting period; and

(k) any other information with respect to the Site which the Regional Director may require from time to time.

## 7. LANDFILL DESIGN AND DEVELOPMENT

### Approved Waste Types

(1) The site may accept solid non-hazardous waste as defined in Reg. 347 for landfilling.

(2) The Owner shall develop and implement a program to inspect waste to ensure that the waste received at the Site is of a type approved for acceptance under this Approval.

(3) The Owner shall ensure that all loads of waste are properly inspected by Trained personnel prior to acceptance at the Site and that the waste vehicles are directed to the appropriate areas for disposal or transfer of the waste. The Owner shall notify the District Manager, in writing, of load rejections at the Site within one (1) week from their occurrence.

### Approval for Filling of Phase 2

(4) Approval is hereby granted for filling of Phase 2, as shown in Figure 15 of the updated Design and Operations Report, November 2015, item 22 of Schedule "A".

(5) The Owner shall ensure that landfilling in Phase 2 is carried out as described in the proposed (updated) development plan, described in Section 6.5 of the Updated Design

and Operations report, item 22 of Schedule A.

(6) The containment berms as shown in Figure 19 a, and described in Section 6.5 of the Updated Design and Operations Report, shall be constructed, prior to landfilling of any waste in Phase 2.

**Capacity**

(7) No waste shall be landfilled outside of the limit of waste final contours as shown on Figure 15, of the updated Design and Operations Report, item 22 of Schedule "A".

(8) Final contours shall not exceed 274.5 metres above sea level at any point on the approved landfill area and includes allowances for final cover.

(9) The total approved remaining capacity inclusive of daily and intermediate cover, but exclusive of final cover for this Site as of October 28, 2003 is 276,000 cubic metres.

**Service Area**

(10) Only waste that is generated within the boundaries of the City of Kawartha Lakes may be accepted at the Site.

**Cover**

(11) Cover material shall be applied as follows:

(a) Daily Cover - Weather permitting, deposited waste shall be covered with 15 centimetres of clean soil or approved alternative daily cover on each operating day in a manner acceptable to the District Manager so that no waste is exposed to the atmosphere;

(b) Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 millimetre of soil cover or an approved thickness of alternative cover material shall be placed; and

(c) Final Cover - In areas where landfilling has been completed to final waste contours within twelve (12) months from reaching final waste contours, a minimum 600 millimetre thick layer of soil of medium permeability and 150 millimetres of top soil (vegetative cover) shall be placed. Fill areas shall be progressively completed and rehabilitated as landfill development reaches final contours.

(12) (a) The Owner shall ensure that Phase 1 is progressively capped with final cover.

(b) By December 31, 2016, final cover shall be placed on Phase 1, up to the Phase 1/2 boundary, as shown in Figure 19, Proposed Filling Plan, in item 22 of Schedule A.

**Approved Daily Cover and Alternative Daily Cover Materials**

(13) Alternative materials to soil may be used as daily and interim cover material, based on an application with supporting information and applicable fee for a trial use or permanent use, submitted by the Owner to the Director, copied to the District Manager and as approved by the Director via an amendment to this Approval. The alternative material shall be non-hazardous according to Reg. 347 and will be expected to perform at least as well as soil in relation to the following functions:

(a) Control of blowing litter, odours, dust, landfill gas, gulls, vectors, vermin and fires;
(b) Provision for an aesthetic condition of the landfill during the active life of the Site;
(c) Provision for vehicle access to the active tipping face; and
(d) Compatibility with the design of the Site for groundwater protection, leachate management and landfill gas management.

(14) Construction/demolition wastes, clean, dry wood wastes and brush wastes, all of which are segregated from other wastes, are exempted from the daily cover requirement.

(15) The Owner is hereby permitted to use "paper fibre product" as daily and interim cover at the Fenelon Landfill Site in accordance with the documents in the Schedule "A".

(16) The Owner is hereby permitted to use soil, Compost, wood chips, foundry sand, shingles, non-hazardous wood/construction waste (fines) and flexible membranes (tarps, enviro cover systems as alternative daily cover material. Flexible membranes shall be removed prior to the next layer of waste is deposited.

(17) (a) The Owner is permitted to conduct a pilot test for the use of steel plates as alternative daily cover at the Site. Steel plates may be used for a two (2) year period, expiring at two calendar years from the date of this Approval.

(b) If the Owner will seek continued use of the plates as alternative daily cover, an application to amend this Approval shall be submitted to the Director prior to the expiry date, including a pilot report with an assessment on the performance of the plates in consideration of the requirements in Condition 7. (13).

(18) Partially composted Leaf and Yard Waste may be used as alternative daily cover at the Site.

(19) Contaminated (non-hazardous) soils may not be used as alternative daily cover at the Site.

**Compaction of Waste**

(20) The Owner shall ensure that waste is compacted with a minimum of three (3) passes over each lift of waste.

## 8. LANDFILL MONITORING

**Landfill Gas**

(1) The Owner shall ensure that any buildings or structures at the Site contain adequate ventilation systems to relieve any possible landfill gas accumulation to prevent methane concentration reaching the levels within its explosive range. Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the Site, especially enclosed structures which at times are occupied by people.

**Compliance**

(2) The Site shall be operated in such a way as to ensure compliance with the following:

(a) Reasonable Use Guideline B-7 for the protection of the groundwater at the Site; and

(b) Provincial Water Quality Objectives included in the July 1994 publication entitled Water Management Policies, Guidelines, Provincial Water Quality Objectives, as amended from time to time or limits set by the Regional Director, for the protection of the surface water at and off the Site.

**Surface Water and Ground Water**

(3) The Owner shall monitor surface water and ground water in accordance with appendix H of the Updated Design and Operations Report, November 2015, item 22 in Schedule "A".

(4) In addition to Condition (3), the Owner shall:

- Monitor monitoring well nest MW27 and MW28 on a quarterly basis for the following two calendar years from the date of issue of this Approval.
- Include spring and fall sampling for volatile organic compounds at wells WP1-10, WP2-10, WP3-10, and WP4-10.

(5) A certified Professional Geoscientist or Engineer possessing appropriate hydrogeologic training and experience shall oversee the execution of the groundwater monitoring and

reporting program.

**Groundwater Wells and Monitors**

(6) The Owner shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.

(7) Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and the wells shall be properly re-secured.

(8) Any groundwater monitoring well included in the on-going monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the Owner, as required.

(a) The Owner shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.

(b) All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the Director for abandonment, shall be decommissioned by the Owner, as required, in accordance with O.Reg. 903, that will prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the Annual Report for the period during which the well was decommissioned.

**Changes to the Monitoring Plan**

(9) The Site monitoring programs may be amended with approval from the Director.

**Trigger Mechanisms and Contingency Plans**

(10) (a) The Site surface water trigger mechanism is established as follows:

- two consecutive exceedances of one or more of the trigger parameter concentrations; with the exceedance confirmed by a third sample within thirty (30 ) days of exceedance.
- the triggers are applied to the surface water stations located 30 m from the toe of the landfill, at transect lines WP4, SW13, and SW15.

(b) The Owner shall initiate the following steps upon confirmation of an exceedance as follows:

- notification of the District Manager within thirty (30) working days of receipt of confirmation of results;

- initiation of an assessment of potential sources of the exceedance;
- the assessment shall include an evaluation of biological impacts (including vegetation and toxicity surveys);
- provision of a written assessment of the results, to the District Manager within one (1) calendar year of the date of receipt of confirmation of the exceedance, and included in the Annual Site Monitoring Report for the year in which the exceedance was confirmed.

(c) If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:

i. The *Owner* shall notify the *Director* and *District Manager* , in writing, of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;

ii. Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *Director* and *District Manager* for approval within 90 days after confirmation of the exceedances; and

iii.. The contingency measures shall be implemented by the *Owner* upon approval by the *Director* .

(d) The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to surface water or groundwater, shall be approved in advance by the *Director* prior to implementation

(e) The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, are approved in advance by the *Director* via an amendment to this *Approval* .

## 9. CLOSURE PLAN

(1) At least three (3) years prior to the anticipated date of closure of this Site, the Owner shall submit to the Director for approval, with copies to the District Manager, a detailed Site closure plan pertaining to the termination of landfilling operations at this Site, post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:

(a) a plan showing Site appearance after closure;

(b) a description of the proposed end use of the Site;

(c) a description of the procedures for closure of the Site, including:
  (i) advance notification of the public of the landfill closure;
  (ii) posting of a sign at the Site entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements for a period of one year after closure;
  (iii) completion, inspection and maintenance of the final cover and landscaping;
  (iv) Site security;
  (v) removal of unnecessary landfill-related structures, buildings and facilities;
  (vi) final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas; and
  (vii) a schedule indicating the time-period for implementing sub-conditions (i) to (vi) above;

(d) descriptions of the procedures for post-closure care of the Site, including:
  (i) operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
  (ii) record keeping and reporting; and
  (iii) complaint contact and response procedures;

(e) an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas; and

(f) an updated estimate of the Contaminating Life Span of the Site, based on the results of the monitoring programs to date.

(2) The Site shall be closed in accordance with the closure plan as approved by the Director.

## 10. LEAF AND YARD WASTE COMPOSTING

(1) The Owner shall ensure that the Leaf and Yard Waste Compost facility accepts:
  (a) not more than 250 tonnes of Leaf and Yard Waste in any given day; and
  (b) not more than 2000 tonnes of Leaf and Yard Waste annually.

(2) The Owner shall ensure that composting and curing are conducted in accordance with Sections 31 to 33 of Regulation 101/94, Part V - Leaf and Yard Waste Composting Sites.

(3) Notwithstanding any of the provisions in Section 31 to 33 of Part V of the Regulation 101/94, the Owner shall operate subject to the following Conditions;

  (a) waste accepted for composting shall be limited to Leaf and Yard Waste and chipped wood.

  (b) all activities associated with the Leaf and Yard Waste composting operation shall take place on the designated pad constructed of wood chips;

(c) Leaf and Yard Waste segregated fine material may not be stored for more than four days before it is placed in windrows.

(d) Coarse Leaf and Yard Waste that is segregated for grinding shall be ground twice per year at a minimum.

(e) The maximum quantity of the segregated/stored Coarse Leaf and Yard Waste at any time at the Leaf and Yard composting facility shall not be greater than 1500 tonnes.

(f) On a trial basis, during the year 2016, 2017 and 2018, the temperature of each composting mass shall be measured and recorded weekly, at a minimum until the requirements in paragraphs 4 and 5 of Section 31 of Part V of the Regulation 101/94 have been satisfied. During the curing phase the temperature shall be measured and recorded weekly.

(g) The Owner shall prepare and submit a written summary providing results of the monitoring of the Leaf and Yard composting process and compliance with Conditions 10 (2) and (3) (f). The summary shall be provided with the annual monitoring report for 2018, and shall include at a minimum, the sampling analysis of the Compost and document recommendations for continuation or amendment of Conditions 10 (2) and (3).

(h) The Owner shall maintain, at the Leaf and Yard Waste Compost facility for a minimum of two (2) years, a log book or electronic file format which records daily the following information:

- date of record;
- quantities and source of Leaf and Yard Waste received;
- the amount of Compost and/or rejected Compost shipped from the Site;
- a record of daily inspections including the following information as a minimum;
  - (i) time and date of inspection;
  - (ii) name and title of inspector;
  - (iii) potential impacts noted;
  - (iv) remedial actions taken; and
  - (v) measures to prevent the problem from recurring;
- windrow temperature readings;
- composting activities undertaken (e.g. windrow formation, turning, screening etc);
- meteorological information including ambient temperature, wind direction and wind speed; and
- with respect to the Compost sampling required by Condition 10 (2) and (3) (f), the Owner shall maintain the following records as a minimum:
  - (i) sample collection locations and volume of the samples collected;
  - (ii) day and time of collection;
  - (iii) sample handling procedures;
  - (iv) parameters tested for and the resulting concentrations;
  - (v) name of the laboratory facility doing the testing; and
  - (vi) conclusions drawn with respect to the results of the monitoring and testing.

(4) By May 31st of each year, the Owner shall include the following information as a minimum in the Annual Report required under the Condition 6 (5):

(a) a monthly summary of the quantity of Leaf and Yard Waste received;

(b) a monthly summary of Compost transferred and the amount and destination of any rejected Compost;

(c) analytical results of samples taken from the Compost;

(d) a description of any environmental or operational problems, that could negatively impact the environment, encountered during the operation of the Leaf and Yard Waste Compost facility and the mitigative actions taken;

(e) a statement as to compliance with all Conditions of this Approval and with the inspection and reporting requirements of the Conditions herein; and

(f) any recommendations to minimize environmental impacts from, or improve the operations of, the Leaf and Yard Waste Compost facility.

## 11. HOUSEHOLD HAZARDOUS WASTE

(1) (a) The HHW Depot shall operate in accordance with Item 10 of Schedule "A". Administrative amendments to Item 12 of Schedule "A" (i.e. HHW Depot Operations Manual) shall be submitted to the District Office for approval;

(b) The operation of the HHW Depot is limited to the receipt and transfer of household hazardous waste consisting of classes 112, 113, 114, 122, 123, 135, 145, 146, 147, 148, 212, 213, 221, 232, 241, 242, 252, 261, 263, 269, 312 and 331 as defined in the "New Ontario Waste Classes" dated January 1986 or as amended; and

(c) The HHW Depot shall not receive any pathological waste (class 312) other than syringes, lancets and needles.

(2) (a) The total amount of liquid waste stored at the HHW Depot, at any one time, shall not exceed 7,000 litres (7 cubic metres) or equivalent;

(b) The total amount of solid waste stored at the HHW Depot, at any one time, shall not exceed 40 tonnes;

(c) No HHW waste shall be stored at the Depot for a period longer than three (3) months without written approval of the District Manager.

(3) The Depot may receive HHW only during hours of operation of the Site unless prior approval is given in writing, by the District Manager.

(4) The Depot shall be maintained in a secure manner such that unauthorized persons cannot enter the HHW building nor access the storage areas outside.

(5) No radioactive wastes shall be accepted at the Depot.

(6) No PCBs (243) shall be accepted at the Depot. Oil and oil based paints which have been

manufactured prior to 1972, or whose manufacturing date cannot be determined, may contain PCBs, shall be handled in the following manner:

(a) Oil and oil based paints shall not be mixed or bulked with other paints prior to testing. Paints which are lab-packed are not considered to be mixed under this Approval.

(b) Oil and oil-based paints shall be tested by a certified laboratory for PCB content and shall be handled in the manner as prescribed in this Approval.

(c) If the oil and oil-based paints are found to have PCBs at 50 parts per million or above, it shall be forthwith reported to the District Manager and shall be managed in accordance with Regulation 362/92 and stored or removed from the Depot to an approved PCB storage facility in accordance with written instructions from the District Manager.

(d) Oil and oil-based paints shall not be distributed for reuse if any measurable PCBs are found after being tested by a certified laboratory for PCBs.

(7) Except for oil and oil-based paints having any measurable PCB content, paints collected at the Depot may be returned or sold to the general public for reuse provided all transactions are recorded by invoice. Information on the type and volume of paint returned to the public through this Depot shall be recorded in a log book kept at the Depot.

(8) The Log Book shall record, on each day of operation:

(a) date of record;

(b) types, quantities and source of waste received;

(c) quantities of waste stored at the Depot;

(d) quantities and destination of waste shipped from the Depot;

(e) quantities of paints returned or sold to the general public;

(f) results of routine, visual inspection of the Depot; and

(g) any reporting of spills or upsets and actions taken to contain and manage the waste.

(9) Sufficient numbers of drums and lab-packed containers shall be available at the Depot such that all HHW, in quantities unanticipated or otherwise, can be safely stored.

(10) The Owner shall conduct routine, visual inspection of the entire Depot area to ensure its security and to minimize off-site impacts such as odour, dust, litter and other nuisance factors.

(11) Emergency response in the event of a spill or upset shall be undertaken in accordance with the "Spill Contingency and Emergency Response Plan" prepared by the City of Kawartha Lakes, as contained in Item 5 of Schedule "A".

(12) A copy of the "Spill Contingency and Emergency Response Plan" shall be kept at the Depot at all times and made easily available to all staff.

(13) The Owner shall ensure that all contingency equipment and materials as outlined in Item 5 of Schedule "A" are immediately available at the Depot at all times, in a good state of repair and fully operational.

(14) All operators of the Depot shall be trained with respect to the following areas:
- (a) terms, conditions and operating requirements of this Approval as related to the operation of the Depot;
- (b) operation and management of the Depot;
- (c) responsibilities of Depot personnel;
- (d) personnel training protocols;
- (e) environmental concerns pertaining to wastes to be handled, mixed, transferred;
- (f) receiving and recording procedures including procedures to record wastes which are refused at the Depot;
- (g) waste paint identification, analysis information and separating procedures;
- (h) storage, handling, sorting and shipping procedures;
- (i) occupational health and safety concerns pertaining to the wastes;
- (j) relevant waste management legislation and regulations;
- (k) use, operation of contingency equipment and related materials; and
- (l) emergency procedures.

(15) Within four (4) months of the scheduled closure of the Depot, the Owner shall submit a detailed Closure Plan for approval by the Director. The Closure Plan shall include, as a minimum, description of the work required to close the Depot, schedule of works and decommissioning of the HHW area.

## 12. REUSE CENTRE

(1) The Owner may operate a "Reuse Centre" located adjacent to the HHW Depot for the handling, temporary storage of reusable items.

(2) The Owner shall ensure that the "Reuse Centre" is only open during regular Site hours and that the facility is securely locked during other times.

(3) Any solid, non-hazardous residual wastes arising from the operation of the Reuse Centre shall be disposed of at the Site as part of regular and normal operations.

## 13. WASTE DIVERSION

(1) The Owner shall ensure that:
- (a) all bins and waste storage areas are clearly labelled;
- (b) all lids or doors on bins shall be kept closed during non-operating hours and during high wind events; and
- (c) if necessary to prevent litter, waste storage areas shall be covered during high winds events.

(2) The Owner shall transfer waste and recyclable materials from the Site as follows:

(a) recyclable materials shall be transferred off-site once their storage bins are full;

(b) scrap metal shall be transferred off-site at least twice a year;

(c) tires shall be transferred off-site as soon as a load for the contractor hired by the Owner has accumulated or as soon as the accumulated volume exceeds the storage capacity of its storage container; and

(d) immediately, in the event that waste is creating an odour or vector problem.

(3) Collection, storage and transfer of Waste Electrical and Electronic Equipment shall be in accordance with the documents in the Schedule "A".

## SCHEDULE "A"

1. Hydrogeology Study, Phase 3, Fenelon Landfill, Fenelon TP, Victoria County, prepared by Middle Earth Hydrogeology Inc., dated 31 March 2000.
2. Fenelon Landfill Site-Design and Operations Report, prepared by Gartner Lee Limited, dated March 2000.
3. Fenelon Landfill, Natural Environment Assessment, prepared by D.G. Cunningham & Associates and Michael Michalski Associates, dated April 2000.
4. Design and Operations Report For the Establishment of Permanent Household Hazardous Waste (HHW) Depot at the Fenelon Landfill Site, prepared by the County of Victoria, dated November 2000.
5. City of Kawartha Lakes, Household Hazardous Waste Depot, Spill Contingency and Emergency Response Plan, prepared by the City of Kawartha Lakes, undated.
6. Landfill Safety and Emergency Response Procedures, prepared by the City of Kawartha Lakes, dated February 2002.
7. Letter dated February 22, 2001 from the City to MOE regarding responses to questions posed in letter from MOE to the City dated January 23, 2001, complete with Figures 1, 2 and 3, and Attachments A to F inclusive.
8. The application dated May 15, 1996, and the supporting information as provided in the document entitled "The Use of Paper Fibre Product as Daily, Interim and Final Cover at Municipal Solid Waste Landfill Sites" prepared by Transportation and Public Works Department dated February 1996.
9. The letter dated May 15, 1996 to Mr. Wilfrid Ng, MOE, from P. Jeffrey Seaton, County Engineer, The Corporation of the County of Victoria outlining the operational considerations for the use of "paper fibre product" as daily and interim cover.
10. Letter dated August 22, 2005 from Bill Pickard, Manager of Solid Waste Services, City of Kawartha Lakes, to Chris Johnston, MOE, with information regarding the continued operations plan.
11. Letter dated September 19, 2007 from Bill Pickard, Manager of Solid Waste Services, City of Kawartha Lakes, with further information on vehicle counts and dealing with leachate seeps.
12. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated January 16, 2009 and signed by Andrew Boyd, Supervisor, Solid Waste Services including the City of Kawartha Lakes Household Hazardous Waste Depot Operations Manual dated January 2009.
13. E-mail dated August 21, 2009 (4:08 PM) from Heather Van Bruinessen, Regulatory Compliance Officer to B. Wilkinson, MOE re: storage of batteries (on shelving unit with roof) & oil bins (double-lined walls).
14. Application for a Provisional Certificate of Approval for a Waste Disposal Site, signed by Bill Packard, Manager of Solid Waste Services, dated February 1, 2008.
15. Design and Operations Report, Compost Facility at Fenelon Landfill, City of Kawartha Lakes, prepared by Totten Sims Hubicki Associates, dated December 2007.
16. Letter from R. Perdue, City of Kawartha Lakes, to MOE Environmental Assessment and Approvals Branch, dated July 17, 2008 re: additional information on the source separated organics compost pilot project.

17. Application for an Environmental Compliance Approval dated December 7, 2011 including supporting documentation attached to the application for the contaminant attenuation zone and a revision to the record retention condition.
18. Application for an Environmental Compliance Approval dated December 7, 2011 including supporting documentation attached to the application requesting the increasing of storage times for the composting operation.
19. Letter report dated November 12, 2012 from Amy Burke, Golder Associates to Ranjani Munasinghe, Ministry of the Environment in response to Ministry's letter dated September 12, 2012.
20. Report titled "Annual Status Report (2011) - Fenelon Waste Disposal Site" dated July, 2012 prepared by Golder Associates.
21. Application for an Environmental Compliance Approval, signed by David Kerr, dated 2013/10/15
22. Updated Design and Operation Report, Fenelon Landfill Site (rev. B)., by Golder Associates, dated November, 2015

*The reasons for the imposition of these terms and conditions are as follows:*

**GENERAL**

1. The reason for Conditions 1(1), (2), (4), (5), (6), (7), (8), (9), (10), (18), (19) and (20) is to clarify the legal rights and responsibilities of the Owner and Operator under this Approval.

2. The reasons for Condition 1(3) are to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

3. The reasons for Condition 1(11) are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

4. The reasons for Condition 1(12) are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Approval.

5. The reason for Condition 1(13) is to ensure that the successor is aware of its legal responsibilities.

6. Conditions 1 (14), (15) and (16) are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been approved and used for the purposes of waste disposal.

7. The reason for Condition 1(17) is to ensure that appropriate Ministry staff has ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Approval. This Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the Act, the OWRA, the PA, the NMA and the SDWA.

8. Condition 1 (21) has been included in order to clarify what information may be subject to the Freedom of Information Act.

**SITE OPERATION**

9. The reasons for Conditions 2(1), 2(5) and 6(3) are to ensure that the Site is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.

10. The reason for Conditions 2 (2), 2(3) and 2(4) is to ensure that users of the Site are fully aware of

important information and restrictions related to Site operations and access under this Approval.

11. The reasons for Condition 2(6) (a) and (b) are open burning of municipal waste is unacceptable because of concerns with air emissions, smoke and other nuisance effects, and the potential fire hazard and to make sure burning of brush and wood are carried out in accordance with Ministry guidelines.

12. The reasons for Condition 2(7), 2(8) and 2(9) are to specify the hours of operation for the landfill site and a mechanism for amendment of the hours of operation, as required.

13. The reasons for Condition 2(10) and 2(11) are to ensure that the Site is supervised by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.

14. The reason for Conditions 2(12) to 2(16) inclusive is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and protection of the natural environment.

## EMPLOYEE TRAINING

15. The reason for Condition 3(1) is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

## COMPLAINTS RESPONSE PROCEDURE

16. The reason for Condition 4(1) is to ensure that any complaints regarding landfill operations at this Site are responded to in a timely and efficient manner.

## EMERGENCY RESPONSE

17. Conditions 5(1) and 5(2) are included to ensure that emergency situations are reported to the Ministry to ensure public health and safety and environmental protection.

18. Conditions 5(3) and 5(4) are included to ensure that emergency situations are handled in a manner to minimize the likelihood of an adverse effect and to ensure public health and safety and environmental protection.

## RECORD KEEPING AND REPORTING

19. The reason for Conditions 6(1) and 6(2) is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this Approval (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations.

20. The reason for Condition 6(4) is to ensure that detailed records of Site inspections are recorded and maintained for inspection and information purposes.

21. The reasons for Conditions 6(5) and 6(6) are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

## LANDFILL DESIGN AND DEVELOPMENT

22. The reason for Conditions 7(1) to 7(3) and 7(10) is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.

23. The reason for Conditions 7(4) to 7(6) is to approve landfilling in Phase 2, and to ensure measures are in place to protect the adjacent wetland.

24. The reason for Conditions 7(7) to 7(9) is to clarify the approved capacity for the Site, and ensure landfilling takes place within the approved fill area.

25. Condition 7(13) is to provide the Owner the process for getting the approval for alternative daily and intermediate cover material.

26. The reasons for Condition 7(11) are to ensure that daily and intermediate cover are used to control potential nuisance effects, to facilitate vehicle access on the Site, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the Site.

27. The reason for conditions 7 (14) to 7(19) is to state the alternative cover materials approved for this Site.

28. The reason for Condition 7(20) is to ensure minimum waste compaction is achieved as per industry standards.

## LANDFILL MONITORING

29. Reasons for Condition 8(1) are to ensure that off-site migration of landfill gas is monitored and all buildings at the Site are free of any landfill gas accumulation, which due to a methane gas component may be explosive and thus create a danger to any persons at the Site.

30. Condition 8(2) is included to provide the groundwater and surface water limits to prevent water

pollution at the Site.

31. Conditions 8(3) and 8(4) are included to require the Owner to demonstrate that the Site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

32. Conditions 8(5), 8(6), 8(7) and 8(8) are included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected.

33. Conditions 8(8) to 8(10) inclusive are added to ensure the Owner has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination at the Site's compliance point.

34. Condition 8(9) is included to streamline the approval of the changes to the monitoring plan.

**CLOSURE PLAN**

35. The reasons for Condition 9 are to ensure that final closure of the Site is completed in an aesthetically pleasing manner, in accordance with Ministry standards, and to ensure the long-term protection of the health and safety of the public and the environment.

**COMPOSTING**

36. Condition 10(1), 10(2) and 10(3) have been included to ensure that the leaf and yard waste compost facility is built, maintained and operated in accordance with the application and supporting documentation and not in a manner in which the Director has not been asked to consider.

37. An additional reason for condition 10 (3) is to ensure the Owner use the compost in a manner that doesn't result in a negative environmental or health and safety impact to the environment or the public, and to allow for processing on a trial basis.

38. Condition 10 (4) is included to ensure that the Owner can demonstrate that the leaf and yard waste compost facility is operating according to this Approval.

39. The reasons for Condition 11 are to approve the establishment and operation of a household hazardous waste collection depot and to ensure that the wastes are managed in a manner that protects the environment and the health and safety of the public.

40. The reason for Condition 12 is to ensure Reuse centre is built, maintained and operated in a manner as to minimize a likelihood of an adverse effect or a hazard to the natural environment or any person.

## WASTE DIVERSION

41. Condition 13 is included to ensure that the recyclable materials are stored in their temporary storage locations in a manner as to minimize a likelihood of an adverse effect or a hazard to the natural environment or any person.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A321206 issued on December 14, 2012**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment and
Climate Change
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*

DATED AT TORONTO this 20th day of January, 2016

THIS APPROVAL WAS MAILED
ON Feb. 2, 2016
PC
(Signed)

Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of the
*Environmental Protection Act*

LM/
c: District Manager, MOECC Peterborough
Frank Barone, Golder Associates Ltd.

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

**AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL**
NUMBER A321206
Notice No. 1
Issue Date: January 11, 2019

The Corporation of the City of Kawartha Lakes
12 Peel St
Post Office Box, No. 9000
Lindsay, Ontario
K9V 5R8

Site Location: Fenelon Landfill Site
341 Mark Rd Lot 16, Concession 4, former Township of Fenelon
Kawartha Lakes City,

*You are hereby notified that I have amended Approval No. A321206 issued on January 20, 2016 for* the use and operation of 21.3 hectare waste disposal/transfer/composting and reuse site, and 102.6 hectares of contaminant attenuation zone , *as follows:*

**Condition 7(17) is hereby revoked and replaced with the following:**

**7. LANDFILL DESIGN AND DEVELOPMENT**

**Approved Daily Cover and Alternative Daily Cover Materials**

(17) The Owner is hereby permitted to use steel plates as alternative daily cover at the Site.

The reason for this amendment to the Approval is as follows:

*The reason for amending Condition 7(17) is to allow the Owner to use steel plates as an alternative daily cover at the waste site.*

**This Notice shall constitute part of the approval issued under Approval No. A321206 dated January 20, 2016**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall*

*state:*

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*

DATED AT TORONTO this 11th day of January, 2019

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the
*Environmental Protection Act*

CF/
c: District Manager, MECP Peterborough
David Kerr, The Corporation of the City of Kawartha Lakes

Ontario

**Ministry of the Environment and Climate Change**
**Ministère de l'Environnement et de l'Action en matière de changement climatique**

# Solid Non-Hazardous Waste Disposal Site Inspection Report

| | | | |
|---|---|---|---|
| **Client:** | The Corporation of the City of Kawartha Lakes<br>Mailing Address: 12 Peel St, Post Office Box, 9000, Lindsay, Ontario, Canada, K9V 5R8<br>Physical Address: 12 Peel St Lindsay, Kawartha Lakes, City, Ontario, Canada, K9V 5R8<br>Telephone: (705)324-9411, Extension: 1151, email: rmacpherson@kawarthalakes.ca<br>Client #: 4353-78NJW9, Client Type: Municipal Government, NAICS: 913910<br>Additional Address Info: Lindsay | | |
| **Inspection Site Address:** | Fenelon Landfill Site<br>Address: 341 Mark Rd Lot 16 Concession 4 former Township of Fenelon, Kawartha Lakes, City<br>District Office: Peterborough<br>GeoReference: Map Datum: NAD83, Zone: 17, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: GIS Software, UTM Easting: 674066, UTM Northing: 4927117, ,<br>LIO GeoReference: Zone: 17, UTM Easting: 673824.0, UTM Northing: 4926928.5, Latitude: 44.474754, Longitude: -78.81442<br>Site #: 8466-4GTKTF | | |
| **Contact Name:** | Shayne Hartin | **Title:** | Operations Supervisor |
| **Contact Telephone:** | (705)324-9411 **ext**1133 | **Contact Fax:** | |
| **Last Inspection Date:** | 2011/10/28 | | |
| **Inspection Start Date:** | 2018/06/21 | **Inspection Finish Date:** | 2018/06/21 |
| **Region:** | Eastern | | |

## 1.0 INTRODUCTION

The City of Kawartha Lakes operates a solid non-hazardous waste landfill site at 341 Mark Road, in the former Township of Fenelon. The site is known as the Fenelon Landfill Site.

The landfill accepts solid, non-hazardous wastes from a service area consisting of the City of Kawartha Lakes. Amended Environmental Compliance Approval (ECA) No. A321206, dated January 20, 2016, allows for the use and operation of a 21.3 hectare site including a waste disposal area, a Household Hazardous Waste (HHW) depot, a collection and transfer facility for waste electronics and electrical equipment, a Reuse Centre and an outdoor leaf and yard waste composting facility. The site also accepts agricultural bale wrap, scrap metal, and used tires.

The Fenelon Landfill Site is open to the public on:
Monday 9 am - 5 pm
Wednesday 9 am - 5 pm
Saturday 9 am - 5 pm

On the day of the inspection, an interview was conducted with Shayne Hartin, Operations Supervisor, David Kerr, Manager of Environmental Services, and Kerri Snoddy, Waste Technician, of the City of Kawartha Lakes. The inspection was conducted by Provincial Officer Glenn Rutherford and Environmental Assistant Jami Cernele. The inspection was undertaken to determine compliance with the Environmental Protection Act (EPA), Regulation 347 (O. Reg. 347), Amended ECA #A321206 issued January 20, 2016, and other relevant ministry legislation, policies and guidelines. At the time of the inspection, the landfill was closed to the public. On the day of the inspection, the weather was sunny and warm.

INSPECTION NOTE: Changes to the EPA effective October 2011 have resulted in Certificates of Approval (CofA) now being referred to as Environmental Compliance Approvals (ECA). The electronic template for this inspection report form has not been updated to reflect this change, however, the text entered in the report reflects this change in terminology.

## 2.0 INSPECTION OBSERVATIONS

**Certificate of Approval Number(s):**
Amended ECA #A321206, dated January 20, 2016.

### 2.1 FINANCIAL ASSURANCE:

**Specifics:**
Financial assurance is not required for this municipally owned waste disposal site.

### 2.2 APPROVED AREA OF THE SITE:

**Specifics:**
The site has an approved total area of 21.3 hectares. The approved landfill footprint is comprised of Phase 1 and Phase 2, with areas of 6.1 hectares and 1.9 hectares, respectively. The approval also allows for a 102.6 hectare Contaminant Attenuation Zone (CAZ) south and east of the waste fill area and within the wetland in close proximity to the landfill.

At the time of the inspection, waste was being disposed of within the approved Phase 2 waste fill area, and the waste footprint was identifiable.

### 2.3 APPROVED CAPACITY:

**Specifics:**
Condition 7(8) and (9) of ECA #A321206 states that:

*(8) Final contours shall not exceed 274.5 metres above sea level at any point on the approved landfill area and includes allowances for final cover.*

*(9) The total approved remaining capacity inclusive of daily and intermediate cover, but exclusive of final cover for this Site as of October 28, 2003 is 276,000 cubic metres.*

At the start of 2017, landfilling commenced in Phase 2 of the waste disposal area after Phase 1 reached capacity at the end of 2016. Final cover has been applied to Phase 1 and a pollinator seed mix has been used to re-vegetate the capped area.

At the time of the inspection, it was indicated that Phase 2 has an estimated remaining capacity of seven (7) years.

### 2.4 ACCESS CONTROL:

**Specifics:**
Condition 2(11) of the ECA#A321206 states:

*(11). The Site shall be operated and maintained in a safe and secure manner. During non-operating hours, the Site entrance and exit gates shall be locked and the Site shall be secured against access by unauthorized persons.*

Access to the site is controlled. The site is fenced and gated, with required signage. An attendant is present to receive waste whenever the landfill is open.

### 2.5 COVER MATERIAL:

**Specifics:**
Condition 7(11)(a) states that daily cover material should be applied as follows:

*Daily Cover - Weather permitting, deposited waste shall be covered with 15 centimetres of clean soil or approved alternative daily cover on each operating day in a manner acceptable to the District Manager so that no waste is*

*exposed to the atmosphere.*

On the day of the inspection, metal plates were in place as daily cover, along with some soil. ECA #A321206 approves the use of clean soil or approved daily cover. A stockpile of soil and wood chips for use as cover is maintained at the site. A number of the materials are approved as daily cover.

ECA #A321206 had approved the use of steel plates for a pilot project. The pilot expired on January 20, 2018, with the stipulation that an amendment to the ECA would be required to continue the use of metal plates. See Section 5 below, for required actions.

Final cover appeared to be adequate while some areas with interim cover needed additional cover due to the effects of rainfall.

At the time of the inspection overall adequate cover was evident in the active area of the landfill, however, a significant number of gulls were attracted to the tipping face where the metal plates were in place as daily cover.

## 2.6 WASTE BURNING:

**Specifics:**
The burning of wastes at the Site is prohibited by Condition 2(6) of ECA #A321206, with the exception of controlled burning of brush and other clean wood wastes as may be necessary from time to time, at the discretion of the Operations Manager, and in accordance with the ministry Guideline C-7.

At the time of the inspection, there was no evidence of waste burning at the site. City of Kawartha Lakes staff noted that waste burning is not an operational practice at the site.

## 2.7 GROUNDWATER/SURFACEWATER IMPACT:

**Specifics:**
During the time of the inspection, there was no leachate springs or seeps observed.

According to the ministry Technical Support groundwater review, dated June 13, 2014, the site is in compliance with the B-7 Reasonable Use Guideline (RUG) along its licensed property boundary with the inclusion of the acquired 23.8 hectares southeast of the landfill to act as a CAZ. The City of Kawartha Lakes have now acquired a total of 102.6 hectares of CAZ land to ensure they continue to meet this ministry guideline.

A response to questions in the surface water review was prepared by Golder Associates on behalf of the City of Kawartha Lakes. According to the Technical Support surface water review, dated October 17, 2016, there are no exceedances of the Martin Creek Wetland trigger concentrations, and no significant leachate impacts on the wetland.

## 2.8 LEACHATE CONTROL SYSTEM:

**Specifics:**
There is no leachate control system at the site. The site has been approved and is currently operated as a natural attenuation facility, with the attenuation of leachate occurring in the CAZ to the south and east of the waste fill area, and within the wetland in close proximity to the landfill. ECA #A321206 allows for 102.6 hectares of CAZ for this purpose.

## 2.9 METHANE GAS CONTROL SYSTEM:

**Specifics:**
Condition 8(1) of ECA #A321206

*(1) The Owner shall ensure that any buildings or structures at the Site contain adequate ventilation systems to relieve any possible landfill gas accumulation to prevent methane concentration reaching the levels within its explosive range. Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the Site, especially enclosed structures which at times are occupied by people.*

The facility is not equipped with a landfill gas collection system. Permanent methane monitors were installed in the on-site buildings as of March 2016 and City of Kawartha Lakes staff indicated that the monitors are currently operating.

According to the 2017 Annual Status Report, prepared by Golder Associates, dated May 25, 2018, the potential for lateral migration of landfill gas outside of the footprint to nearby residences are considered negligible.

### 2.10 OTHER WASTES:

**Specifics:**
The site also operates as a Household Hazardous Waste (HHW) Depot (Waste Generator No. ON0293706). The site also collects for diversion electronics and electrical equipment, leaf and yard waste, tires, scrap metal, white goods, blue box materials and bale wrap. The site also operates a Reuse Centre.

## 3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

The inspection on November 5, 2014, resulted in the following action items:

1. By April 15, 2015, provide written confirmation to the undersigned Provincial Officer that in order to ensure the efficient use of approved landfill space, that industry standards and the recommendations of your consultant (Golder) will be followed when compacting and constructing fill lifts at the site.

2. By April 15, 2015, submit written confirmation to the undersigned Provincial Officer confirming that VOC monitoring was completed at WP1, WP2, WP3 and WP4 in the fall of 2014 and will be completed again in the spring of 2015 as requested by the ministry's technical support staff.

3. By April 15, 2015, submit written confirmation to the undersigned Provincial Officer confirming that chloroethane, dichloromethane and methylchoride have been added to the VOC parameter analysis list.

4. By April 15, 2015, submit to the undersigned Provincial Officer, details regarding the status of (i.e. proposed installation date) the additional monitoring wells requested by Frank Crossley in his technical memorandum dated June 13, 2014.

5. By May 31, 2015, prepare and submit along with the annual monitoring report, an action plan for monitoring landfill gas at the site in accordance with condition 8(1) of ECA #A321206 or as amended.

6. By April 15, 2015, submit written confirmation to the undersigned Provincial Officer that landfill inspections will be completed in accordance with Condition 6(3) and (4) of ECA #A321206 and that leachate seeps occurrences and locations will be recorded and reported in the AMR for that year.

According to the Incident Report (Ref No. 7717-9UNND3) action items #1-6 have been satisfied.

## 4.0 SUMMARY OF INSPECTION FINDINGS (HEALTH/ENVIRONMENTAL IMPACT)

**Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?**
No

**Specifics:**
None were observed at the time of the inspection.
**Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material ?**
No

**Specifics:**
None were observed at the time of the inspection.
**Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment ?**
Yes

**Specifics:**
Metal plates were in place as daily cover. ECA #321206 approved the use of steel plates for a pilot project, with an expiry date of January 20, 2018. An amendment to the ECA is required to continue the use of metal plates for daily cover.

**Was there any indication of a potential for environmental impairment during the inspection and/or the review**

**of relevant material ?**
No

**Specifics:**
None were observed at the time of the inspection.
**Was there any indication of minor administrative non-compliance?**
No

**Specifics:**
None were observed at the time of the inspection.

## 5.0 ACTION(S) REQUIRED

1. It was noted at the time of the inspection that the use of steel plates as alternative daily cover was no longer approved. Prior to completing this inspection report, City of Kawartha Lakes staff emailed the undersigned to confirm that the city will be applying to amend the ECA in the fall of 2018 (see Section 6, below) and will include a request to permanently include the use of steel plates as daily cover. Therefore, no further action will be required at this time.

## 6.0 OTHER INSPECTION FINDINGS

The facility is currently in the process of applying for an amendment to ECA#A321206 to transition part of the facility into a transfer station once the site has reached capacity. A teleconference with ministry staff, the City of Kawartha Lakes and their consultant WSP was held on June 19, 2018 to initiate this process.

## 7.0 INCIDENT REPORT

Applicable
4452-B2HQ8K

## 8.0 ATTACHMENTS

**PREPARED BY:**
**Environmental Officer:**
**Name:** **Glenn M Rutherford**
**District Office:** **Peterborough District Office**
**Date:** **2018/07/31**
**Signature**

**REVIEWED BY:**
**District Supervisor:**
**Name:** **Courtney Redmond**
**District Office:** **Peterborough District Office**
**Date:** **2018/08/01**

**Signature:**

CBRedmond.

**File Storage Number:** KL FE C4 250
(341 MARK ROAD)

**Note:**
**"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"**

Ontario

**Ministry of the Environment, Conservation and Parks**
**Ministère de l'Environnement, de la Protection de la nature et des Parcs**

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**
NUMBER A321206
Issue Date: March 17, 2025

The Corporation of the City of Kawartha Lakes
322 Kent St W
Lindsay, Ontario
K9V 4T7

Site Location: Fenelon Landfill Site
341 Mark Rd Lot 16, Concession 4, former Township of Fenelon
Kawartha Lakes City,

*You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:*

the use and operation of 20.83 hectare waste disposal/transfer/composting and reuse site, and 104.6 hectares of contaminant attenuation zone for the following types of waste:

**solid non-hazardous waste** as defined in Reg. 347, generated within the boundaries of the City of Kawartha Lakes.

Note: Use of the Site for any other type of waste is not authorized under this Approval, and requires obtaining a separate amendment for this Approval.

*For the purpose of this environmental compliance approval, the following definitions apply:*

"Approval" means this Environmental Compliance Approval and any Schedules to it;

"Batteries" within the context of this Approval, mean discarded devices in which energy was stored as electricity or converted into electricity and was used as a source of power and include but not limited to Batteries as defined in O. Regulation 30/20;

"Clean Wood" means waste that is wood or a wood product that is not contaminated with chromated copper arsenate, ammoniacal copper arsenic pentachlorophenol, creosote or other wood preservative;

"Coarse Leaf and Yard Waste" means Leaf and Yard Waste that consists of tree stumps, limbs or other woody materials in excess of seven (7) centimetres in diameter;

"Compost" has the same meaning as set out in the Standards Document. Within the context of this Approval, Compost means a Processed Organic Waste that is a stabilized humus that is a solid, mature material produced through Composting and that meets the Compost Quality Standards;

"Composting" has the same meaning as set out in the Standards Document. Within the context of this Approval, Composting means Active Composting and Curing resulting in production of Compost;

“Contaminating Life Span” means contaminating life span as defined in Ontario Regulation 232/98;

"Compost Quality Standards" means the Ministry's standards for compost as set out in the Standards Document;

"Depot" means the Household Hazardous Waste Depot, and includes any building, drop-off areas, storage areas and any other structures, areas and facilities associated with the handling, consolidation, storage, transfer and transport of HHW;

“Director” means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part II.1 of the EPA;

“District Manager” means the District Manager of the local district office of the Ministry in which the Site is geographically located;

"EEE" within the context of this Approval, means electrical and electronic equipment as defined in O. Regulation 522/20, the equipment subject to requirements of O. Regulation 522/20 and the equipment listed in O. Regulation 522/20 but exempted from the requirements of O. Regulation 522/20;

"EPA" means the *Environmental Protection Act,* R.S.O. 1990, c.E.19, as amended;

“HHW” means MHSW;

"HHW Depot" means that part of the Site where waste management activities pertaining to the bulking and temporary storage pending transfer of HHW takes place;

"Immature Compost" in the context of this Approval, means the Processed Organic Waste which has been processed, but not cured;

“Leaf and Yard Waste” means waste consisting of leaves, grass clippings, natural Christmas trees and other plant materials, generally less than seven (7) centimetres in diameter;

"MHSW" within the context of this Approval, means waste that is limited to the following materials:

a. Municipal Hazardous Waste and Municipal Special Waste as defined in O. Regulation

387/16; and

b. discarded materials derived/originating from Hazardous and Special Products as defined in O. Regulation 449/21;

"Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

“NMA” means the *Nutrient Management Act, 2002,* S.O. 2002, c. 4, as amended;

“O. Reg. 101/94” means Ontario Regulation 101: (Recycling and Composting of Municipal Waste), made under the EPA, as amended;

“O. Reg. 232/98” means Ontario Regulation 232/98: (Landfilling Sites), made under the EPA, as amended;

"O. Regulation 30/20" means Ontario Regulation 30/20: Batteries, made under the Resource Recovery and Circular Economy Act, as amended;

"O. Regulation 387/16" means Ontario Regulation 387/16: Municipal Hazardous or Special Waste, made under the Waste Diversion Transition Act, as amended;

"O. Regulation 389/16" means Ontario Regulation 389/16: Waste Electrical and Electronic Equipment, made under the Waste Diversion Transition Act, as amended;

"O. Regulation 391/21" means O. Reg. 391/21: Blue Box, made under the Resource Recovery and Circular Economy Act, as amended;

"O. Regulation 449/21" means Ontario Regulation 449/21: Hazardous and Special Products, made under the Resource Recovery and Circular Economy Act, as amended;

"O. Reg. 463/10" means Ontario Regulation 463/10 (Ozone Depleting Substances and Other Halocarbons), made under the EPA, as amended;

"O. Regulation 522/20" means Ontario Regulation 522/20: Electrical and Electronic Equipment, made under the Resource Recovery and Circular Economy Act, as amended;

“Ontario Drinking Water Quality Standards” means Ontario Regulation 169/03 (Ontario Drinking Water Quality Standards), made under the SDWA, as amended;

“Operator” means any person, other than the Owner's employees, authorized by the Owner as having the charge, management or control of any aspect of the Site and includes its successors or assigns;

“Owner” means any person that is responsible for the establishment or operation of the Site being approved by this Approval, and includes The Corporation of the City of Kawartha Lakes and its

successors and assigns;

"OWRA" means the *Ontario Water Resources Act,* R.S.O. 1990, c. O.40, as amended;

“PA” means the *Pesticides Act,* R.S.O. (1990), c. P.11, as amended;

“Provincial Officer” means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the OWRA, Section 5 of the EPA, Section 17 of the PA, Section 4 of the NMA, or Section 8 of the SDWA;

"PWQO" means the Provincial Water Quality Objectives, dated July 1994, as amended;

"Reasonable Use Guideline" means the Ministry Guideline B-7 entitled “Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities”, dated April 1994, as amended;

“Regional Director” means the Regional Director of the local Regional Office of the Ministry in which the Site is located;

“Reg. 347” means R.R.O. 1990, Reg. 347: (General - Waste Management), made under the EPA, as amended;

“Reg. 903” means R.R.O. 1990, Reg. 903: (Wells), made under the OWRA, as amended;

"Resource Recovery and Circular Economy Act" means the *Resource Recovery and Circular Economy Act,* 2016, S.O. 2016, c. 12, Sched. 1, as amended;

"Re-Use Centre" means the public drop-off platform/building protected from atmospheric precipitation and other elements, where public can drop off or pick up reusable goods;

“SDWA” means the *Safe Drinking Water Act, 2002* , S.O. 2002, c. 32, as amended;

"Schedules" means the following schedules attached to this Approval and forming part of this Approval namely:

- Schedule 1 - Supporting Documentation;
- Schedule 2 - Surface Water Monitoring Program; and
- Schedule 3 - Groundwater Monitoring Program;

"Site" means the entire waste disposal site including the landfilling area, buffer lands, Household Hazardous Waste Depot, Reuse Centre, Leaf and Yard Waste Compost facility authorized by this Approval located at 341 Mark Rd Lot 16, Concession 4, former Township of Fenelon, City of Kawartha Lakes; and

"Standards Document" means the Ministry's document entitled "Ontario Compost Quality Standards" dated July 25, 2012, as amended and including the following documents to provide operational guidance to accompany the "Ontario Compost Quality Standards":

a. Guidance for Generators of Category AA, A, and B Compost and the Ontario Compost Quality Standards – Maturity, Effective July 1st, 2015, as amended;

b. Guidance for Generators of Category AA, A, and B Compost and the Ontario Compost Quality Standards – Foreign Matter, Effective July 1st, 2015, as amended;

c. Guidance for Generators of Category AA, A, and B Compost and the Ontario Compost Quality Standards – Sharp Foreign Matter, Effective July 1st, 2015, as amended;

"Trained Personnel" means personnel knowledgeable in the following through instruction and/or practice:

- relevant waste management legislation, regulations and guidelines;
- major environmental concerns pertaining to the waste to be handled;
- occupational health and safety concerns pertaining to the processes and wastes to be handled;
- management procedures including the use and operation of equipment for the processes and wastes to be handled;
- emergency response procedures;
- specific written procedures for the control of nuisance conditions;
- specific written procedures for refusal of unacceptable waste loads; and
- the requirements of this Approval;

"Waste Diversion Transition Act" means the *Waste Diversion Transition Act,* 2016, S.O. 2016, c. 12, Sched. 2, as amended;

"WEEE" within the context of this Approval, means waste electrical and electronic equipment consisting of devices that required an electric current to operate. WEEE is limited to the following:

a. the devices listed in O. Regulation 389/16; and
b. discarded devices originating/derived from the EEE;

"White Goods Containing Refrigerants" means the White Goods which contain, or may contain refrigerants; and

"White Goods" means the white goods (appliances) with or without the refrigerants.

*You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:*

**TERMS AND CONDITIONS**

**1. GENERAL**

**Compliance**

1. The Owner and Operator shall ensure compliance with all the conditions of this Approval and shall ensure that any person authorized to carry out work on or operate any aspect of the Site is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

2. Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Approval.

**In Accordance**

3. Except as otherwise provided by this Approval, the Site shall be designed, developed, built, operated and maintained in accordance with the documentation listed in the attached Schedule 1.

4. Construction and installation of the aspects of the increase in waste disposal site capacity by about 39,385 cubic metres defined and approved in this Approval must be completed within 5 years of the later of:

   a. the date of this Approval; or

   b. if there is a hearing or other litigation in respect of the issuance of this Approval, the date that this hearing or litigation is disposed of, including all appeals.

5. This Approval ceases to apply in respect of the aspects of the increase in waste disposal site capacity by about 39,385 cubic metres defined and approved in this Approval that have not been constructed or installed before the later of the dates identified in condition 1.4 above.

**Interpretation**

6. Where there is a conflict between a provision of any document listed in Schedule 1 in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.

7. Where there is a conflict between the application and a provision in any document listed in Schedule 1, the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the Ministry approved the amendment.

8. Where there is a conflict between any two documents listed in Schedule 1, the document bearing the most recent date shall take precedence.

9. The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

**Other Legal Obligations**

10. The issuance of, and compliance with, this Approval does not:

    a. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or

    b. limit in any way the authority of the Ministry to require certain steps be taken or to require the Owner and Operator to furnish any further information related to compliance with this Approval.

**Adverse Effect**

11. The Owner and Operator shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the Site, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

12. Despite the Owner, Operator or any other person fulfilling any obligations imposed by this Approval, the person remains responsible for any contravention of any other condition of this Approval or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

**Change of Ownership**

13. The Owner shall notify the Director, in writing, and forward a copy of the notification to the District Manager, within 30 days of the occurrence of any changes in the following information:
    a. the ownership of the Site;
    b. the Operator of the Site;

c. the address of the Owner or Operator; and
d. the partners, where the Owner or Operator is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R. S. O. 1990, c. B.17, shall be included in the notification.

14. No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance and sufficient financial assurance is deposited with the Ministry to ensure that these conditions will be carried out.

15. In the event of any change in ownership of the Site, other than change to a successor municipality, the Owner shall notify the successor of and provide the successor with a copy of this Approval, and the Owner shall provide a copy of the notification to the District Manager and the Director.

**Registration on Title Requirement**

16. Prior to dealing with the property in any way, the Owner shall provide a copy of this Approval and any amendments, to any person who will acquire an interest in the property as a result of the dealing.

17. a. Within six (6) months from the date of issuance of this Approval, the Owner shall submit to the Director a completed Certificate of Requirement which shall include:
    i. a plan of survey prepared, signed and sealed by an Ontario Land Surveyor, which shows the area of the Site where waste has been or is to be deposited at the Site;
    ii. proof of ownership of the Site;
    iii. a letter signed by a member of the Law Society of Upper Canada or other qualified legal practitioner acceptable to the Director, verifying the legal description provided in the Certificate of Requirement;
    iv. the legal abstract of the property; and
    v. any supporting documents including a registerable description of the Site.

    b. Within fifteen (15) calendar days of receiving a Certificate of Requirement authorized by the Director, the Owner shall:
    i. register the Certificate of Requirement in the appropriate Land Registry Office on the title to the property; and
    ii. submit to the Director and the District Manager, written verification that the Certificate of Requirement has been registered on title.

**Registration on Title Requirement - Contaminant Attenuation Zone (CAZ)**

18. Within six (6) months from the date of establishing a contaminant attenuation zone (CAZ) (overburden and/or bedrock aquifers) in either fee simple or by way of a groundwater easement, the Owner shall submit to the Director a completed Certificate of

Requirement which shall include:

a. If rights are obtained in fee simple, the Owner shall provide:
   i. documentation evidencing ownership of the CAZ obtained in compliance with O.Reg. 232/98, as amended;
   ii. a completed Certificate of Requirement and supporting documents containing a registerable description of the CAZ; and
   iii. a letter signed by a member of the Law Society of Upper Canada; or other qualified legal practitioner acceptable to the Director, verifying the legal description of the CAZ.

b. within fifteen (15) calendar days of receiving a Certificate of Requirement signed or authorized by the Director,the Owner shall:
   i. Register the Certificate of Requirement in the appropriate Land Registry Office on the title to the property; and
   ii. submit to the Director and the District Manager, written verification that the Certificate of Requirement has been registered on title.

c. If rights are obtained by way of a groundwater easement, the Applicant shall:
   i. provide a copy of the easement;
   ii. provide a plan of survey signed and sealed by an Ontario Land Surveyor for the CAZ;
   iii. submit proof of registration on title of the groundwater easement to the Director;

d. The Owner shall not amend or remove or consent to the removal of the easement or CAZ from title without the prior written consent of the Director.

**Inspections by the Ministry**

19. No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the OWRA, the EPA, the PA, the SDWA or the NMA, of any place to which this Approval relates, and without limiting the foregoing:
    a. to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;
    b. to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;
    c. to inspect the Site, related equipment and appurtenances;
    d. to inspect the practices, procedures, or operations required by the conditions of this Approval; and
    e. to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA, the OWRA, the PA, the SDWA or the NMA.

**Information and Record Retention**

20. a. Except as authorized in writing by the Director, all records required by this Approval shall be retained at the Site for a minimum of two (2) years from their date of creation.

    b. The Owner shall retain all documentation listed in Schedule 1 for as long as this Approval is valid.

    c. All monthly summary reports of waste records collected are to be kept at the Site until they are included in the Annual Report.

    d. The Owner shall retain employee training records as long as the employee is working at the Site.

    e. The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

21. The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action under this Approval or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:
    a. an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any term or condition of this Approval or any statute, regulation or other legal requirement; or
    b. acceptance by the Ministry of the information's completeness or accuracy.

22. The Owner shall ensure that a copy of this Approval, in its entirety and including all its Notices of Amendment, and documentation listed in Schedule 1, are retained at the Owner's Waste Management Administrative Office at all times.

23. Any information related to this Approval and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

## 2. SITE OPERATION

**Operation**

1. The Site shall be operated and maintained at all times including management and disposal of all waste, in accordance with the EPA, Reg. 347, and the conditions of this Approval. At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

**Signs**

2. The Owner shall install and maintain a sign at the entrance to the Site. The sign shall be visible and readable from the main road leading to the Site. The following information shall be included on the sign:

    a. the name of the Site and Owner;
    b. the number of the Approval;
    c. the name of the Operator;
    d. the normal hours of operation;
    e. the allowable and prohibited waste types;
    f. the telephone number to which complaints may be directed;
    g. a warning against unauthorized access;
    h. a twenty-four (24) hour emergency telephone number (if different from above); and
    i. a warning against dumping outside the Site.

3. The Owner shall install and maintain signs to direct vehicles to working face, recycling, re-use and transfer area.

4. The Owner shall provide signs at recycling storage areas, HHW Depot and re-use centre informing users what materials are acceptable and directing users to appropriate storage areas.

**Vermin, Vectors, Dust, Litter, Odour, Noise and Traffic**

5. The Site shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

**Burning Waste Prohibited**

6. a. Burning of waste at the Site is prohibited.

    b. Notwithstanding condition 2.6.a above, burning of segregated, clean wood and brush at the landfill may be carried out in strict compliance with the Ministry of the Environment Document titled "Guideline C-7, Burning at Landfill Sites" dated April 1994.

**Site Access**

7. The operating hours for the Site for the receipt of waste for disposal , site preparation, site maintenance and daily cover activities are Monday through Saturday between the hours of 7:00 a.m. and 7:00 p.m.

8. On-site equipment used for daily site preparation and closing activities may be operated

one (1) hour before and one (1) hour after the hours of operation approved by this Approval.

9. With the prior written approval from the District Manager, the time periods may be extended to accommodate seasonal or unusual quantities of waste.

**Site Security**

10. No waste shall be received, landfilled or removed from the Site unless a site supervisor or an attendant is present and supervises the operations during operating hours. The Site shall be closed when a site attendant is not present to supervise landfilling operations.

11. The Site shall be operated and maintained in a safe and secure manner. During non-operating hours, the Site entrance and exit gates shall be locked and the Site shall be secured against access by unauthorized persons.

## 3. EMPLOYEE TRAINING

1. A training plan for all employees that operate any aspect of the Site shall be developed and implemented by the Owner or the Operator. Only Trained Personnel shall operate any aspect of the Site or carry out any activity required under this Approval.

## 4. COMPLAINTS RESPONSE PROCEDURE

1. If at any time the Owner receives complaints regarding the operation of the Site, the Owner shall respond to these complaints according to the following procedure:

    a. The Owner shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;
    b. The Owner, upon notification of the complaint, shall initiate appropriate steps to determine possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and
    c. The Owner shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

## 5. EMERGENCY RESPONSE

1. All Spills as defined in the EPA shall be immediately reported to the **Ministry's Spills Action Centre at 1-800-268-6060** and shall be recorded in the log book as to the nature of the emergency situation, and the action taken for clean-up, correction and prevention of future occurrences.

2. In addition, the Owner shall submit, to the District Manager a written report within one (1) week of the emergency situation, outlining the nature of the incident, remedial measures taken, handling of waste generated as a result of the emergency situation and the measures taken to prevent future occurrences at the Site.

3. All wastes resulting from an emergency situation shall be managed and disposed of in accordance with Reg. 347.

4. The Owner shall ensure that adequate fire extinguishers and contingency spill clean up material is available and that emergency response personnel are familiar with its use and location.

## 6. INSPECTIONS, RECORD KEEPING AND REPORTING

**Daily Log Book**

1. A daily log shall be maintained in written or electronic format and shall include the following information:
   a. the type, date and time of arrival, hauler, and quantity (tonnes) of all waste and cover material received at the Site;

   b. the area of the Site in which waste disposal operations are taking place;

   c. a record of litter collection activities and the application of any dust suppressants;

   d. a record of the daily inspections;

   e. a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service;

   f. A record shall be kept in the daily log book of all refusals of waste shipments, the reason(s) for refusal, and the origin of the waste, if known; and

   g. A daily inspection of the Site and all equipment on the site shall be conducted to ensure that: the Site is secure; that the operations of the Site is not causing any nuisances and that the Site is being operated in compliance with this Approval.

Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the Site if needed.

2. Any information requested by the Director or a Provincial Officer concerning the Site and its operation under this Approval, including but not limited to any records required to be kept by this Approval shall be provided to the Ministry, upon request.

**Inspections and Log Book**

3. a. A comprehensive Site inspection shall occur semi-annually. Inspections shall consider, at a minimum, leachate break-outs, condition of vegetation, erosion, condition of Site access roads, ditches, berms and swales, signs, evidence of nuisance factors such as litter and odours. The results of Site inspections shall be recorded as part of the Condition 6.4.

   b. Within ten (10) business days within noting a leachate outbreak during an inspection, the Owner shall notify the District Manager in writing, including the location of the outbreak on a map of the Site and remedial measures taken.

4. A record of the inspections shall be maintained and include:
   a. the name and signature of person that conducted the inspection;
   b. the date and time of the inspection;
   c. the list of any deficiencies discovered;
   d. the recommendations for remedial action; and
   e. the date, time and description of actions taken.

5. A record shall be kept in the daily log book of all refusals of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

**Annual Report**

6. A written report on the development, operation and monitoring of the Site, shall be completed annually (Annual Report). The Annual Report shall be submitted to the District Manager, by May 31st of the year following the period being reported upon.

7. The Annual Report shall include but not be limited to the following information:

   a. the results and an interpretive analysis of the results of all leachate, groundwater, surface water and landfill gas monitoring, including an assessment of the need to amend the monitoring programs;
   b. an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the Site, and the adequacy of and need to implement the contingency plans;
   c. site plans showing the existing contours of the Site; areas of landfilling operation during the reporting period; areas of intended operation during the next reporting

period; areas of excavation during the reporting period; the progress of final cover, vegetative cover, and any intermediate cover application; facilities existing, added or removed during the reporting period; and site preparations and facilities planned for installation during the next reporting period;

d. calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the Site during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;

e. a calculation of the remaining capacity of the Site and an estimate of the remaining Site life;

f. total annual quantity (tonnes) of waste received at the Site;

g. a summary of any complaints received and the responses made;

h. a discussion of any operational problems encountered at the Site and corrective action taken;

i. any changes to the Design and Operations Report and the Closure Plan that have been approved by the Director since the last Annual Report;

j. a report on the status of all monitoring wells requiring decommissioning or repair during the reporting period; and

k. any other information with respect to the Site which the Regional Director may require from time to time.

## 7. LANDFILL DESIGN AND DEVELOPMENT

### Approved Waste Types

1. a. Only municipal waste as defined under Reg. 347 being solid non-hazardous shall be accepted at the Site for landfilling; and

   b. Notwithstanding condition 7.1.a, the Owner may collect MHSW and WEEE for transfer subject to the conditions of this Approval.

2. The Owner shall develop and implement a program to inspect waste to ensure that the waste received at the Site is of a type approved for acceptance under this Approval.

3. The Owner shall ensure that all loads of waste are properly inspected by Trained personnel prior to acceptance at the Site and that the waste vehicles are directed to the appropriate areas for disposal or transfer of the waste. The Owner shall notify the District Manager, in writing, of load rejections at the Site within one (1) business day from their occurrence.

### Approval for Continued Use of Site

4. Approval is hereby granted for the continued use of the landfill site up to 39,385 m3 in accordance with items 24 and 25 of Schedule 1.

**Capacity**

5. Final waste contours shall not exceed 275.5 metres above sea level at any point on the approved landfill area and excludes allowances for the final cover.

6. The total approved remaining capacity inclusive of daily and intermediate cover, but exclusive of final cover for this Site as of October 28, 2003 is 315,385 cubic metres.

**Service Area**

7. Only waste that is generated within the boundaries of the City of Kawartha Lakes may be accepted at the Site.

**Cover**

8. Cover material shall be applied as follows:
   a. Daily Cover - Weather permitting, deposited waste shall be covered with 15 centimetres of clean soil or approved alternative daily cover on each operating day in a manner acceptable to the District Manager so that no waste is exposed to the atmosphere;
   b. Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 millimetre of soil cover or an approved thickness of alternative cover material shall be placed; and
   c. Final Cover - In areas where landfilling has been completed to final waste contours within twelve (12) months from reaching final waste contours, a minimum 600 millimetre thick layer of soil of medium permeability and 150 millimetres of top soil (vegetative cover) shall be placed. Fill areas shall be progressively completed and rehabilitated as landfill development reaches final contours.

9. The Owner shall ensure that final cover for Phase 1 is completed prior to start filling of the approved expansion.

**Approved Daily Cover and Alternative Daily Cover Materials**

10. Alternative materials to soil may be used as daily and interim cover material, based on an application with supporting information and applicable fee for a trial use or permanent use, submitted by the Owner to the Director, copied to the District Manager and as approved by the Director via an amendment to this Approval. The alternative material shall be non-hazardous according to Reg. 347 and will be expected to perform at least as well as soil in relation to the following functions:
    a. Control of blowing litter, odours, dust, landfill gas, gulls, vectors, vermin and fires;
    b. Provision for an aesthetic condition of the landfill during the active life of the

Site;

c. Provision for vehicle access to the active tipping face; and

d. Compatibility with the design of the Site for groundwater protection, leachate management and landfill gas management.

11. Construction/demolition wastes, clean dry wood wastes and brush wastes, all of which are segregated from other wastes, are exempted from the daily cover requirement.

12. The Owner is hereby permitted to use "paper fibre product" as daily and interim cover at the Fenelon Landfill Site in accordance with the documents in the Schedule 1.

13. The Owner is hereby permitted to use soil, Compost, wood chips, foundry sand, shingles, non-hazardous wood/construction waste (fines), Steel plates and flexible membranes (tarps, enviro cover systems as alternative daily cover material. Flexible membranes and steel plates shall be removed prior to the next layer of waste is deposited.

14. Partially composted Leaf and Yard Waste may be used as alternative daily cover at the Site.

15. Contaminated (non-hazardous) soils may not be used as alternative daily cover at the Site.

**Compaction of Waste**

16. The Owner shall ensure that waste is compacted with a minimum of three (3) passes over each lift of waste.

**Geosynthetic Final Cover**

17. If the Owner proposes Geosynthetic Clay Liner for the final cover, the following are the minimum requirements for the Geosynthetic Clay final cover for the Site:

a. three hundred (300) millimeter subgrade soil compacted to 85% Standard Proctor Density;

b. three hundred (300) millimeter drainage layer protecting the GCL; and

c. one hundred and fifty (150) millimeter top soil.

## 8. LANDFILL MONITORING

**Landfill Gas**

1. The Owner shall ensure that any buildings or structures at the Site contain adequate ventilation systems to relieve any possible landfill gas accumulation to prevent methane concentration reaching the levels within its explosive range. Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the Site, especially enclosed structures which at times are occupied by people.

**Compliance**

2. The Site shall be operated in such a way as to ensure compliance with the following:

    a. Reasonable Use Guideline B-7 for the protection of the groundwater at the Site; and

    b. Provincial Water Quality Objectives included in the July 1994 publication entitled Water Management Policies, Guidelines, Provincial Water Quality Objectives, as amended from time to time or limits set by the Regional Director, for the protection of the surface water at and off the Site.

**Surface Water and Groundwater**

3. The Owner shall monitor surface water and ground water in accordance with the monitoring programs outlined in the Schedules 2 and 3.

4. A certified Professional Geoscientist or Engineer possessing appropriate hydrogeologic training and experience shall execute or directly supervise the execution of the groundwater monitoring and reporting program.

**Groundwater Wells and Monitors**

5. The Owner shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.

6. Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and the wells shall be properly re-secured.

7. Any groundwater monitoring well included in the on-going monitoring program that is damaged shall be assessed, repaired, replaced or decommissioned by the Owner, as required.

    a. The Owner shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.

    b. All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the Director for abandonment, shall be decommissioned by the Owner, as required, in accordance with Reg. 903, to prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the Annual Report for the period during which the well was decommissioned.

**Trigger Mechanisms and Contingency Plans**

8. The Site surface water trigger mechanism is established as follows:

    a. two consecutive exceedances of one or more of the trigger parameter concentrations; with the exceedance confirmed by a third sample within thirty (30) days of exceedance.

    b. the triggers are applied to the surface water stations located 30 m from the toe of the landfill, at transect lines WP4, SW13, and SW15.

    c. The Owner shall initiate the following steps upon confirmation of an exceedance as follows:

        i. notification of the District Manager within thirty (30) working days of receipt of confirmation of results;

        ii. initiation of an assessment of potential sources of the exceedance;

        iii. the assessment shall include an evaluation of biological impacts (including vegetation and toxicity surveys);

        iv. provision of a written assessment of the results, to the District Manager within one (1) calendar year of the date of receipt of confirmation of the exceedance, and included in the Annual Site Monitoring Report for the year in which the exceedance was confirmed.

9. If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the Owner shall ensure that the following steps are taken:

    a. The Owner shall notify the Director and District Manager, in writing, of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;

    b. Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the Owner to the Director and District Manager for approval within 90 days after confirmation of the exceedances; and

    c. The contingency measures shall be implemented by the Owner upon approval by the Director.

10. The Owner shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, are approved in advance by the Director via an amendment to this Approval.

**Changes to the Monitoring Programs, Trigger Mechanisms and Contingency Plans**

11. The Owner may request to make changes to the monitoring program(s), trigger mechanisms and/or contingency plan to the District Manager in accordance with the recommendations of the Annual Report. The Owner shall make clear reference to the proposed changes in a separate letter that shall accompany the Annual Report.

12. Within fourteen (14) days of receiving the written correspondence from the District Manager confirming that the District Manager is in agreement with the proposed changes to the environmental monitoring program, trigger mechanisms and/or contingency plans, the Owner shall forward a letter identifying the proposed changes and a copy of the correspondences from the District Manager and all other correspondences and responses related to the changes, to the Director requesting the Approval be amended to approve the proposed changes to the environmental monitoring plan prior to implementation.

## 9. CLOSURE PLAN

1. At least two (2) years prior to closure, the Owner shall submit to the Director for approval, with copies to the District Manager, a detailed Site closure plan pertaining to the termination of landfilling operations at this Site, post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following as a minimum but are not limited to:

    a. a plan showing Site appearance after closure;
    b. a description of the proposed end use of the Site, that shall include a discussion on the Environmental Assessment commitments (if applicable) to dedicate portion of the lands within the Site that are not required for site post-closure operations and monitoring, to be used for community recreational purpose;
    c. a description of how pollinator friendly plants were considered in the final vegetative cover for the landfill and/or in the landscaping within the Site;
    d. a description of the procedures for closure of the Site:
        i. advance notification of the public of the landfill closure;
        ii. posting a sign at the Site entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements;
        iii. completion, inspection and maintenance of the final cover and landscaping;
        iv. site security;
        v. removal of unnecessary landfill-related structures, buildings and facilities; and
        vi. final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
    e. a schedule indicating the time-period for implementing sub-conditions i to vi above.
    f. descriptions of the procedures for post-closure care of the Site, including:

i. operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
ii. record keeping and reporting; and
iii. complaint contact and response procedures;

g. an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas; and
h. an updated estimate of the Contaminating Life Span of the Site, based on the results of the monitoring programs to date.

2. The Site shall be closed in accordance with the closure plan as approved by the Director.

## 10. LEAF AND YARD WASTE COMPOSTING

1. The Owner shall ensure that the Leaf and Yard Waste Compost facility accepts:

   a. not more than 250 tonnes of Leaf and Yard Waste in any given day;

   b. not more than 2000 tonnes of Leaf and Yard Waste annually; and

   c. The maximum quantity of the segregated/stored Coarse Leaf and Yard Waste at any time at the Leaf and Yard composting facility shall not be greater than 1500 tonnes.

2. The Owner shall ensure that composting and curing are conducted in accordance with the Standards Document as amended, Ministry of the Environment, and with the requirements as listed below:

   a. waste accepted for composting shall be limited to Leaf and Yard Waste and chipped wood;

   b. all activities associated with the Leaf and Yard Waste composting operation shall take place on the designated pad constructed of wood chips;

   c. Leaf and Yard Waste segregated fine material may not be stored for more than fourteen (14) days before it is placed in windrows;

   d. Coarse Leaf and Yard Waste that is segregated for grinding shall be ground once per year at a minimum;

   e. Finished compost may be stored for a maximum of twelve (12) months after the curing phase is complete;

   f. windrows shall be arranged in a manner which allows equipment access for

efficient turning of windrows and to allow access for emergency vehicles;

g. windrows shall be constructed at bulk densities and heights which promote aerobic conditions;

h. all waste being composted shall be held at a temperature of at least 55 $^{\circ}$C for a minimum of fifteen (15) cumulative days to ensure proper bacteria growth and pathogen inactivation. During this period, the temperature of the waste being composted shall be monitored and recorded on each day that the Leaf and Yard Waste composting facility is in operation, and the windrows shall be turned a minimum of five (5) times. During the high temperature period, the windrow shall be turned at least five times;

i. during the remainder of the composting process, the temperature shall be monitored and recorded on a weekly basis at a minimum; and

j. compost shall be cured for a minimum of six (6) months; **OR** the compost has been cured for a minimum of 21 days from the day the last portion of material went into the batch, and the respiration rate is less than, or equal to, 400 milligrams of oxygen per kilogram of volatile solids (on a dry weight basis) per hour or less than or equal to, 4 milligrams of carbon in the form of carbon dioxide per gram of organic matter (on a dry weight basis) per day.

3. a. Prior to being transferred from the Site for its intended end use, the Owner shall:

i. conduct quality control testing of the Finished Compost in accordance with the requirements set out in the Standards Document; and

ii. ensure that all production records demonstrate compliance with the temperature and residency time requirements for pathogen inactivation set out in the Standards Document.

b. All sampling and testing required in this Approval for the purpose of verifying compliance shall be undertaken in compliance with the Standards Document.

c. Finished Compost which does not exceed the maximum concentrations for metals as set out in Column 2 of Table 3.1 of the Standards Document and which complies with the foreign matter quality requirements, the maturity criteria, the pathogen reduction requirements and the pasteurization temperature and residency time requirements set out in the Standards Document may be transferred from the Site:

i. for unrestricted use as Category AA Compost;

ii. for use as a non-agricultural source material in accordance with the NMA; or

iii. for use as alternative daily, interim or final landfill cover.

d. Finished Compost which does not exceed the maximum concentrations for metals as set out in Column 3 of Table 3.1 of the Standards Document and which complies with the foreign matter quality requirements, the maturity criteria, the pathogen reduction requirements and the pasteurization temperature and residency time requirements set out in the Standards Document may be transferred from the Site:

i. for unrestricted use as Category A Compost, provided that the labelling requirements as specified in the Standards Document are met;

ii. for use as a non-agricultural source material in accordance with the NMA; or

iii. for use as alternative daily, interim or final landfill cover.

e. Finished Compost which does not exceed the maximum concentrations for metals as set out in Column 4 of Table 3.1 of the Standards Document and which complies with the foreign matter quality requirements, the maturity criteria, the pathogen reduction requirements and the pasteurization temperature and residency time requirements set out in the Standards Document may be transferred from the Site:

i. for use as a non-agricultural source material in accordance with the NMA; or

ii. for use at a waste disposal facility approved to receive this type of waste.

f. Finished Compost which does not exceed the maximum concentrations for metals as set out in Table 3.1 of the Standards Document and which complies with the foreign matter quality requirements, the pathogen reduction requirements and the pasteurization temperature and residency time requirements but not with the maturity requirements set out in the Standards Document is considered to be an Immature Compost and a waste and shall:

i. be re-tested and/or shall continue to undergo curing at the Site; or

ii. be disposed of as waste at a waste disposal site approved by the Ministry, or its equivalent if in jurisdictions outside of Ontario, to accept such waste.

g. Finished Compost which does not exceed the maximum concentrations for metals as set out in Table 3.1 of the Standards Document and which complies with the foreign matter quality requirements, the maturity requirements but not with the pathogen reduction requirements and the pasteurization temperature and residency time requirements set out in the Standards Document is considered to be a waste and shall:

   i. be returned to the Composting process for pasteurization as set out in this Approval; or

   ii. be disposed of as waste at a waste disposal site approved by the Ministry, or its equivalent if in jurisdictions outside of Ontario, to accept such waste.

h. If Finished Compost exceeds the maximum concentrations for metals in Compost for its intended end use, as set out in Table 3.1 of the Standards Document, but meets the maximum concentrations for metals in the incoming Leaf and Yard Waste referred to as feedstock in Table 3.2 of the Standards Document, it may be returned to the composting process as waste for re-processing and handled in accordance with the applicable end use requirements.

4. The Owner shall maintain, at the Leaf and Yard Waste compost facility for a minimum of two (2) years, a log book or electronic file format the following information on the days the site is open:
   a. date of record;
   b. quantities and source of leaf and yard waste received;
   c. the amount of finished compost and/or rejected compost shipped from the Site;
   d. a record of daily inspections including the following information as a minimum;
      i. time and date of inspection;
      ii. name and title of inspector;
      iii. potential impacts noted;
      iv. remedial actions taken; and
      v. measures to prevent the problem from recurring;
   e. windrow temperature readings;
   f. composting activities undertaken (e.g. windrow formation, turning, screening etc);
   g. meteorological information including ambient temperature, wind direction and wind speed; and
   h. with respect to the compost sampling required by condition 10.3, the Owner shall maintain the following records as a minimum:
      i. sample collection locations and volume of the samples collected;
      ii. day and time of collection;
      iii. sample handling procedures;
      iv. parameters tested for and the resulting concentrations;
      v. name of the laboratory facility doing the testing; and
      vi. conclusions drawn with respect to the results of the monitoring and

testing.

5. By May 31st of each year, the Owner shall include the following information as a minimum in the Annual Report required under the condition 6.6:
   a. a monthly summary of the quantity of leaf and yard waste received;
   b. a monthly summary of finished compost transferred and the amount and destination of any rejected compost;
   c. analytical results of samples taken from the Finished Compost;
   d. a description of any environmental or operational problems, that could negatively impact the environment, encountered during the operation of the leaf and yard waste compost facility and the mitigative actions taken;
   e. a statement as to compliance with all conditions of this Approval and with the inspection and reporting requirements of the conditions herein; and
   f. any recommendations to minimize environmental impacts from, or improve the operations of, the leaf and yard waste compost facility.

**General Requirements for Testing of Feedstock and Finished Compost**

6. The Owner shall maintain a Quality Assurance/Quality Control (QA/QC) program for sampling and analysis of the Feedstock and the Finished Compost, as required by this Approval, and shall make the results of the QA/QC program, including all analyses carried out by an accredited laboratory service provider, available for inspection upon request by the District Manager, the Director and any Provincial Officer.

7. All required analytical results shall be from a laboratory service provider accredited by a Canadian Association for Laboratory Accreditation or equivalent.

**Sample Preparation and Testing Methods and Procedures**

8. The Owner shall contact their laboratory service provider for recommended sample preparation methods, sample containers, and other materials and instructions for sample collection and handling and shall prepare a written sampling protocol. This protocol shall be made available to the Ministry staff, upon request.

9. The Feedstock and the Finished Compost sampling/composite sample preparation and testing methods and procedures shall be as set out in Appendix 1 and Appendix 2 of the Standards Document.

**Re-testing**

10. Re-testing due to sample failure is as set out in the Standards Document.

## 11. HOUSEHOLD HAZARDOUS WASTE

1. a. The HHW Depot shall operate in accordance with Item 10 of Schedule 1. Administrative amendments to Item 12 of Schedule 1 (i.e. HHW Depot Operations Manual) shall be submitted to the District Manager for approval;

   b. The operation of the HHW Depot is limited to the receipt and transfer of household hazardous waste consisting of classes 112, 113, 114, 122, 123, 135, 145, 146, 147, 148, 212, 213, 221, 232, 241, 242, 252, 261, 263, 269, 312 and 331 as defined in the "New Ontario Waste Classes" dated January 1986 or as amended; and

   c. The HHW Depot shall not receive any pathological waste (class 312) other than syringes, lancets and needles.

2. a. The total amount of liquid waste stored at the HHW Depot, at any one time, shall not exceed 7,000 litres (7 cubic metres) or equivalent;

   b. The total amount of solid waste stored at the HHW Depot, at any one time, shall not exceed 40 tonnes;

   c. No HHW waste shall be stored at the Depot for a period longer than three (3) months without written approval of the District Manager.

3. The Depot may receive HHW only during hours of operation of the Site unless prior approval is given in writing, by the District Manager.

4. The Depot shall be maintained in a secure manner such that unauthorized persons cannot enter the HHW building nor access the storage areas outside.

5. No radioactive wastes shall be accepted at the Depot.

6. No PCBs (243) shall be accepted at the Depot. Oil and oil based paints which have been manufactured prior to 1972, or whose manufacturing date cannot be determined, may contain PCBs, shall be handled in the following manner:

   a. Oil and oil based paints shall not be mixed or bulked with other paints prior to testing. Paints which are lab-packed are not considered to be mixed under this Approval.

   b. Oil and oil-based paints shall be tested by a certified laboratory for PCB content and shall be handled in the manner as prescribed in this Approval.

   c. If the oil and oil-based paints are found to have PCBs at 50 parts per million or above, it shall be forthwith reported to the District Manager and shall be managed in accordance with Regulation 362/92 and stored or removed from the Depot to an

approved PCB storage facility in accordance with written instructions from the District Manager.

d. Oil and oil-based paints shall not be distributed for reuse if any measurable PCBs are found after being tested by a certified laboratory for PCBs.

7. Except for oil and oil-based paints having any measurable PCB content, paints collected at the Depot may be returned or sold to the general public for reuse provided all transactions are recorded by invoice. Information on the type and volume of paint returned to the public through this Depot shall be recorded in a log book kept at the Depot.

8. The Log Book shall record, on each day of operation:
   a. date of record;
   b. types, quantities and source of waste received;
   c. quantities of waste stored at the Depot;
   d. quantities and destination of waste shipped from the Depot;
   e. quantities of paints returned or sold to the general public;
   f. results of routine, visual inspection of the Depot; and
   g. any reporting of spills or upsets and actions taken to contain and manage the waste.

9. Sufficient numbers of drums and lab-packed containers shall be available at the Depot such that all HHW, in quantities unanticipated or otherwise, can be safely stored.

10. The Owner shall conduct routine, visual inspection of the entire Depot area to ensure its security and to minimize off-site impacts such as odour, dust, litter and other nuisance factors.

11. Emergency response in the event of a spill or upset shall be undertaken in accordance with the "Spill Contingency and Emergency Response Plan" prepared by the City of Kawartha Lakes, as contained in Item 5 of Schedule 1.

12. A copy of the "Spill Contingency and Emergency Response Plan" shall be kept at the Depot at all times and made easily available to all staff.

13. The Owner shall ensure that all contingency equipment and materials as outlined in Item 5 of Schedule 1 are immediately available at the Depot at all times, in a good state of repair and fully operational.

14. All operators of the Depot shall be trained with respect to the following areas:
   a. terms, conditions and operating requirements of this Approval as related to the operation of the Depot;
   b. operation and management of the Depot;
   c. responsibilities of Depot personnel;

d. personnel training protocols;
e. environmental concerns pertaining to wastes to be handled, mixed, transferred;
f. receiving and recording procedures including procedures to record wastes which are refused at the Depot;
g. waste paint identification, analysis information and separating procedures;
h. storage, handling, sorting and shipping procedures;
i. occupational health and safety concerns pertaining to the wastes;
j. relevant waste management legislation and regulations;
k. use, operation of contingency equipment and related materials; and
l. emergency procedures.

15. Within four (4) months of the scheduled closure of the Depot, the Owner shall submit a detailed Closure Plan for approval by the Director. The Closure Plan shall include, as a minimum, description of the work required to close the Depot, schedule of works and decommissioning of the HHW area.

## 12. REUSE CENTRE

1. The Owner may operate a "Reuse Centre" located adjacent to the HHW Depot for the handling, temporary storage of reusable items.

2. The Owner shall ensure that the "Reuse Centre" is only open during regular Site hours and that the facility is securely locked during other times.

3. Any solid, non-hazardous residual wastes arising from the operation of the Reuse Centre shall be disposed of at the Site as part of regular and normal operations.

## 13. WASTE DIVERSION

1. The Owner shall ensure that:
   a. all bins and waste storage areas are clearly labelled;
   b. all lids or doors on bins shall be kept closed during non-operating hours and during high wind events; and
   c. if necessary to prevent litter, waste storage areas shall be covered during high winds events.

2. The Owner/Operator shall remove the refrigerant as defined in O. Reg. 463/10 in accordance with the following:
   a. all White Goods containing refrigerants which have not been tagged by a licensed technician to verify that the equipment no longer contains refrigerants, shall be stored in a separate area in an upright position; and

   b. White Goods containing refrigerants received at the Site shall be shipped off-Site

in order to have the refrigerants removed by a licensed technician in accordance with O. Reg. 463/10; or

c. the refrigerant shall be removed at the Site by a licensed technician, in accordance with O. Reg. 463/10, prior to shipping White Goods off-Site; and

d. a detailed log of all White Goods containing refrigerants received shall be maintained. The log shall include the following:

   i. date of the record;
   ii. types, quantities and source of White Goods containing refrigerants received;
   iii. details on removal of refrigerants as required by O. Reg. 463/10; and
   iv. the quantities and destination of the White Goods and/or refrigerants transferred from the Site.

3. Propane cylinders shall be stored in a segregated area in a manner which prevents cylinders from being knocked over or cylinder valves from breaking.

4. The Owner shall transfer waste and recyclable materials from the Site as follows:
   a. recyclable materials shall be transferred off-site once their storage bins are full;
   b. scrap metal shall be transferred off-site at least twice a year;
   c. tires shall be transferred off-site as soon as a load for the contractor hired by the Owner has accumulated or as soon as the accumulated volume exceeds the storage capacity of its bunker; and
   d. immediately, in the event that waste is creating an odour or vector problem.

5. The Owner shall notify the appropriate contractors that waste and recyclable wastes that are to be transferred off-site are ready for removal. Appropriate notice time, as determined by the contract shall be accommodated in the notification procedure.

**Schedule 1**

1. Hydrogeology Study, Phase 3, Fenelon Landfill, Fenelon TP, Victoria County, prepared by Middle Earth Hydrogeology Inc., dated 31 March 2000.
2. Fenelon Landfill Site-Design and Operations Report, prepared by Gartner Lee Limited, dated March 2000.
3. Fenelon Landfill, Natural Environment Assessment, prepared by D.G. Cunningham & Associates and Michael Michalski Associates, dated April 2000.
4. Design and Operations Report For the Establishment of Permanent Household Hazardous Waste (HHW) Depot at the Fenelon Landfill Site, prepared by the County of Victoria, dated November 2000.
5. City of Kawartha Lakes, Household Hazardous Waste Depot, Spill Contingency and Emergency Response Plan, prepared by the City of Kawartha Lakes, undated.
6. Landfill Safety and Emergency Response Procedures, prepared by the City of Kawartha Lakes, dated February 2002.
7. Letter dated February 22, 2001 from the City to MOE regarding responses to questions posed in letter from MOE to the City dated January 23, 2001, complete with Figures 1, 2 and 3, and Attachments A to F inclusive.
8. The application dated May 15, 1996, and the supporting information as provided in the document entitled "The Use of Paper Fibre Product as Daily, Interim and Final Cover at Municipal Solid Waste Landfill Sites" prepared by Transportation and Public Works Department dated February 1996.
9. The letter dated May 15, 1996 to Mr. Wilfrid Ng, MOE, from P. Jeffrey Seaton, County Engineer, The Corporation of the County of Victoria outlining the operational considerations for the use of "paper fibre product" as daily and interim cover.
10. Letter dated August 22, 2005 from Bill Pickard, Manager of Solid Waste Services, City of Kawartha Lakes, to Chris Johnston, MOE, with information regarding the continued operations plan.
11. Letter dated September 19, 2007 from Bill Pickard, Manager of Solid Waste Services, City of Kawartha Lakes, with further information on vehicle counts and dealing with leachate seeps.
12. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated January 16, 2009 and signed by Andrew Boyd, Supervisor, Solid Waste Services including the City of Kawartha Lakes Household Hazardous Waste Depot Operations Manual dated January 2009.
13. E-mail dated August 21, 2009 (4:08 PM) from Heather Van Bruinessen, Regulatory Compliance Officer to B. Wilkinson, MOE re: storage of batteries (on shelving unit with roof) & oil bins (double-lined walls).
14. Application for a Provisional Certificate of Approval for a Waste Disposal Site, signed by Bill Packard, Manager of Solid Waste Services, dated February 1, 2008.

15. Design and Operations Report, Compost Facility at Fenelon Landfill, City of Kawartha Lakes, prepared by Totten Sims Hubicki Associates, dated December 2007.

16. Letter from R. Perdue, City of Kawartha Lakes, to MOE Environmental Assessment and Approvals Branch, dated July 17, 2008 re: additional information on the source separated organics compost pilot project.

17. Application for an Environmental Compliance Approval dated December 7, 2011 including supporting documentation attached to the application for the contaminant attenuation zone and a revision to the record retention condition.

18. Application for an Environmental Compliance Approval dated December 7, 2011 including supporting documentation attached to the application requesting the increasing of storage times for the composting operation.

19. Letter report dated November 12, 2012 from Amy Burke, Golder Associates to Ranjani Munasinghe, Ministry of the Environment in response to Ministry's letter dated September 12, 2012.

20. Report titled "Annual Status Report (2011) - Fenelon Waste Disposal Site" dated July, 2012 prepared by Golder Associates.

21. Application for an Environmental Compliance Approval, signed by David Kerr, dated 2013/10/15.

22. Updated Design and Operation Report, Fenelon Landfill Site (rev. B)., by Golder Associates, dated November, 2015.

23. Environmental Compliance Approval Application dated November 29, 2018 including the attached supporting documentation titled "Alternative Daily and Interim Cover (ADC) Materials Fenelon Landfill Site" dated July 2018 and prepared by the City of Kawartha Lake.

24. Environmental Compliance Approval Application dated and signed March 26, 2024, including the attached supporting documentation for the Fenelon Landfill Expansion Plan, dated April 2, 2024, and prepared by WSP.

25. Report titled "Fenelon Landfill, Landfill Expansion Plan" dated April 2, 2024 and prepared by Mohsen Zafari, PhD and Cristina Olarte, P.Eng., EP, WSP Canada Inc.

**Schedule 2**
**Surface Water Monitoring Program**

| Monitoring Station | Frequency | Parameters |
|---|---|---|
| SW2*, SW3*, SW4*, SW12 (10m), SW13 (10m), SW15 (10m), SW13 (30m), SW14, SW15 (30 m), SW16*, SW17 &WP4 (30 m) | Seasonal (April / May, July & September / October)<br><br>* Martin Creek locations only sampled April / May & September / October | Total Kjeldahl Nitrogen (TKN), Nitrate, Nitrite, Ammonia, Unionized Ammonia, Alkalinity, Hardness, Chloride, Calcium, Magnesium, Total Phosphorous, Phosphorous, Sulfate, Phenols, Dissolved Organic Carbon (DOC), Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, pH, Conductivity, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), Free Cyanide, Colour, Turbidity, Total Suspended Solids (TSS),<br><br>Additional filtered metals analysis for all locations except SW2, SW3 & SW4. |
| SW12 (10m), SW13 (10m), SW15 (10m), SW14 | | Toluene |

* - PFAS parameters included at WP1 (30m), WP2 (30m), WP3 (30m), WP4 (30m), WP5 (30m) for the Spring 2025 monitoring event.

**Schedule 3**
**Groundwater Monitoring Program**

| Monitoring Station | Frequency | Parameters |
|---|---|---|
| MW1*, MW2*, MW3*, MW3A*, MW4*, MW5*, MW5A*, MW6*, MW6A*, MW-7*, MW10, MW11A, MW12, MW13, MW14, MW15, MW15A, MW15B, MW16, MW17, MW18, MW18A, MW18B, MW19, MW22, MW22A, MW22B, MW23, MW23A, MW23B, MW26, MW26-1, MW26-2, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, Office, WP1, WP2, WP3, WP4, WP5& WP6, new western property boundary well | Semi-Annual (April / May & September / October) | Total Kjeldahl Nitrogen (TKN), Nitrate, Nitrite, Ammonia, Unionized Ammonia, Alkalinity, Hardness, Chloride, Calcium, Magnesium, Total Phosphorous, Phosphorous, Sulfate, Phenols, Dissolved Organic Carbon (DOC), Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, pH, Conductivity, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD).<br><br>* - Water Level Measurements Only During Fall Monitoring Event |
| MW-7, MW12, MW14, MW15, MW15A, MW15B, MW16, MW26, MW26-1, MW26-2, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, WP1, WP2, WP3, WP4, WP5 & WP6 | | VOCs |

*The reasons for the imposition of these terms and conditions are as follows:*

- The reason for conditions 1.1, 1.2, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.20, 1.21 and 1.22 is to clarify the legal rights and responsibilities of the Owner and Operator under this Approval.

- The reasons for condition 1.3, 1.4 and 1.5 are to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

- The reasons for condition 1.13 are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

- The reasons for condition 1.14 are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Approval.

- The reason for condition 1.15 is to ensure that the successor is aware of its legal responsibilities.

- The reasons for conditions 1.16, 1.17 and 1.18 are that the Part II.1 Director is an individual with authority pursuant to Section 197 of the Environmental Protection Act to require registration on title and provide any person with an interest in property before dealing with the property in any way to give a copy of the Approval to any person who will acquire an interest in the property as a result of the dealing.

- The reason for condition 1.19 is to ensure that appropriate Ministry staff has ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Approval. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the Act, the OWRA, the PA, the NMA and the SDWA.

- Condition 1.23 has been included in order to clarify what information may be subject to the Freedom of Information Act.

**SITE OPERATION**

- The reasons for conditions 2.1, 2.5 and 6.3 are to ensure that the Site is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.

- The reason for conditions 2.2, 2.3 and 2.4 is to ensure that users of the Site are fully aware of important information and restrictions related to Site operations and access under this Approval.

- The reasons for condition 2.6.a and 2.6.b are open burning of municipal waste is unacceptable because of concerns with air emissions, smoke and other nuisance effects, and the potential fire hazard and to make sure burning of brush and wood are carried out in accordance with Ministry guidelines.

- The reasons for condition 2.7, 2.8 and 2.9 are to specify the hours of operation for the landfill site and a mechanism for amendment of the hours of operation, as required.

- The reasons for condition 2.10 and 2.11 are to ensure that the Site is supervised by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.

**EMPLOYEE TRAINING**

- The reason for condition 3.1 is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

**COMPLAINTS RESPONSE PROCEDURE**

- The reason for condition 4.1 is to ensure that any complaints regarding landfill operations at this Site are responded to in a timely and efficient manner.

**EMERGENCY RESPONSE**

- Conditions 5.1 and 5.2 are included to ensure that emergency situations are reported to the Ministry to ensure public health and safety and environmental protection.

- Conditions 5.3 and 5.4 are included to ensure that emergency situations are handled in a manner to minimize the likelihood of an adverse effect and to ensure public health and safety and environmental protection.

**INSPECTIONS, RECORD KEEPING AND REPORTING**

- The reason for conditions 6.1 and 6.2 is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this Approval (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations.

- The reason for conditions 6.4 and 6.5 is to ensure that detailed records of Site inspections are recorded and maintained for inspection and information purposes.

- The reasons for conditions 6.6 and 6.7 are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An Annual Report is an important tool used in

reviewing site activities and for determining the effectiveness of site design.

**LANDFILL DESIGN AND DEVELOPMENT**

- The reason for conditions 7.1 to 7.7 inclusive is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.

- The reasons for condition 7.8 and 7.9 are to ensure that daily/weekly, intermediate and final covers are used to control potential nuisance effects, to facilitate vehicle access on the Site, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the Site.

- The reason for conditions 7.10 to 7.15 is to state the alternative cover materials approved for this Site.

- Condition 7.16 is to ensure minimum waste compaction is achieved as per industry standards.

- Condition 7.17 is included to provide minimum requirements for the geosynthetic clay final cover if the Owner proposes to use geosynthetic clay for the final cover.

**LANDFILL MONITORING**

- Reasons for condition 8.1 are to ensure that landfill gas is monitored and all buildings at the Site are free of any landfill gas accumulation, which due to a methane gas component may be explosive and thus create a danger to any persons at the Site.

- Condition 8.2 is included to provide the groundwater and surface water limits to prevent water pollution at the Site.

- Conditions 8.3 and 8.4 are included to require the Owner to demonstrate that the Site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

- Conditions 8.5, 8.6 and 8.7 are included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved, and the natural environment is protected.

- Conditions 8.8 to 8.10 inclusive are added to ensure the Owner has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination at the Site's compliance point.

- Conditions 8.11 and 8.12 are included to streamline the approval of the changes to the

monitoring plans and trigger mechanisms and contingency plans.

**CLOSURE PLAN**

- The reasons for condition 9 are to ensure that final closure of the Site is completed in an aesthetically pleasing manner, in accordance with Ministry standards, and to ensure the long-term protection of the health and safety of the public and the environment.

**COMPOSTING**

- Condition 10 was added to ensure that composting is undertaken in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or people.

**HOUSEHOLD HAZARDOUS WASTE**

- The reasons for the condition 11 are to approve collection of household hazardous waste and to ensure that the wastes are managed in a manner that protects the health and safety of the environment and the public.

**REUSE CENTRE**

- Condition 12 is added to ensure the Owner has approval to receive and store various material types material at the Site and in a manner that conforms to this Approval.

**WASTE DIVERSION**

- Condition 13 is included to ensure that the recyclable materials are stored in their temporary storage location and transferred off-site in a manner as to minimize a likelihood of an adverse effect or a hazard to the natural environment or any person.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A321206 issued on January 20, 2016**

In accordance with Section 139 of the *Environmental Protection Act,* you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act,* a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act*
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.oltt.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act.*

DATED AT TORONTO this 17th day of March, 2025

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the
*Environmental Protection Act*

RM/
c: District Manager, MECP Peterborough
Cristina Olarte, WSP Canada Inc.

# APPENDIX B

## Borehole Logs

DRILLING RIG: MOBILE B40
CONTRACTOR: SIR SANDFORD FLEMING COLLEGE
GEOLOGIST: W. ABBOTT
DATE DRILLED: 15-16 APRIL 1991

GROUND ELEVATION (mASL): 271.8
STATIC WATER ELEVATION (19MAY92, mASL): 260.18

HOLLOW STEM AUGERS

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | SAMPLE TYPE | SAMPLE 'N' | REMARKS |
|---|---|---|---|---|---|---|
| | FINE SAND: Light brown, stratified, compact, dry. | | 2 | SS | 13 | |
| | | | 3 | SS | 23 | |
| 3.4 | FINE SAND AND GRAVEL: Light brown, stratified, dense to very dense, dry. | | 4 | SS | 35 | |
| | | | 5 | SS | 70 | |
| 7.0 | FINE SAND: Light brown, stratified, dense to very dense, saturated below about 12 m. | | 6 | SS | 33 | |
| | | | 7 | SS | 68 | |
| | | | 8 | SS | 81 | |
| | | | 9 | SS | 30 | |
| | | | 10 | SS | 29 | Heaving sand starts about 13.5 m. |
| | END OF BOREHOLE AT 14.0 m DEPTH | | | | | |

MONITOR SCREEN — SAND PACK — BENTONITE SEAL — CEMENT SEAL

BOREHOLE LOG
BOREHOLE NO. 1

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

DRILLING RIG: MOBILE B40
CONTRACTOR: SIR SANDFORD FLEMING COLLEGE
GEOLOGIST: W. ABBOTT
DATE DRILLED: 16-19 APRIL 1991

GROUND ELEVATION (mASL): 268.4
STATIC WATER ELEVATION (19MAY92, mASL): 260.00

HOLLOW STEM AUGERS

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | SAMPLE TYPE | SAMPLE 'N' | REMARKS |
|---|---|---|---|---|---|---|
| | FINE SAND: Light brown, stratified, compact, saturated below about 8.8 m. | | 1 | SS | 22 | |
| | | | 2 | SS | 20 | |
| | | | 3 | SS | 22 | |
| | | | 4 | SS | 29 | |
| | | | 5 | SS | 20 | |
| | | | 6 | SS | 22 | |
| 9.6 | MEDIUM TO COARSE SAND: Medium grey, trace gravel, compact to dense, saturated, becomes finer grained below about 13.5 m. | | 7 | SS | 32 | |
| | | | 8 | SS | 11 | |
| | | | 9 | SS | - | Heaving sand starts about 13.5 m. |
| | | | 10 | SS | - | |
| | | | 11 | SS | - | |
| | END OF BOREHOLE AT 15.6 m DEPTH | | | | | |

MONITOR SCREEN — SAND PACK — BENTONITE SEAL — CEMENT SEAL

BOREHOLE LOG
BOREHOLE NO. 2

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

DRILLING RIG: (1) MOBILE B40 (2) CME 75
CONTRACTOR: (1) SIR SANDFORD FLEMING COLLEGE
(2) EASTERN SOILS INVESTIGATION LTD.
GEOLOGIST: (1) W. ABBOTT (2) T. RANNIE
DATE DRILLED: (1) 15-16 APRIL 1991 (2) 6 SEPTEMBER 1991

GROUND ELEVATION (mASL): 261.8
STATIC WATER ELEVATION (19MAY92, mASL): 3A 260.00
3 259.95

| DEPTH (m) | | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | TYPE | 'N' | REMARKS |
|---|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS (16APR91) | | MEDIUM SAND: Medium brown to grey, stratified, compact, saturated below about 2.3 m. | | 1 | SS | 10 | |
| | | | 3A Cave | 2 | HP | - | |
| | | | | 3 | GS | - | Heaving sand starts about 6 m. |
| | 6.0 | SANDY GRAVEL: Medium grey, stratified, alternating sand and sandy gravel layers, saturated. | | 4 | HP | - | |
| | | | | 5 | GS | - | |
| | | | 3 Cave | 6 | SS | 80 | |
| | | | | 7 | SS | - | |
| HOLLOW STEM AUGERS (15SEP91) | | | | 8 | SS | 76 | |
| | | | | 9 | SS | 64 | |
| | | | | 10 | SS | 63 | |
| | | | | 11 | SS | 63 | |
| | | | | 12 | SS | - | |
| SOLID STEM AUGERS (15SEP91) | 12.8 | SILT TILL: | | 13 | SS | - | All monitors installed in separate boreholes. Drilled to refusal with solid stem augers - probably bedrock. |
| | | END OF BOREHOLE AT 14.3 m DEPTH | | | | | |

MONITOR SCREEN · SAND PACK · BENTONITE SEAL · CEMENT SEAL

BOREHOLE LOG
BOREHOLE NO. 3

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

DRILLING RIG: MOBILE B40
CONTRACTOR: SIR SANDFORD FLEMING COLLEGE
GEOLOGIST: W. ABBOTT
DATE DRILLED: 23 APRIL 1991

GROUND ELEVATION (mASL): 267.6
STATIC WATER ELEVATION (19MAY92, mASL): 260.09

| DEPTH (m) | | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | TYPE | 'N' | REMARKS |
|---|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS | | REFUSE: | | 1 | SS | 29 | |
| | 7.2 | FILL: Silty Fine Sand grey, blackish lense at 9.4 m, dense, saturated below about 8.0 m, strong leachate odour. | | 2 | SS | - | |
| | | | | 3 | SS | 61 | |
| | 9.0 | MEDIUM TO COARSE SAND: Medium grey, stratified, trace coarse round gravel, compact, saturated. | | 4 | SS | 15 | |
| | | END OF BOREHOLE AT 11.3 m DEPTH | | | | | |

MONITOR SCREEN · SAND PACK · BENTONITE SEAL · CEMENT SEAL

BOREHOLE LOG
BOREHOLE NO. 4

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

DRILLING RIG: (1) MOBILE B40 (2) CME 75
CONTRACTOR: (1) SIR SANDFORD FLEMING COLLEGE
(2) EASTERN SOILS INVESTIGATION LTD.
GEOLOGIST: (1) W. ABBOTT (2) T. RANNIE
DATE DRILLED: (1) 23 APRIL 1991 (2) 5 SEPTEMBER 1991

GROUND ELEVATION (mASL): 265.0
STATIC WATER ELEVATION (19MAY92, mASL): 5 260.11
5A 260.03

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | TYPE | 'N' | REMARKS |
|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS | PINE SAND: Light brown, stratified, compact to very dense, dry. | 5 | 1 | SS | 28 | |
| | | | 2 | SS | 38 | |
| | | | 3 | SS | 46 | |
| 5.0 | MEDIUM SAND: Medium brown to grey, stratified, very dense, saturated below about 5.0 m. | Cave | 4 | SS | 54 | |
| | | | 5 | SS | 57 | |
| | | | 6 | SS | 92 | Heaving sand starts about 10 m. |
| | | 5A | 7 | GS | - | |
| 14.0 | SILT TILL: Medium grey, massive, unsorted subround gravel in silty matrix, hard, saturated. | Cave | 8 | GS | - | Drilling harder at 14 m. Wash out augers at 15 m. |
| | | | 9 | SS | >100 | All monitors installed in separate boreholes. |
| | END OF BOREHOLE AT 15.7 m DEPTH | | | | | |

MONITOR SCREEN · SAND PACK · BENTONITE SEAL · CEMENT SEAL

Ted Rannie, M.Sc.
Hydrogeologist

BOREHOLE LOG
BOREHOLE NO. 5

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

DRILLING RIG: (1) MOBILE B40 (2) CME 75
CONTRACTOR: (1) SIR SANDFORD FLEMING COLLEGE
(2) EASTERN SOILS INVESTIGATION LTD.
GEOLOGIST: (1) W. ABBOTT (2) T. RANNIE
DATE DRILLED: (1) 23 APRIL 1991 (2) 5 SEPTEMBER 1991

GROUND ELEVATION (mASL): 261.5
STATIC WATER ELEVATION (19MAY92, mASL): 6A 260.51
6 260.11

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | TYPE | 'N' | REMARKS |
|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS | FILL: Fine Sand. | 6A | | | | |
| 1.5 | PEAT: Dark brown to black, compact, saturated below about 1 m. | | 1 | SS | 19 | |
| | | | 2 | SS | 4 | |
| 2.9 | SILTY FINE SAND: Medium grey, compact, saturated. | 6 | 3 | SS | - | |
| | | | 4 | SS | 13 | Heaving sand starts about 6 m. Wash out augers with water from wetland. |
| | | | 5 | SS | 9 | All monitors installed in separate boreholes. |
| | END OF BOREHOLE AT 6.6 m DEPTH | | | | | |

Ted Rannie, M.Sc.
Hydrogeologist

BOREHOLE LOG
BOREHOLE NO. 6

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

RILLING RIG: CME 75
ONTRACTOR: EASTERN SOIL INVESTIGATION LTD
SOLOGIST: T. RANNIE
ATE DRILLED: 3 SEPTEMBER 1991

GROUND ELEVATION (mASL): 268.0
STATIC WATER ELEVATION (19MAY92, mASL): 261.26

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | TYPE | 'N' | REMARKS |
|---|---|---|---|---|---|---|
| | REFUSE: | | 1 | SS | 25 | |
| | | | 2 | SS | 9 | |
| 7.0 | FILL: Medium to coarse sand, medium grey, some silt or clay, compact, moist to wet, compact. | | 3 | SS | 16 | |
| 8.5 | PEAT: Dark brown to black, trace fine sand, compact, saturated. | | 4 | SS | 13 | |
| 10.1 | FINE SAND: Medium grey to brown, finely stratified, homogeneous, well-sorted, trace gravel, loose to compact, saturated, strong leachate odour. | | 5 | SS | 12 | Heaving sand starts about 12 m. |
| | | | 6 | SS | 9 | |
| | | | 7 | GS | - | |
| | | | 8 | SS | - | Stop drilling due to heaving sand. |
| | END OF BOREHOLE AT 15.8 m DEPTH | | | | | |

MONITOR SCREEN · SAND PACK · BENTONITE SEAL · CEMENT SEAL

BOREHOLE LOG
BOREHOLE NO. 7

HYDROGEOLOGICAL STUDY
PENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

DRILLING RIG: (1) MOBILE B40 (2) CME 75
CONTRACTOR: (1) EASTERN SOILS INVESTIGATION LTD.
(2) G. HART & SONS WELL DRILLING LTD. (8W)
GEOLOGIST: T. RANNIE
DATE DRILLED: 4 SEPTEMBER 1991, 18 NOVEMBER 1991

GROUND ELEVATION (mASL): 261.1
STATIC WATER ELEVATION (19MAY92, mASL): 8A 260.32
8 259.97
8W 260.03

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | TYPE | 'N' | REMARKS |
|---|---|---|---|---|---|---|
| | FILL: Fine sand, medium grey, minor gravel and silt, burnt layer at the base, loose, dry. | | 1 | SS | 15 | |
| 1.4 | PEAT: Dark brown, decayed wood chips with trace sand, loose, thin (10-20 cm) grey clay layer at base, saturated. | | 2 | SS | 22 | |
| 2.9 | SILTY FINE SAND: Medium grey, homogeneous, well sorted, poorly stratified, loose, saturated. | 8A | 3 | SS | 3 | |
| | | | 4 | SS | 2 | |
| | | | 5 | SS | 19 | |
| | | | 6 | SS | 4 | |
| | | 8 | 7 | SS | 7 | |
| | | | 8 | SS | 6 | |
| 8.6 | TILL?: Medium grey, unsorted gravel in silty sand matrix, hard, saturated, exact thickness unkown. | | 9 | SS | 69 | Heaving sand starts at 9.5 m. |
| 9.4 | SILTY FINE SAND: Medium grey, homogeneous, well sorted, trace of fine gravel, poorly stratified, saturated. | | 10 | GS | - | Drill to refusal with solid stem from 10.7 m to 11.6 m. |
| 11.6 | SILT TILL: | 8 in CASING | | | | |
| 14.6 | LIMESTONE: Dark brown, aphanitic. | 8W | | | | |
| | | Open Hole in Bedrock | | | | |
| | END OF BOREHOLE AT 20.1 m DEPTH | | | | | |

HOLLOW STEM AUGERS (4SEP91)
SOLID STEM AUGERS (15SEP91)
AIR ROTARY (18NOV91)

MONITOR SCREEN · SAND PACK · BENTONITE SEAL · CEMENT SEAL

All monitors installed in separate boreholes.

BOREHOLE LOG
BOREHOLE NO. 8

HYDROGEOLOGICAL STUDY
PENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

**Pinchin Environmental**
204-160 Charlotte Street
Peterborough, Ontario, K9J 2T8

# Stratigraphic and Instrumentation Log: MW-7 (2013)

**Project No.:** 81838
**Project:** Fenelon Landfill
**Client:** City of Kawatha Lakes
**Location:** 341 Mark Road, Fenelon Falls, Ontario

**Logged By:** C. Moose
**Entered By:** L. DiAngelo
**Project Manager:** C. Moose
**Drill Date:** August 22, 2013

| SUBSURFACE PROFILE | | | | SAMPLE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (m) | Symbol | Description | Elevation | Number | Type | Sample | N-Value | Recovery (%) | Vapour Reading (ppm) Δ 50 ppm 100 150 Δ 200 | Monitoring Well |
| | | Ground Surface 268.384 | 0.0 | | | | | | | |
| 0 | | **Fill - Sand and Gravel** Domestic refuse, moist, brown, fine to coarse grained | | NA | NA | NA | NA | NA | | |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | NA | NA | NA | NA | NA | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | NA | NA | NA | NA | NA | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | Wet below 9 m depth | | NA | NA | NA | NA | NA | | |
| 10 | | | | | | | | | | |
| 11 | | | | | | | | | | |
| 12 | | | | NA | NA | NA | NA | NA | | |
| 13 | | | | | | | | | | |
| 14 | | | | | | | | | | |
| 15 | | | | NA | NA | NA | NA | NA | | |
| 16 | | | | | | | | | | |
| 17 | | | -17.1 | | | | | | | |
| | | End of Borehole | | | | | | | | |

**Drilled By:** Strata Drilling
**Drill Method:** GeoProbe 7822 DT
**Vapour Instrument:** NA
**Well Casing Size:** 5.1 cm

**Datum:** NA
**Casing Elevation:** NA
**Ground Elevation:** ~~NA~~ 268.384
**Sheet:** 1 of 1

DRILLING RIG: CME 75
CONTRACTOR: EASTERN SOIL INVESTIGATION LTD
GEOLOGIST: T. RANNIE
DATE DRILLED: 4-5 SEPTEMBER 1991
DATE:

GROUND ELEVATION (mASL): 261.3
STATIC WATER ELEVATION (19MAY92, mASL): 9 260.34
9A 260.28

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | SAMPLE TYPE | SAMPLE 'N' | REMARKS |
|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS | FILL: Fine sand and gravel, grey to black, charred wood chips and plastic, compact, dry. | | 1 | SS | 15 | |
| | | | 2 | SS | 11 | |
| | | | 3 | SS | 2 | |
| 1.8 | PEAT: Dark reddish brown, loose, saturated; greenish grey silt layer at base. | | 4 | SS | 4 | |
| 2.2 | | 9 | 5 | SS | 13 | |
| | SILTY FINE SAND: Medium grey, homogeneous, well sorted, trace of fine gravel, poorly stratified, saturated. | | 6 | SS | 6 | |
| | | | 7 | SS | 19 | Start drilling with water at 6.0 m due to heaving sand. Drill to refusal with solid stem from 9.6 m to 11.7 m. |
| 8.8 | TILL?: Medium grey, unsorted gravel in silty sand matrix, hard, saturated, exact thickness unkown. | | 8 | SS | 19 | |
| 9.3 | SILTY FINE SAND: Medium grey. | | | | | |
| 10.6 | SILT TILL: Medium grey, unsorted gravel in silty matrix, hard, saturated. | 9A | 9 | GS | - | All monitors installed in separate boreholes. |
| | END OF BOREHOLE AT 11.7 m DEPTH | | | | | |

MONITOR SCREEN — SAND PACK — BENTONITE SEAL — CEMENT SEAL

Ted Rannie, M.Sc.
Hydrogeologist

BOREHOLE LOG
BOREHOLE NO. 9

HYDROGEOLOGICAL STUDY
PENELON TOWNSHIP LANDFILL SITE

DRILLING RIG: CME 75
CONTRACTOR: EASTERN SOIL INVESTIGATION LTD
GEOLOGIST: B. GERRY.
DATE DRILLED: 6 SEPTEMBER 1991

GROUND ELEVATION (mASL): 261.4
STATIC WATER ELEVATION (19MAY92, mASL): 260.00

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | SAMPLE TYPE | SAMPLE 'N' | REMARKS |
|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS 0.2 | REFUSE: | | | | | |
| | SILTY FINE SAND: Dark brown, homogeneous, well sorted, poorly stratified, loose, saturated, strong leachate odour. | | 1 | GS | - | |
| | END OF BOREHOLE AT 4.6 m DEPTH | | | | | |

Ted Rannie, M.Sc.
Hydrogeologist

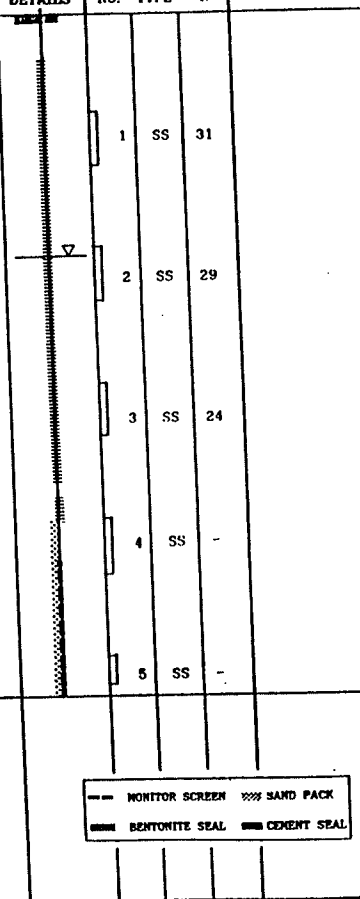
BOREHOLE LOG
BOREHOLE NO. 10

HYDROGEOLOGICAL STUDY
PENELON TOWNSHIP LANDFILL SITE

DRILLING RIG: MOBILE B40
CONTRACTOR: SIR SANDFORD FLEMING COLLEGE
GEOLOGIST: J. PRESLIE
DATE DRILLED: 23 APRIL 1992
DATE:

GROUND ELEVATION (mASL): 266.4
STATIC WATER ELEVATION (19MAY92, mASL): 260.80

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | SAMPLE TYPE | SAMPLE 'N' | REMARKS |
|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS | FINE SAND: Light brown, uniform, saturated below about 11 m. | | 1 | SS | 31 | |
| | | | 2 | SS | 29 | |
| | | | 3 | SS | 24 | |
| | | | 4 | SS | - | |
| | | | 5 | SS | - | |
| | END OF BOREHOLE AT 7.6 m DEPTH | | | | | |




BOREHOLE LOG
BOREHOLE NO. 11

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

DRILLING RIG: MOBILE B40
CONTRACTOR: SIR SANDFORD FLEMING COLLEGE
GEOLOGIST: J. PRESLIE
DATE DRILLED: 23 APRIL 1992

GROUND ELEVATION (mASL): 264.3
STATIC WATER ELEVATION (19MAY92, mASL): 259.76

| DEPTH (m) | DESCRIPTION | MONITOR DETAILS | SAMPLE NO. | SAMPLE TYPE | SAMPLE 'N' | REMARKS |
|---|---|---|---|---|---|---|
| HOLLOW STEM AUGERS | FINE SAND: Light brown, uniform, some thin layers of silt and fine gravel, saturated below about 9 m. | | 1 | SS | 19 | |
| | | | 2 | SS | 42 | |
| | | | 3 | SS | 43 | |
| | | | 4 | SS | | |
| | | | 5 | SS | - | |
| | END OF BOREHOLE AT 7.3 m DEPTH | | | | | |

BOREHOLE LOG
BOREHOLE NO. 12

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

BOREHOLE NUMBER 13 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 260.8 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie | Static Water Elevation | - |
| Date | November 26, 1992 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 0 | FINE TO COARSE SAND<br>trace silt<br>grey to brown<br>compact to dense | | | 1 | SS | 27 | |
| 1 | | | | 2 | SS | 35 | |
| 2 | end of borehole (2.2 metres) | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | See Table 4 for installation details | | | | |

20-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 14 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 260.0 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie | Static Water Elevation | - |
| Date | November 26, 1992 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 0 | ORGANICS<br>black, moist<br>very loose | | | 1 | SS | 4 | |
| 1 | SILTY FINE SAND & GRAVEL<br>grey to brown<br>compact<br>0.3 m seam of clayey silt beginning at 1.2 metres | | | 2 | SS | 22 | |
| 2 | end of borehole (2.2 metres) | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | See Table 4 for installation details | | | | |

20-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 15 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 262.3 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie | Static Water Elevation | - |
| Date | Nov. 26, 1992 & Dec. 2, 1993 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR 15 | MONITOR 15A | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 0 | ORGANICS<br>brown, dry<br>very loose | | | | 1 | SS | 2 | |
| | SILTY FINE SAND<br>grey to brown<br>compact to dense | | | | | | | |
| 1 | | | | | 2 | SS | 21 | |
| | fine black striations in SA#2 | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | 3 | SS | 39 | shooting" sands below water table<br>use water to flush inside of augers<br>during monitor installation |
| 4 | | | | | | | | |
| | | | | | | | | unable to sample because of<br>shooting" sands<br>no change in aguer cuttings |
| 5 | | | | | | | | |
| 6 | | | | | | | | no change in aguer cuttings |
| 7 | | | | | | | | no change in aguer cuttings |
| 8 | | | | | | | | no change in aguer cuttings |
| 9 | | | | | 4 | SS | 14 | shooting" sands<br>use water to flush inside of augers<br>0 % recovery of sample |

continued on next page

20-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 15 FIGURE F-1a

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 262.3 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie | Static Water Elevation | - |
| Date | Nov. 26, 1992 & Dec. 2, 1993 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR 15A | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 10 | SILTY FINE SAND<br>grey to brown<br>compact to dense | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| | trace to some gravel in top<br>portion of SA#5 | | | 5 | SS | 65 | |
| 14 | SILTY SAND TILL<br>grey<br>very dense | | | | | | |
| | end of borehole (14.5 metres) | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |

20-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

Sir Sandford Fleming College
School of Natural Resources

## SOIL PROFILE and TEST DATA FIELD SHEET

| | |
|---|---|
| JOB NAME: EGIELON LANDFILL | DATE: 98/04/20 |
| CLIENT: VICTORIA COUNTY | LOCATION: EGIELON LANDFILL SITE |
| DRILLING FIRM: SSFC | DRILLER: SSFC |
| BORE HOLE: 15B Page 1 of 4 | WEATHER: SUNNY 15°C |

| SAMPLE type | SAMPLE no. | S.P.T drops/ 6" | DEPTH from | DEPTH to | Cone Blows | Depth | Soil Profile | SOIL DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | | 1.5 ft TOPSOIL (ORGANICS, LOAM) |
| | | | | | | 2 | | |
| | | | | | | 3 | | |
| | | | | | | 4 | | |
| | | | | | | 5 | | SS #1 (5.0'-6.5') |
| SS | 1 | 12,20,29 (49) | 5.0 | 6.5 | | 6 | | DENSE LIGHT GRAY BROWN MEDIUM SAND WITH TRACE OF SILT |
| | | DENSE | | | | 7 | | |
| | | | | | | 8 | | |
| SS | 4 | | | | | 9 | | |
| | | | | | | | | WATER TABLE (10') |
| SS | 2 | 8,14,17 (31) | 10 | 11.5 | | 10 | | SS #2 (10'-11.5') |
| | | DENSE | | | | 11 | | DENSE LIGHT GRAY BROWN MEDIUM SAND WITH TRACE OF SILT |
| | | | | | | 12 | | |
| | | | | | | 13 | | |
| | | | | | | 14 | | |
| | | | | | | 15 | | |
| | | | | | | 16 | | |
| | | | | | | 17 | | |
| | | | | | | 18 | | |

Remarks:

Groundwater Record

| date | grnd el. | depth to | water el. |
|---|---|---|---|
| 98/04/20 | | 10' | |

Sir Sandford Fleming College
School of Natural Resources

## SOIL PROFILE and TEST DATA FIELD SHEET

| | |
|---|---|
| JOB NAME: EGIELON LANDFILL | DATE: 98/04/20 |
| CLIENT: VICTORIA COUNTY | LOCATION: EGIELON LANDFILL |
| DRILLING FIRM: SSFC | DRILLER: SSFC |
| BORE HOLE: 15B Page 2 of 4 | WEATHER: SUNNY 15°C |

| SAMPLE type | SAMPLE no. | S.P.T drops/ 6" | DEPTH from | DEPTH to | Cone Blows | Depth | Soil Profile | SOIL DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 19 | | |
| G | 3 | | 19 | 20 | — | 20 | | G#3 (20') DENSE LIGHT GRAY BROWN MEDIUM SAND WITH TRACE SILT |
| | | | | | | 21 | | |
| | | | | | | 22 | | |
| | | | | | | 23 | | |
| | | | | | | 24 | | |
| | | | | | | 25 | | |
| SS | 4 | | | | | 26 | | |
| | | | | | | 27 | | |
| | | | | | | 28 | | |
| | | | | | | 29 | | |
| | | | | | | 30 | | 98/04/20 FINISHED 98/04/01 START |
| | | | | | | 31 | | |
| | | | | | | 32 | | |
| | | | | | | 33 | | |
| | | | | | | 34 | | |
| | | | | | | 35 | | |
| | | | | | | 13 | | |

Remarks:

Groundwater Record

| date | grnd el. | depth to | water el. |
|---|---|---|---|
| | | | |

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School of Natural Resources

## SOIL PROFILE and TEST DATA FIELD SHEET

| | |
|---|---|
| JOB NAME: FENELON LANDFILL AXLES | DATE: 98/04/23 |
| CLIENT: VICTORIA COUNTY | LOCATION: |
| DRILLING FIRM: SSFC DRILLING | DRILLER: SSFC, DRILLING STUDENTS |
| BORE HOLE: 15-B Page 4 of 4 | WEATHER: SUNNY (17°C) |

| SAMPLE type | SAMPLE no. | S.P.T drops/ 6" | DEPTH from | DEPTH to | Cone Blows | Depth | Soil Profile | SOIL DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 54 | | |
| | | | | | | 55 | | 55'3" ACTUAL BEDROCK DEPTH |
| | | | | | | 56 | | CUTTER CASING DRILLED TO 53'6" |
| | | | | | | 57 | | |
| SS | U | | | | | | | |
| | | | | | | 13 | | |

Remarks:

| Groundwater Record | | | |
|---|---|---|---|
| date | grnd el. | depth to | water el. |

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## SOIL PROFILE and TEST DATA FIELD SHEET

| | |
|---|---|
| JOB NAME: FENELON LANDFILL | DATE: 98/04/23 |
| CLIENT: VICTORIA COUNTY | LOCATION: FENELON LANDFILL |
| DRILLING FIRM: SSFC | DRILLER: SSFC |
| BORE HOLE: 15B Page 3 of 4 | WEATHER: SUNNY 15°C |

| SAMPLE type | SAMPLE no. | S.P.T drops/ 6" | DEPTH from | DEPTH to | Cone Blows | Depth | Soil Profile | SOIL DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 36 | | |
| | | | 37' | | | 37 | | (37') |
| | | | | | | 38 | | 11:30 AM BEGINNING FROM 15B THROUGH FORMATION AND UP BH 15A (MISSISSAGA CONTAMINATION) |
| | | | | | | 39 | | |
| | | | | | | 40 | | |
| | | | | | | 41 | | |
| | | | | | | 42 | | |
| SS | U | | | | | 44 | | |
| | | | | | | 45 | | |
| | | | | | | 46 | | |
| | | | | | | 47 | | BEDROCK 47' FROM SURFACE |
| | | | | | | 48 | | TRI-CONE DRILLED TO 48'3" FOR CONFIRMATION (DIA 3 7/8") |
| | | | | | | 49 | | AUGER CASING DRILLED TO 48'3" |
| | | | | | | 50 | | BEDROCK NOT FOUND DRILLING THROUGH GRAVEL AND COBBLE ABOVE BEDROCK OCCURRED |
| | | | | | | 51 | | |
| | | | | | | 52 | | LIMESTONE AND GNEISS |
| | | | | | | 53 | | GRAVEL WITH COBBLES OF SAME ORIGIN. TRACE SAND & SILT. |
| | | | | | | 13 | | |

Remarks:

| Groundwater Record | | | |
|---|---|---|---|
| date | grnd el. | depth to | water el. |

THIS SAM IN T SIA OF CORE BL

BOREHOLE NUMBER 16 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 267.9 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie/D. H. | Static Water Elevation | - |
| Date | Nov. 27, 1992 & Nov. 2, 1993 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 0 | SAND & GRAVEL | | | | | | |
| | fine to medium grain sand trace gravel cobbles at 0.8 metres | | | 1 | SS | 12 | |
| 1 | | | | 2 | SS | 22 | |
| | fine grain sand, gravel | | | | | | |
| 2 | | | | | | | |
| 3 | | | | 3 | SS | 37 | |
| | fine to coarse grain sand, gravel | | | | | | |
| 4 | | | | 4 | SS | 23 | |
| | fine to coarse grain sand, gravel | | | | | | |
| 5 | | | | | | | |
| 6 | | | | 5 | SS | 26 | |
| | fine to coarse grain sand, gravel | | | | | | |
| 7 | | | | | | | |
| | | | | 6 | SS | 29 | |
| 8 | | | | | | | |
| | | | | 7 | SS | 40 | |
| 9 | | | | | | | |
| | end of borehole (9.2 metres) | | | 8 | SS | 34 | |

See Table 4 for installation details

21-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 17 FIGURE F-1a

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 267.8 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie | Static Water Elevation | - |
| Date | December 2, 1992 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 10 | SAND | | | | | | |
| | | | | 8 | SS | 23 | |
| 11 | | | | | | | |
| 12 | | | | 9 | SS | 32 | |
| 13 | | | | | | | |
| | | | | 10 | SS | 40 | |
| 14 | | | | | | | |
| 15 | | | | 11 | SS | 39 | |
| 16 | | | | | | | |
| | | | | 12 | SS | 35 | |
| 17 | end of borehole (17.0 metres) | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |

See Table 4 for installation details

21-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 18 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 274.7 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie | Static Water Elevation | - |
| Date | December 1, 1992 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 0 | SILTY FINE SAND | | | 1 | SS | 1 | |
| 1 | | | | 2 | SS | 2 | |
| 2 | | | | | | | |
| | MEDIUM SAND | | | | | | |
| 3 | | | | 3 | SS | 4 | |
| 4 | FINE SAND | | | 4 | SS | 7 | |
| 5 | | | | | | | |
| 6 | | | | 5 | SS | 12 | |
| 7 | | | | 6 | SS | 15 | |
| 8 | | | | | | | |
| 9 | | | | 7 | SS | 22 | |

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21-Nov-95 fenlog

BOREHOLE NUMBER 18 FIGURE F-1a

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II. | Ground Elevation | 274.7 |
| Location | lot 15, con 4, Fenelon | Technician | J. Preslie | Static Water Elevation | - |
| Date | December 1, 1992 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 10 | FINE SAND | | | 8 | SS | 24 | |
| | end of borehole (10.6 metres) | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 15 | | | | | | | |
| 19 | | | | | | | |

21-Nov-95 fenlog

BOREHOLE NUMBER 19 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 265.2 |
| Location | lot 15, con 4, Fenelon | Technician | D. Hamilton | Static Water Elevation | - |
| Date | December 1, 1993 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 0 | Organics | | | | | | |
| | FINE SAND | | | 1 | AS | - | |
| 1 | | | | 2 | SS | 3 | |
| 2 | | | | | | | |
| 3 | | | | 3 | SS | 25 | |
| | SAND & GRAVEL | | | | | | |
| 4 | | | | 4 | SS | 24 | |
| 5 | | | | | | | |
| 6 | | | | 5 | SS | 19 | |
| 7 | | | | 6 | SS | 50 | |
| 8 | | | | | | | |
| 9 | | | | 7 | SS | 53 | |

continued on next page

24-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 19 FIGURE F-1a

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | Acker AD II | Ground Elevation | 265.2 |
| Location | lot 15, con 4, Fenelon | Technician | D. Hamilton | Static Water Elevation | - |
| Date | December 1, 1993 | Contractor | SSF College | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 10 | SAND & GRAVEL | | | 8 | SS | 53 | |
| 11 | | | | | | | |
| 12 | | | | 9 | SS | 32 | |
| 13 | | | | | | | |
| 14 | | | | 10 | SS | 39 | |
| 15 | | | | 11 | SS | 33 | |
| 16 | | | | 12 | SS | 18 | |
| | TILL | | | | | | |
| 17 | end of borehole (17.0 metres) | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |

See Table 4 for installation details

24-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 20 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | backhoe | Ground Elevation | 264.4 |
| Location | lot 15, con 4, Fenelon | Technician | D. Hamilton | Static Water Elevation | - |
| Date | July, 1993 | Contractor | Shamrock | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 0 | refuse and native sands/daily cpver | | | | | | |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | end of borehole (5.12 metres) | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |

See Table 4 for installation details

24-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

BOREHOLE NUMBER 21 FIGURE F-1

| | | | | | |
|---|---|---|---|---|---|
| Project | Fenelon Landfill | Drill Type | backhoe | Ground Elevation | 262.9 |
| Location | lot 15, con 4, Fenelon | Technician | D. Hamilton | Static Water Elevation | - |
| Date | July, 1993 | Contractor | Shamrock | Elevation Datum | mASL |

| DEPTH (m) | INFERRED STRATIGRAPHY Description | Symbol | MONITOR | SAMPLE # | type | N' | REMARKS |
|---|---|---|---|---|---|---|---|
| 0 | refuse and native sands/daily cover | | | | | | |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | end of borehole (2.5 metres) | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |

See Table 4 for installation details

24-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

Fenelon - Working File

Ministry of the Environment
Ontario

The Ontario Water Resources Act

# WATER WELL RECORD

Shed

OFFICE

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

| COUNTY OR DISTRICT | TOWNSHIP BOROUGH CITY TOWN VILLAGE | CON BLOCK TRACT SURVEY ETC | LOT |
|---|---|---|---|
| VICTORIA | FENELON | IV | 16 |

| OWNER (SURNAME FIRST) | ADDRESS | DATE COMPLETED |
|---|---|---|
| COUNTY OF VICTORIA WASTE MANAGEMENT | BOX 9000 LAFRANKIN ST LINDSAY K9V 5R8 | DAY 26 MO 04 YR 98 |

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS | GENERAL DESCRIPTION | DEPTH - FEET FROM | TO |
|---|---|---|---|---|---|
| BROWN | SAND | STONES | LOOSE | 0 | [illegible] |
| BROWN | SAND | SAND | FINE | [illegible] | 27 |
| GREY & BROWN | " | CLAY | FINE-MED | 27 | 39 |
| GREY | CLAY | STONES | TILL | 39 | 41 |
| GREY | CLAY | SAND | LOOSE | 41 | 52 |
| GREY | LIMESTONE | SILT | BROKEN WEATHERED ROCK | 52 | 60 |
| GREY | LIMESTONE | | | 60 | 66 |

JUN 03 1998

## WATER RECORD

| WATER FOUND AT - FEET | KIND OF WATER | |
|---|---|---|
| 52-60 | ☑ FRESH ☐ SALTY | ☐ SULPHUR ☐ MINERALS ☐ GAS |
| | ☐ FRESH ☐ SALTY | ☐ SULPHUR ☐ MINERALS ☐ GAS |
| | ☐ FRESH ☐ SALTY | ☐ SULPHUR ☐ MINERALS ☐ GAS |
| | ☐ FRESH ☐ SALTY | ☐ SULPHUR ☐ MINERALS ☐ GAS |
| | ☐ FRESH ☐ SALTY | ☐ SULPHUR ☐ MINERALS ☐ GAS |

## CASING & OPEN HOLE RECORD

| INSIDE DIAM INCHES | MATERIAL | WALL THICKNESS INCHES | DEPTH - FEET FROM | TO |
|---|---|---|---|---|
| 6 1/4 | ☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC | 188 | 0 | 60 |
| 6 1/8 | ☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☑ OPEN HOLE ☐ PLASTIC | | 60 | 66 |
| | ☐ STEEL ☑ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC | | | |

## SCREEN

| SIZE(S) OF OPENING (SLOT NO.) | DIAMETER INCHES | LENGTH FEET |
|---|---|---|
| | | |
| MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET | |

## PLUGGING & SEALING RECORD

| DEPTH SET AT - FEET FROM | TO | MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.) |
|---|---|---|
| 0 | 12 | BEN TONITE |
| | | |
| | | |

## PUMPING TEST

| PUMPING TEST METHOD | PUMPING RATE | DURATION OF PUMPING |
|---|---|---|
| ☑ PUMP ☑ BAILER | 5.5 GPM | 3 HOURS ___ MINS |

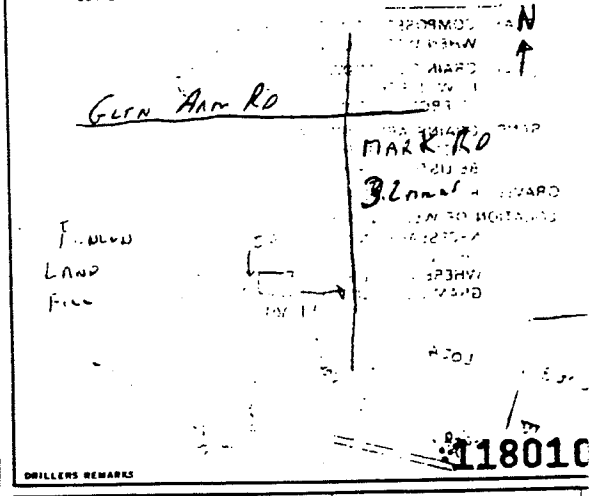
| STATIC LEVEL | WATER LEVEL END OF PUMPING | WATER LEVELS DURING ☑ PUMPING ☑ RECOVERY | 15 MINUTES | 30 MINUTES | 45 MINUTES | 60 MINUTES |
|---|---|---|---|---|---|---|
| 14'5" FEET | 41 FEET | | FEET | 7 FEET | 41 FEET | 41 FEET |

| IF FLOWING GIVE RATE | PUMP INTAKE SET AT | WATER AT END OF TEST |
|---|---|---|
| GPM | 60 FEET | ☐ CLEAR ☐ CLOUDY |

| RECOMMENDED PUMP TYPE | RECOMMENDED PUMP SETTING | RECOMMENDED PUMPING RATE |
|---|---|---|
| ☐ SHALLOW ☑ DEEP | 60 FEET | 5 GPM |

## LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW




DRILLERS REMARKS

118010

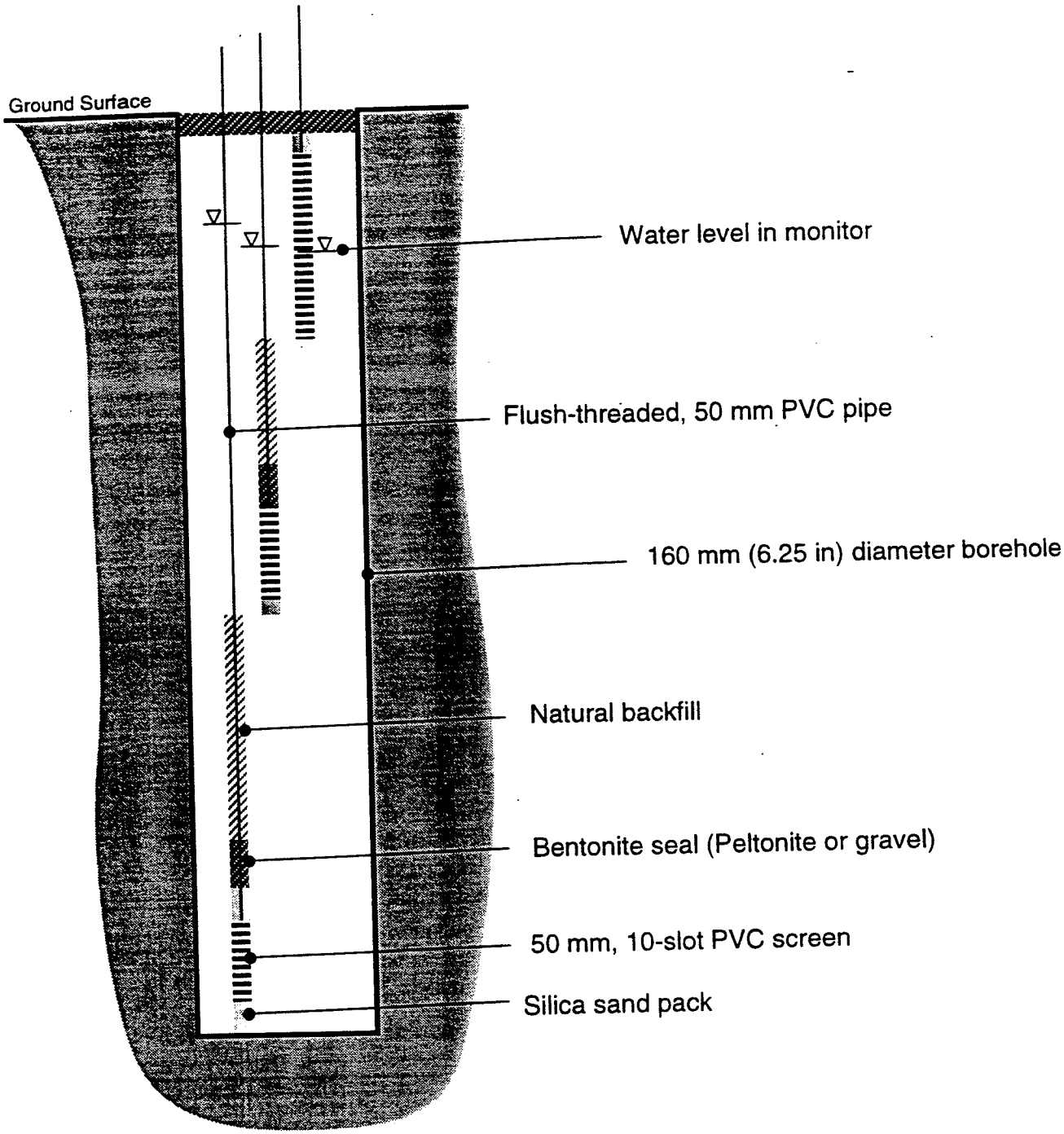
| | |
|---|---|
| FINAL STATUS OF WELL | ☑ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED POOR QUALITY ☐ UNFINISHED ☐ DEWATERING |
| WATER USE | ☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☑ OTHER WASHING TRUCKS ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED |
| METHOD OF CONSTRUCTION | ☑ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☑ DRIVING ☐ DIGGING ☐ OTHER |

## CONTRACTOR

| | |
|---|---|
| NAME OF WELL CONTRACTOR: BRATWHITE DRILLING | WELL CONTRACTOR'S LICENCE NUMBER: 1376 |
| ADDRESS: RR 1 LINDSAY | |
| NAME OF WELL TECHNICIAN: GORD BAILEY | WELL TECHNICIAN'S LICENCE NUMBER: 7022 |
| SIGNATURE OF TECHNICIAN/CONTRACTOR | SUBMISSION DATE: DAY 22 MO MAY YR 98 |

OFFICE USE ONLY

# Explanation of Borehole Log



# BOREHOLE LOG

**BH 18 A, B** (Page 1 of 2)

BOREHOLE TYPE: AIR ROTARY
DRILLING RIG: INGERSOLL-RAND TH55
CONTRACTOR: G. HART & SONS WELL DRILLING LTD.
GEOLOGIST: TED RANNIE
DATE(S) DRILLED: 15 JULY 1999

BOREHOLE DIAMETER: 160 mm
GROUND ELEVATION (18A): 267.9 mASL
CASING ELEVATION (18A): 268.81 mASL

STATIC WATER LEVELS (mASL): 259.81 (18A)
DATE: 12NOV99 259.81 (18B)

| ELEVATION (mASL) | DEPTH (m) | DESCRIPTION | LITHOLOGY | MONITORS 18A 18B | K (m/s) IN-SITU TEST | K (m/s) HAZEN ESTIMATE | SAMPLES INTERVAL | NO. | TYPE | 'N' | GRAIN SIZE ANALYSIS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ***FINE SAND:*** Medium brown, minor coarse gravel, saturated below about 3 m. | | | | | | 1 | GS | - | | All monitors installed in the same borehole. Monitors consist of flush-threaded, 50 mm PVC pipe and 10-slot screen. GS = Grab sample |
| | | | | | | | | 2 | GS | - | | |
| | | | | | | | | 3 | GS | - | | |
| | | | | | | | | 4 | GS | - | | |
| | | | | | | | | 5 | GS | - | | |
| | | | | | | | | 6 | GS | - | | |
| 259.5 | 8.4 | ***GRAVELLY SAND:*** Medium brown, loose, poorly sorted, wet. | | | | | | 7 | GS | - | | |
| | | | | | | | | 8 | GS | - | | |
| | | | | | | | $2x10^{-4}$ | 9 | GS | - | x | |
| | | | | | | | | 10 | GS | - | | |
| 251.9 | 16.0 | ***FINE SAND:*** Medium brown, minor coarse gravel, saturated. | | | | | | 11 | GS | - | | |
| | | | | | | | | 12 | GS | - | | |
| 245.5 | 22.4 | ***GRAVELLY SAND:*** Medium grey, loose, less fine material than above unit, moderately well sorted, saturated. | | | | | | 13 | GS | - | | |
| | | | | | | | | 14 | GS | - | | |

***HYDROGEOLOGICAL STUDY, PHASE 3***
***FENELON LANDFILL***
***VICTORIA COUNTY, ONTARIO***

*Middle Earth Hydrogeology Inc.*

# BOREHOLE LOG

**BH 18 A, B** (Page 2 of 2)

BOREHOLE TYPE: AIR ROTARY
DRILLING RIG: INGERSOLL-RAND TH55
CONTRACTOR: G. HART & SONS WELL DRILLING LTD.
GEOLOGIST: TED RANNIE
DATE(S) DRILLED: 15 JULY 1999

BOREHOLE DIAMETER: 160 mm
GROUND ELEVATION (18A): 267.9 mASL
CASING ELEVATION (18A): 268.81 mASL

STATIC WATER LEVELS (mASL): 259.81 (18A)
DATE: 12NOV99 259.81 (18B)

| ELEVATION (mASL) | DEPTH (m) | DESCRIPTION | LITHOLOGY | MONITORS 18A | K (m/s) IN-SITU TEST | K (m/s) HAZEN ESTIMATE | SAMPLES INTERVAL | SAMPLES NO. | SAMPLES TYPE | SAMPLES 'N' | SAMPLES GRAIN SIZE ANALYSIS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ***GRAVELLY SAND:*** Medium brown, loose, poorly sorted, wet. | | | | | | 14 | GS | - | | All monitors installed in the same borehole. Monitors consist of flush-threaded, 50 mm PVC pipe and 10-slot screen. GS = Grab sample |
| | | | | | | | | 15 | GS | - | | |
| 245.1 | 22.9 | ***LIMESTONE:*** Medium grey, fractured, aphanitic. | | | | | | 16 | GS | - | | |
| | | | | | | | | 17 | GS | - | | |
| | | | | | $2x10^{-5}$ | | | 18 | GS | - | | |
| | | **Borehole depth = 27.1 m** | | | | | | | | | | |

# BOREHOLE LOG

**BH 22** (Page 1 of 1)

BOREHOLE TYPE: AIR ROTARY
DRILLING RIG: INGERSOLL-RAND TH55
CONTRACTOR: G. HART & SONS WELL DRILLING LTD.
GEOLOGIST: TED RANNIE
DATE(S) DRILLED: 15 JULY 1999

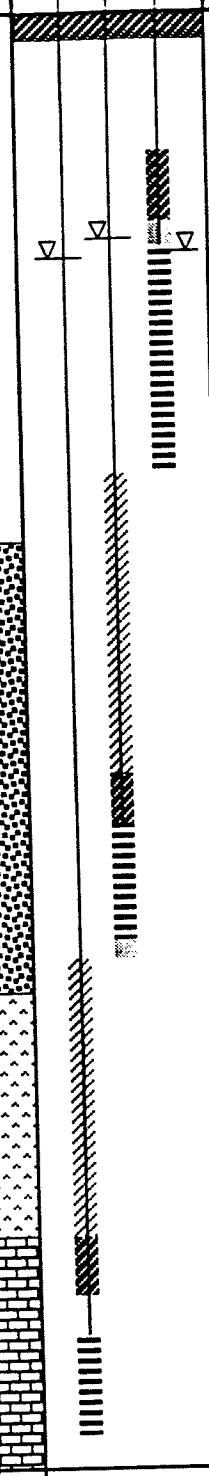
BOREHOLE DIAMETER: 160 mm
GROUND ELEVATION (22A): 263.5 mASL
CASING ELEVATION (22A): 264.43 mASL

STATIC WATER LEVELS (mASL): 260.31 (22)
DATE: 12NOV99 260.35 (22A)
260.39 (22P

| ELEVATION (mASL) | DEPTH (m) | DESCRIPTION |
|---|---|---|
| | | ***FINE SAND:*** Medium brown, minor coarse gravel, saturated below about 3.1 m. |
| 256.5 | 7.0 | ***COARSE SAND AND GRAVEL:*** Medium brown, loose, poorly sorted, saturated. |
| 249.8 | 13.7 | ***TILL:*** Medium grey, minor coarse gravel, saturated. |
| 244.1 | 16.2 | ***LIMESTONE:*** Medium grey, fractured, aphanitic. |
| | | Borehole depth = 19.2 m |

LITHOLOGY

MONITORS




| K (m/s) IN-SITU TEST | K (m/s) HAZEN ESTIMATE | SAMPLES INTERVAL | NO. | TYPE | 'N' | GRAIN SIZE ANALYSIS |
|---|---|---|---|---|---|---|
| | | | 1 | GS | - | |
| | | | 2 | GS | - | |
| | | | 3 | GS | - | |
| | $2x10^{-4}$ | | 4 | GS | - | x |
| | | | 5 | GS | - | |
| | | | 6 | GS | - | |
| | | | 7 | GS | - | |
| | | | 8 | GS | - | |
| | | | 9 | GS | - | |
| | $3x10^{-5}$ | | 10 | GS | - | x |
| | | | 11 | GS | - | |
| | $2x10^{-5}$ | | 12 | GS | - | |
| | | | 13 | GS | - | |

**REMARKS**

All monitors installed in the same borehole.

Monitors consist of flush-threaded, 50 mm PVC pipe and 10-slot screen.

GS = Grab sample

***HYDROGEOLOGICAL STUDY, PHASE 3***
***FENELON LANDFILL***
***VICTORIA COUNTY, ONTARIO***

*Middle Earth Hydrogeology Inc.*

# BOREHOLE LOG

**BH 23** (Page 1 of 1)

BOREHOLE TYPE: AIR ROTARY
DRILLING RIG: INGERSOLL-RAND TH55
CONTRACTOR: G. HART & SONS WELL DRILLING LTD.
GEOLOGIST: TED RANNIE
DATE(S) DRILLED: 16-19 JULY 1999

BOREHOLE DIAMETER: 100 mm
GROUND ELEVATION (23A): 260.2 mASL
CASING ELEVATION (23A): 261.45 mASL

STATIC WATER LEVELS (mASL): 259.38 (23), 259.32 (23A), 259.33 (23B)
DATE: 12NOV99

| ELEVATIL (mASL) | DEPTH (m) | DESCRIPTION | K (m/s) IN-SITU TEST | K (m/s) HAZEN ESTIMATE | SAMPLES INTERVAL | SAMPLES NO. | SAMPLES TYPE | SAMPLES 'N' | SAMPLES GRAIN SIZE ANALYSIS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ***MEDIUM SAND:*** Medium brown, minor coarse gravel, saturated below about 0.8 m. | | | | 1 | GS | - | | All monitors installed in the same borehole. Monitors consist of flush-threaded, 50 mm PVC pipe and 10-slot screen. GS = Grab sample |
| | | | | | | 2 | GS | - | | |
| | | | | | | 3 | GS | - | | |
| 256.4 | 3.8 | ***SANDY GRAVEL:*** Medium brown, loose, poorly sorted, saturated. | | $4x10^{-3}$ | | 4 | GS | - | x | |
| | | | | | | 5 | GS | - | | |
| | | | | | | 6 | GS | - | | |
| 251.8 | 8.4 | ***FINE-MEDIUM SAND:*** Medium brown, minor coarse gravel, saturated. | | | | 7 | GS | - | | |
| | | | | $4x10^{-4}$ | | 8 | GS | - | x | |
| | | | | | | 9 | GS | - | | |
| 247.3 | 13.0 | ***FINE SAND:*** Medium brown, minor coarse gravel, saturated. | | $1x10^{-4}$ | | 10 | GS | - | x | |
| | | | | | | 11 | GS | - | | |
| 244.1 | 16.2 | ***LIMESTONE:*** Medium grey, fractured, aphanitic. | | $7x10^{-4}$ | | 12 | GS | - | | |
| | | | | | | 13 | GS | - | | |
| | | Borehole depth = 19.2 m | | | | | | | | |

MONITORS: 23, 23A, 23B

**HYDROGEOLOGICAL STUDY, PHASE 3**
**FENELON LANDFILL**
**VICTORIA COUNTY, ONTARIO**

Middle Earth Hydrogeology Inc.

# BOREHOLE LOG

**BH 24** (Page 1 of 1)

BOREHOLE TYPE: AIR ROTARY
DRILLING RIG: INGERSOLL-RAND TH55
CONTRACTOR: G. HART & SONS WELL DRILLING LTD.
GEOLOGIST: TED RANNIE
DATE(S) DRILLED: 13 JULY 1999

BOREHOLE DIAMETER: 160 mm
GROUND ELEVATION: 262.4 mASL
CASING ELEVATION: 263.33 mASL

STATIC WATER LEVELS (mASL): 260.38
DATE: 29JUL99

| ELEVATION (mASL) | DEPTH (m) | DESCRIPTION | LITHOLOGY | MONITOR | K (m/s) IN-SITU TEST | K (m/s) HAZEN ESTIMATE | SAMPLES INTERVAL | SAMPLES NO. | SAMPLES TYPE | SAMPLES 'N' | SAMPLES GRAIN SIZE ANALYSIS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ***REFUSE AND FILL:*** Saturated below about 1.5 m. | | | | | | 1 | GS | - | | Monitor consists of flush-threaded, 50 mm PVC pipe and 10-slot screen. |
| | | | | | | | | 2 | GS | - | | GS = Grab sample |
| 260.0 | 2.4 | ***PEAT:*** Dark brown, saturated. | | | | | | | | | | |
| 259.7 | 2.7 | ***FINE SAND:*** Medium grey, saturated. | | | | | | 3 | GS | - | | |
| | | **Borehole depth = 4.9 m** | | | | | | | | | | |

Environment

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

18A, B

| County or District | Township/Borough/City/Town/Village | Con block tract survey, etc. | Lot |
|---|---|---|---|
| Victoria | Fenelon (Fenelon Landfill #25) | 4 | 17 |

| Owner's surname | First Name | Address | Date completed |
|---|---|---|---|
| Victoia County | | P.O. Box 9000 Lindsay, ON K9V 5R8 | 16 (day) 07 (month) 99 (year) |

**LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)**

| General colour | Most common material | Other materials | General description | Depth - feet From | Depth - feet To |
|---|---|---|---|---|---|
| Brown | sand | | | 0 | 4 |
| Brown | sandy clay | | | 4 | 7 |
| Brown | sand | | | 7 | 14 |
| Brown | sand & gravel | | | 14 | 25 |
| Brown | sandy clay | gravel | | 25 | 31 |
| Brown | sand & gravel | | wet | 31 | 45 |
| Brown | sand | | wet | 45 | 54 |
| Brown | sand & gravel | | wet | 54 | 75 |
| Grey | limestone boulders | sand & gravel | wet | 75 | 79 |
| Grey | limestone | | | 79 | 89 |
| | | | | | |

**WATER RECORD**

| Water found at - feet | Kind of water |
|---|---|
| 84-89 | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas (Unfitted) |
| 55-60 | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas (Unfitted) |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |

**CASING & OPEN HOLE RECORD**

| Inside diam inches | Material | Wall thickness inches | Depth - feet From | Depth - feet To |
|---|---|---|---|---|
| 2 | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☒ Plastic | Sch 40 | +3 | 84 |
| | | | +3 | 55 |
| 6¼ | ☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | .188 | +3 | 7½ |
| | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | | | |

**SCREEN**

| Sizes of opening (Slot No.) | Diameter | Length |
|---|---|---|
| | 2 inches | 5 /5 feet |

| Material and type | Depth at top of screen |
|---|---|
| PVC | 84 /55 feet |

**PLUGGING & SEALING RECORD**

☐ Annular space ☐ Abandonment

| Depth set at - feet From | To | Material and type (Cement grout, bentonite, etc.) |
|---|---|---|
| 89 | 89½ | silica sand |
| 81½ | 79 | peltonite |
| 79 | 60 | sand fill |
| 60 | 52 | silica sand #cont' |

**PUMPING TEST**

| Pumping test method | Pumping rate | Duration of pumping |
|---|---|---|
| ☐ Pump ☐ Bailer | GPM | Hours Mins |

| Static level | Water level end of pumping | Water levels during ☐ Pumping ☐ Recovery | | | |
|---|---|---|---|---|---|
| | | 15 minutes | 30 minutes | 45 minutes | 60 minutes |
| 29½ feet | feet | feet | feet | feet | feet |

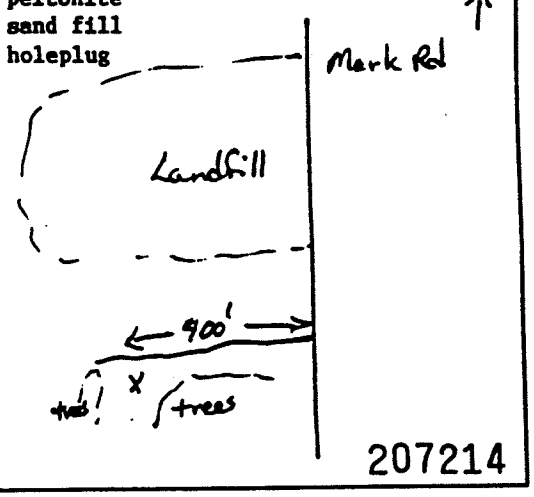
| If flowing give rate | Pump intake set at | Water at end of test |
|---|---|---|
| GPM | feet | ☐ Clear ☐ Cloudy |

| Recommended pump type | Recommended pump setting | Recommended pump rate |
|---|---|---|
| ☐ Shallow ☐ Deep | feet | GPM |

**LOCATION OF WELL**

In diagram below show distances of well from road and lot line. Indicate north by arrow.

52 -50 peltonite
50 - 9 sand fill
9 - 6 holeplug




207214

**FINAL STATUS OF WELL**

☐ Water supply ☒ Observation well ☐ Test hole ☐ Recharge well ☐ Abandoned, insufficient supply ☐ Abandoned, poor quality ☐ Abandoned (Other) ☐ Dewatering ☐ Unfinished ☐ Replacement well

**WATER USE**

☐ Domestic ☐ Stock ☐ Irrigation ☐ Industrial ☐ Commercial ☐ Municipal ☐ Public supply ☐ Cooling & air conditioning ☐ Not use ☐ Other .....

**METHOD OF CONSTRUCTION**

☐ Cable tool ☐ Rotary (conventional) ☐ Rotary (reverse) ☒ Rotary (air) ☐ Air percussion ☐ Boring ☐ Diamond ☐ Jetting ☐ Driving ☐ Digging ☐ Other .....

| Name of Well Contractor | Well Contractor's Licence No. |
|---|---|
| G.Hart & Sons Well Drilling Ltd | 2662 |
| Address: Box 850 Fenelon Falls, ON K0M 1N0 | |
| Name of Well Technician: Bryan Watson | Well Technician's Licence No. |
| Signature of Technician/Contractor | Submission date (day mo yr) |

MINISTRY USE ONLY

0806 (11/88) Front Form 9

1 - CONTRACTOR'S COPY

...MO ... of the Environment

# WATER WELL RECORD

...h spaces provided.
...rrect box with a checkmark, where applicable.

22

| County or District | Township/Borough/City/Town/Village | Con block tract survey, etc. | Lot |
|---|---|---|---|
| Victoria | Fenelon (Fenelon Landfill #24) | 4 | 17 |

| Owner's surname | First Name | Address | Date completed |
|---|---|---|---|
| Victoria County | | P.O. Box 9000 Lindsay, ON K9V 5R8 | 15 (day) 07 (month) 99 (year) |

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

| General colour | Most common material | Other materials | General description | Depth - feet From | Depth - feet To |
|---|---|---|---|---|---|
| Brown | sand | | | 0 | 23 |
| Brown | sand | gravel | | 23 | 40 |
| Grey | clay | gravel | | 40 | 53 |
| Grey | limestone | | | 53 | 63 |

## WATER RECORD

| Water found at - feet | Kind of water | |
|---|---|---|
| 13-20 | ☐ Fresh ☐ Salty | ☐ Sulphur ☐ Minerals ☐ Gas |
| 36-41 | ☐ Fresh ☐ Salty | ☐ Sulphur ☐ Minerals ☐ Gas |
| 57-62 | ☐ Fresh ☐ Salty | ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty | ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty | ☐ Sulphur ☐ Minerals ☐ Gas |

## CASING & OPEN HOLE RECORD

| Inside diam inches | Material | Wall thickness inches | Depth - feet From | Depth - feet To |
|---|---|---|---|---|
| 2 | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☒ Plastic | Sch40 | +3<br>+3<br>+3 | 57<br>36<br>10 |
| 6¼ | ☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | | +3 | 6½ |
| | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | | | |

## SCREEN

| Slots of opening (Slot No.) | Diameter | Length |
|---|---|---|
| | 2 inches | 5/5/10 feet |

| Material and type | Depth at top of screen |
|---|---|
| PVC | 57/36/10 feet |

## PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

| Depth set at - feet From | To | Material and type (Cement grout, bentonite, etc.) |
|---|---|---|
| 63 | 55½ | silica sand |
| 55½ | 53 | peltonite |
| 53 | 41 | sand fill *cont'd |

## PUMPING TEST

| Pumping test method | Pumping rate | Duration of pumping |
|---|---|---|
| ☐ Pump ☐ Bailer | GPM | ..... Hours ..... Mins |

| Static level | Water level end of pumping | Water levels during ☐ Pumping ☐ Recovery | | | |
|---|---|---|---|---|---|
| | | 15 minutes | 30 minutes | 45 minutes | 60 minutes |
| 13 feet | feet | feet | feet | feet | feet |

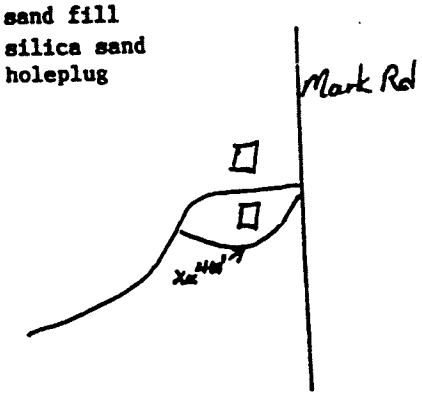
| If flowing give rate | Pump intake set at | Water at end of test |
|---|---|---|
| GPM | feet | ☐ Clear ☐ Cloudy |

| Recommended pump type | Recommended pump setting | Recommended pump rate |
|---|---|---|
| ☐ Shallow ☐ Deep | feet | GPM |

## LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.

* 41-35½ silica sand
35½-33 peltonite
33-20 sand fill
20-9 silica sand
9 - 6 holeplug




207202

## FINAL STATUS OF WELL

☐ Water supply
☒ Observation well
☐ Test hole
☐ Recharge well
☐ Abandoned, insufficient supply
☐ Abandoned, poor quality
☐ Abandoned (Other)
☐ Dewatering
☐ Unfinished
☐ Replacement well

## WATER USE

☐ Domestic
☐ Stock
☐ Irrigation
☐ Industrial
☐ Commercial
☐ Municipal
☐ Public supply
☐ Cooling & air conditioning
☐ Not use
☐ Other .....

## METHOD OF CONSTRUCTION

☐ Cable tool
☐ Rotary (conventional)
☐ Rotary (reverse)
☒ Rotary (air)
☐ Air percussion
☐ Boring
☐ Diamond
☐ Jetting
☐ Driving
☐ Digging
☐ Other .....

| Name of Well Contractor | Well Contractor's Licence No. |
|---|---|
| G.Hart & Sons Well Drilling Ltd | 2662 |
| Address: Box 850 Fenelon Falls, ON K0M 1N0 | |
| Name of Well Technician: Bryan Watson | Well Technician's Licence No. |
| Signature of Technician/Contractor: Bryan Watson | Submission date: day mo yr |

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Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

23

| County or District | Township/Borough/City/Town/Village | Con block tract survey, etc. | Lot |
|---|---|---|---|
| Victoria | Fenelon (Fenelon Landfill #26) | 4 | 17 |

| Owner's surname / First Name | Address | Date completed |
|---|---|---|
| Victoria County | P.O. Box 9000 Lindsay, ON K9V 5R8 | 19 (day) 07 (month) 99 (year) |

**LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)**

| General colour | Most common material | Other materials | General description | Depth - feet From | Depth - feet To |
|---|---|---|---|---|---|
| Brown | sand | some clay | | 0 | 3 |
| Brown | sand & gravel | some clay | | 3 | 8 |
| Brown | sand & gravel | | wet | 8 | 38 |
| Grey | sand & gravel | | wet | 38 | 53 |
| Grey | limestone | | fractures | 53 | 63 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**WATER RECORD**

| Water found at - feet | Kind of water |
|---|---|
| 57–63 | ☐ Fresh ☐ Salty (underlined) ☐ Sulphur ☐ Minerals ☐ Gas |
| 35–40 | ☐ Fresh ☐ Salty (underlined) ☐ Sulphur ☐ Minerals ☐ Gas |
| 3–12 | ☐ Fresh ☐ Salty (underlined) ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |

**CASING & OPEN HOLE RECORD**

| Inside diam inches | Material | Wall thickness inches | Depth - feet From | Depth - feet To |
|---|---|---|---|---|
| 2 | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☒ Plastic | Sch 40 | +4<br>+4<br>+4 | 58<br>35<br>2 |
| 6¼ | ☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | ,188 | +4 | 5 |
| | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | | | |

**SCREEN**

| Slots of opening (Slot No.) | Diameter | Length |
|---|---|---|
| | 2 inches | 5/5/10 feet |

| Material and type | Depth at top of screen |
|---|---|
| PVC | 58/35/2 feet |

**PLUGGING & SEALING RECORD**

☒ Annular space ☐ Abandonment

| Depth set at - feet From | To | Material and type (Cement grout, bentonite, etc.) |
|---|---|---|
| 63 | 56½ | silica sand |
| 56½ | 54½ | peltonite |
| 54½ | 40 | natural fill |
| 40 | 32½ | silica sand |
| 32½ | 30 | peltonite *cont'd |

**PUMPING TEST**

| Pumping test method | Pumping rate | Duration of pumping |
|---|---|---|
| ☐ Pump ☐ Bailer | GPM | Hours Mins |

| Static level | Water level end of pumping | Water levels during ☐ Pumping ☐ Recovery | | | |
|---|---|---|---|---|---|
| | | 15 minutes | 30 minutes | 45 minutes | 60 minutes |
| 6 feet | feet | feet | feet | feet | feet |

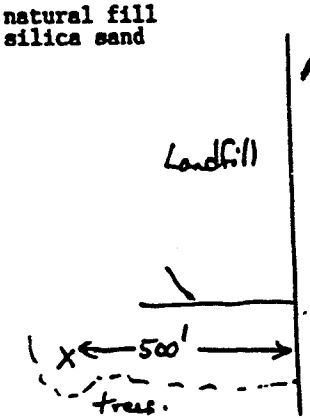
| If flowing give rate | Pump intake set at | Water at end of test |
|---|---|---|
| GPM | feet | ☐ Clear ☐ Cloudy |

| Recommended pump type | Recommended pump setting | Recommended pump rate |
|---|---|---|
| ☐ Shallow ☐ Deep | feet | GPM |

**LOCATION OF WELL**

In diagram below show distances of well from road and lot line. Indicate north by arrow.

* 30 – 12 natural fill
12 – 2 silica sand




207215

**FINAL STATUS OF WELL**

☐ Water supply ☒ Observation well ☐ Test hole ☐ Recharge well ☐ Abandoned, insufficient supply ☐ Abandoned, poor quality ☐ Abandoned (Other) ☐ Dewatering ☐ Unfinished ☐ Replacement well

**WATER USE**

☐ Domestic ☐ Stock ☐ Irrigation ☐ Industrial ☐ Commercial ☐ Municipal ☐ Public supply ☐ Cooling & air conditioning ☐ Not use ☐ Other .....

**METHOD OF CONSTRUCTION**

☐ Cable tool ☐ Rotary (conventional) ☐ Rotary (reverse) ☒ Rotary (air) ☐ Air percussion ☐ Boring ☐ Diamond ☐ Jetting ☐ Driving ☐ Digging ☐ Other .....

| Name of Well Contractor | Well Contractor's Licence No. |
|---|---|
| G.Hart & Sons Well Drilling Ltd | 2662 |
| Address: Box 850 Fenelon Falls, ON KOM 1NO | |
| Name of Well Technician: Bryan Watson | Well Technician's Licence No. |
| Signature of Technician/Contractor: Bryan Watson | Submission date: day mo yr |

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Ministry of the Environment

# WATER WELL RECORD

24

...in spaces provided.
...correct box with a checkmark, where applicable.

| County or District | Township/Borough/City/Town/Village | Con block tract survey, etc. | Lot |
|---|---|---|---|
| Victoria | Fenelon (Fenelon Landfill #23) | 4 | 17 |

| Owner's surname | First Name | Address | Date completed |
|---|---|---|---|
| Victoria County | | P.O. Box 9000 Lindsay, ON K9V 5R8 | 14 (day) 07 (month) 99 (year) |

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

| General colour | Most common material | Other materials | General description | Depth - feet From | To |
|---|---|---|---|---|---|
| Brown | sand | refuse | | 0 | 5 |
| Brown | sand | wood & refuse | | 5 | 8 |
| Black | muck | | wet | 8 | 9 |
| Grey | fine sand | | wet | 9 | 16 |

## WATER RECORD

| Water found at - feet | Kind of water |
|---|---|
| 6-16 | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |
| | ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas |

## CASING & OPEN HOLE RECORD

| Inside diam inches | Material | Wall thickness inches | Depth - feet From | To |
|---|---|---|---|---|
| 2 | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☒ Plastic | Sch40 | +3 | 6 |
| 6¼ | ☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | .188 | +3 | 3'10" |
| | ☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic | | | |

## SCREEN

| Slots of opening (Slot No.) | Diameter | Length |
|---|---|---|
| | 2 inches | 10 feet |

| Material and type | Depth at top of screen |
|---|---|
| PVC | 6 feet |

## PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

| Depth set at - feet From | To | Material and type (Cement grout, bentonite, etc.) |
|---|---|---|
| 16 | 4 | silica sand |
| 4 | 0 | holeplug |

## PUMPING TEST

| Pumping test method | Pumping rate | Duration of pumping |
|---|---|---|
| ☐ Pump ☐ Bailer | GPM | ..... Hours ..... Mins |

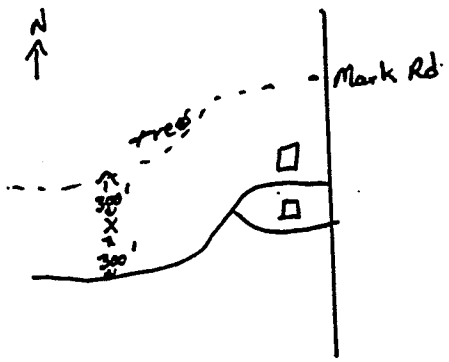
| Static level | Water level end of pumping | Water levels during ☐ Pumping ☐ Recovery: 15 minutes | 30 minutes | 45 minutes | 60 minutes |
|---|---|---|---|---|---|
| 9 feet | feet | feet | feet | feet | feet |

| If flowing give rate | Pump intake set at | Water at end of test |
|---|---|---|
| GPM | feet | ☐ Clear ☐ Cloudy |

| Recommended pump type | Recommended pump setting | Recommended pump rate |
|---|---|---|
| ☐ Shallow ☐ Deep | feet | GPM |

## LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.




207201

## FINAL STATUS OF WELL

☐ Water supply
☒ Observation well
☐ Test hole
☐ Recharge well
☐ Abandoned, insufficient supply
☐ Abandoned, poor quality
☐ Abandoned (Other)
☐ Dewatering
☐ Unfinished
☐ Replacement well

## WATER USE

☐ Domestic
☐ Stock
☐ Irrigation
☐ Industrial
☐ Commercial
☐ Municipal
☐ Public supply
☐ Cooling & air conditioning
☐ Not use
☐ Other .....

## METHOD OF CONSTRUCTION

☐ Cable tool
☐ Rotary (conventional)
☐ Rotary (reverse)
☒ Rotary (air)
☐ Air percussion
☐ Boring
☐ Diamond
☐ Jetting
☐ Driving
☐ Digging
☐ Other .....

| Name of Well Contractor | Well Contractor's Licence No. |
|---|---|
| G.Hart & Sons Well Drilling Ltd | 2662 |

| Address | Well Technician's Licence No. |
|---|---|
| Box 850 Fenelon Falls, ON KOM 1NO | |

| Name of Well Technician | Submission date |
|---|---|
| | day mo yr |

Signature of Technician/Contractor

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6506 (11/89) Front Form 9

# DRILL HOLE # reinstall MW 6 (2008)



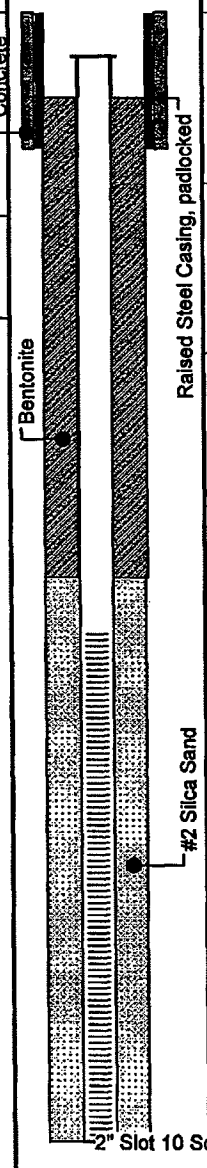
**Date Drilled:** Dec. 11, 2007
**Rig:** CME 55N
**Contractor:** Aardvark Drilling Inc.
**Hammer Type:** cathead

**Location:** Fenelon Landfill
**Elevation:**
**Co-ord:** 673766 E, 4926966 N

**Project No.** 07-0384-00
**Project:** Kawartha Lakes
**Client:** City fo Kawartha Lakes

| Depth (m) | Sample Type | Recovery Number | Blows/0.15 m | Symbols | SOIL DESCRIPTION | Elevation |
|---|---|---|---|---|---|---|
| | | | | | Ground Surface | 0 |
| 0 | | | | | ***FILL*** refuse | 0 |
| | Grab | 1 | | | | |
| 1 | | | | | | -4 |
| | | | | | ***PEAT*** black, saturated | 4 |
| | SS | 2 | 5 | | | -6 |
| 2 | | | | | ***SAND*** fine, grey, saturated | 6 |
| 3 | SS | 3 | 28 | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |

Well Installation




Moisture Content %
Wp |----X----| Wl
10 30 50 70 90

Pocket Penetrometer
● kPa ●
100 200 300 400

SPT (N)
■ Blows/ft ■
10 20 30 40

Note: This borehole log has been prepared for geotechnical purposes and does not necessarily contain information suitable for an environmental assessment of the subsurface conditions.

**Aardvark Drilling Inc.**
**25-C Lewis Road**
**Guelph, Ontario**

# DRILL HOLE # reinstall MW 6A (2008)



**Date Drilled:** Dec. 11, 2007
**Rig:** CME 55N
**Contractor:** Aardvark Drilling Inc.
**Hammer Type:** cathead

**Location:** Fenelon Landfill
**Elevation:**
**Co-ord:** 673766 E, 4926966 N

**Project No.** 07-0384-00
**Project:** Kawartha Lakes
**Client:** City fo Kawartha Lakes

| Depth (m) | Sample Type | Recovery Number | Blows/0.15 m | Symbols | SOIL DESCRIPTION | Well Installation | Moisture Content % Wp \|----X----\| Wl (10 30 50 70 90) | Pocket Penetrometer ● kPa ● (100 200 300 400) / SPT (N) ■ Blows/ft ■ (10 20 30 40) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Ground Surface 0 | | | |
| | | | | | *FILL* refuse 0 | Concrete; Bentonite; Raised Steel Casing, padlocked | | |
| 1 | | | | | -4 | | | |
| | | | | | *PEAT* black, saturated 4 | | | |
| | | | | | -6 | | | |
| 2 | | | | | *SAND* fine, grey, saturated 6 | #2 Silca Sand | | |
| 3 | | | | | | | | |
| 4 | | | | | | 2" Slot 10 Screen | | |

Note: This borehole log has been prepared for geotechnical purposes and does not necessarily contain information suitable for an environmental assessment of the subsurface conditions.

**Aardvark Drilling Inc.**
**25-C Lewis Road**
**Guelph, Ontario**

MW8-08

# Log of Borehole: NMW#2

**Project No.:** 12793

**Project:** Kawartha Lakes Well (Fenelon)

**Client:** City of Kawartha Lakes

**Enclosure:**

**Location:** 341 Mark Road, Fenelon Twp, ON

**Project Manager:** Raj Kundu

| SUBSURFACE PROFILE | | | | SAMPLE | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery | Vapour (ppm) | Well Data | Comments |
| 0 / 0 | | Ground Surface | 0.0 | | | | | | |
| | | ***Fill Material*** Dense, dry, brown sandy fill material | 0.0 | | | 40 | | | Monument Casing; Bentonite pellet seal |
| 4 | | ***Sand*** Loose, dense, drown sand | -4.0 / 4.0 | | | | | | sand pack with 3.05 m screening |
| 8 | | ***Sand*** Loose, wet, brown/grey sand | -8.0 / 8.0 | | | 70; 80 | | | |
| 12 | | ***Sand*** Loose, wet, brown/grey sand | -12.0 / 12.0 | | | 80 | | | |
| 16 | | | | | | | | | Well depth at 4.88 m; End of Borehole |
| 18 | | | | | | | | | |
| 20 | | | | | | | | | |

**Drilled By:** Strata Soil Sampling Inc.

**Drill Method:** Geoprobe GM100DT

**Drill Date:** December 18th, 2008

***T Harris Environmental Management Inc.***
***93 Skyway Avenue, Suite 101***
***Toronto, Ontario***
***M9W 6N6***

**Hole Size:** 10 cm

**Datum:**

**Sheet:** 1 of 1

MW11A

# Log of Borehole: NMW#1

**Project No.:** 12793

**Project:** Kawartha Lakes Well (Fenelon)

**Client:** City of Kawartha Lakes

**Enclosure:**

**Location:** 341 Mark Road, Fenelon Twp, ON

**Project Manager:** Raj Kundu

| SUBSURFACE PROFILE | | | | SAMPLE | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery | Vapour (ppm) | Well Data | Comments |
| 0 / 0 | | Ground Surface | 0.0 | | | | | | |
| | | ***Sand*** Loose, moist, brown sand with gravel inclusions | 0.0 | | | 30 | | | Monument Casing; Bentonite pellet seal |
| | | | -4.0 | | | | | | |
| | | ***Sand*** Loose, moist, dark brown silty sand with peat | 4.0 | | | | | | Sand pack with 3.05 m of screening |
| 2 | | | -8.0 | | | 10 | | | |
| | | ***Sand*** Loose, moist, grey silty sand with peat | 8.0 | | | | | | |
| | | | -12.0 | | | | | | |
| 4 | | ***Sand*** Loose, wet, grey silty sand | 12.0 | | | 15 | | | |
| 6 | | | | | | 70 | | | Well Depth at 4.88 m; End of Borehole |

**Drilled By:** Strata Soil Sampling Inc.

**Drill Method:** Geoprobe GM100DT

**Drill Date:** December 17th, 2008

***T Harris Environmental Management Inc.***
***93 Skyway Avenue, Suite 101***
***Toronto, Ontario***
***M9W 6N6***

**Hole Size:** 10 cm

**Datum:**

**Sheet:** 1 of 1

MW26

Ministry of the Environment

Well Tag No. (Place Sticker and/or Print Below) A 075535 A075535

# Well Record

Regulation 903 Ontario Water Resources Act

4943 Page 1 of 1

Measurements recorded in: ☐ Metric ☒ Imperial

## Well Owner's Information

| First Name | Last Name / Organization | E-mail Address | ☐ Well Constructed by Well Owner |
|---|---|---|---|
| | City of Kawartha Lakes | | |

| Mailing Address (Street Number/Name) | Municipality | Province | Postal Code | Telephone No. (inc. area code) |
|---|---|---|---|---|
| 12 Peel St P.O Box 9000 | Lindsay | ON | K9V 5R8 | 705 324 9411 |

## Well Location

| Address of Well Location (Street Number/Name) | Township | Lot | Concession |
|---|---|---|---|
| | | | |

| County/District/Municipality | City/Town/Village | Province | Postal Code |
|---|---|---|---|
| | | Ontario | |

| UTM Coordinates | Zone | Easting | Northing | Municipal Plan and Sublot Number | Other |
|---|---|---|---|---|---|
| NAD 83 | 17 | 0672442 | 4936288 | | |

## Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft) From | To |
|---|---|---|---|---|---|
| Blk. | Peat | | loose | 0' | 4' |
| Brown/Grey | Sand | | loose | 4' | 8' |
| Grey | Sand | Silt | loose | 8' | 15' |

## Annular Space

| Depth Set at (m/ft) From | To | Type of Sealant Used (Material and Type) | Volume Placed (m³/ft³) |
|---|---|---|---|
| 0' | 1' | Concrete | |
| 1' | 9' | Bentonite | |
| 9' | 15' | Sand | |

## Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

| Draw Down Time (min) | Water Level (m/ft) | Recovery Time (min) | Water Level (m/ft) |
|---|---|---|---|
| Static Level | | | |
| 1 | | 1 | |
| 2 | | 2 | |
| 3 | | 3 | |
| 4 | | 4 | |
| 5 | | 5 | |
| 10 | | 10 | |
| 15 | | 15 | |
| 20 | | 20 | |
| 25 | | 25 | |
| 30 | | 30 | |
| 40 | | 40 | |
| 50 | | 50 | |
| 60 | | 60 | |

## Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☒ Other, specify Direct Push

## Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☒ Test Hole ☒ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

## Construction Record - Casing

| Inside Diameter (cm/in) | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) From | To |
|---|---|---|---|---|
| 5.20 | Pvc | 0.390 | 0 | 10' |

## Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

## Construction Record - Screen

| Outside Diameter (cm/in) | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft) From | To |
|---|---|---|---|---|
| 6.03 | Pvc | 10 | 10' | 15' |

## Water Details

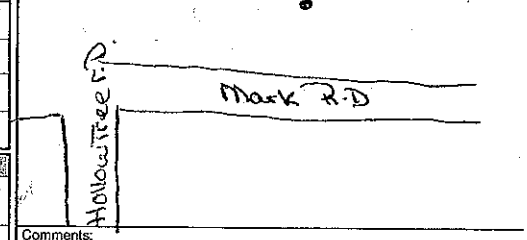
| Water found at Depth (m/ft) | Kind of Water | |
|---|---|---|
| ☐ Gas | ☐ Fresh ☐ Untested | ☐ Other, specify |
| Water found at Depth (m/ft) ☐ Gas | ☐ Fresh ☐ Untested | ☐ Other, specify |
| Water found at Depth (m/ft) ☐ Gas | ☐ Fresh ☐ Untested | ☐ Other, specify |

## Hole Diameter

| Depth (m/ft) From | To | Diameter (cm/in) |
|---|---|---|
| | | |

## Map of Well Location

Please provide a map below following instructions on the back.




Comments:

## Well Contractor and Well Technician Information

| Business Name of Well Contractor | Well Contractor's Licence No. |
|---|---|
| Strater Soil Sampling INC | 7241 |

| Business Address (Street Number/Name) | Municipality |
|---|---|
| 47-2 West Beaver Creek. | Richmond Hill |

| Province | Postal Code | Business E-mail Address |
|---|---|---|
| ON | L4B1C6 | wecorder@stratersoil.com |

| Bus. Telephone No. (inc. area code) | Name of Well Technician (Last Name, First Name) |
|---|---|
| 7015 764 4313 014 | Mike Beaini |

| Well Technician's Licence No. | Signature of Technician and/or Contractor | Date Submitted |
|---|---|---|
| 7129771 | | 2008/08/19 |

| Well owner's information package delivered | Date Package Delivered | Date Work Completed |
|---|---|---|
| ☐ Yes ☐ No | Y Y Y Y M M D D | 2008 08 07 |

Ministry Use Only: Z 81722

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MW26-1

Ontario — Ministry of the Environment

Measurements recorded in: ☑ Metric ☐ Imperial

Well Tag No. (Plac A081555 **A 081555**

# Well Record

*Regulation 903 Ontario Water Resources Act*

Page 1 of 1

## Well Owner's Information

| First Name | Last Name / Organization | E-mail Address | ☐ Well Constructed by Well Owner |
|---|---|---|---|
| | City of Kawartha Lakes | | |

| Mailing Address (Street Number/Name) | Municipality | Province | Postal Code | Telephone No. (inc. area code) |
|---|---|---|---|---|
| 26 Francis St. W., P.O. Box 9000 | Lindsay | ON. | K9V5R3 | 7053249444 |

## Well Location

| Address of Well Location (Street Number/Name) | Township | Lot | Concession |
|---|---|---|---|
| Fenelon Landfill (operating) – 341 Hatch Rd. | Fenelon | | |

| County/District/Municipality | City/Town/Village | Province | Postal Code |
|---|---|---|---|
| south of the site on the right side of Hatch Rd. | | Ontario | |

| UTM Coordinates | Zone | Easting | Northing | Municipal Plan and Sublot Number | Other |
|---|---|---|---|---|---|
| NAD 83 | 17 | 674448 | 4926285 | | |

## Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft) From | To |
|---|---|---|---|---|---|
| | Sand | | Wet | 0.00 | 7.62 |
| Grey | Sand | gravel | | 7.62 | 11.28 |
| | Mixed fills | Sand, gravel, limestone slabs | | 11.28 | 15.24 |
| | Silt (fine) | | | 15.24 | 18.29 |
| | Mixed fills | Sand, gravel | | 18.29 | 20.27 |

## Annular Space

| Depth Set at (m/ft) From | To | Type of Sealant Used (Material and Type) | Volume Placed (m³/ft³) |
|---|---|---|---|
| 0.00 | 15.70 | Bentonite | |
| 15.70 | 19.36 | Sand | |
| 19.36 | 20.27 | Native fill | |

## Method of Construction

☐ Cable Tool ☐ Diamond
☑ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☑ Other, *specify* HS Auger – 4.25"

## Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☑ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify*

## Construction Record - Casing

| Inside Diameter (cm/in) | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) From | To |
|---|---|---|---|---|
| 10.0 | Steel | .70 | +0.91 | 0.91 |
| 5.0 | Plastic | .40 | +0.91 | 16.31 |

## Construction Record - Screen

| Outside Diameter (cm/in) | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft) From | To |
|---|---|---|---|---|
| 6.1 | Plastic | .010 | 16.31 | 19.36 |

## Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☑ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

## Water Details

| Water found at Depth (m/ft) | Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify* |
|---|---|
| Water found at Depth (m/ft) | Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify* |
| Water found at Depth (m/ft) | Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify* |

## Hole Diameter

| Depth (m/ft) From | To | Diameter (cm/in) |
|---|---|---|
| 0.00 | 8.23 | 20.0 |
| 8.23 | 20.27 | 8.9 |

## Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

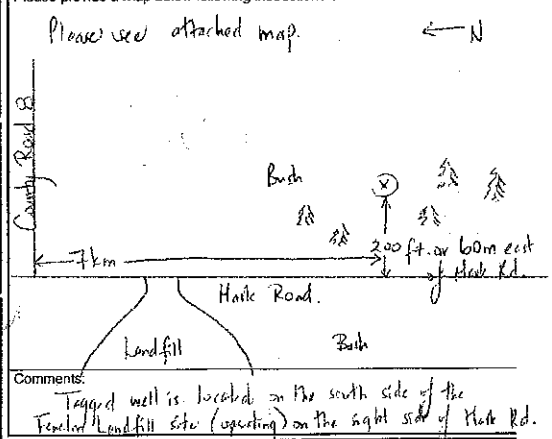
Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

| Draw Down Time (min) | Water Level (m/ft) | Recovery Time (min) | Water Level (m/ft) |
|---|---|---|---|
| Static Level | | | |
| 1 | | 1 | |
| 2 | | 2 | |
| 3 | | 3 | |
| 4 | | 4 | |
| 5 | | 5 | |
| 10 | | 10 | |
| 15 | | 15 | |
| 20 | | 20 | |
| 25 | | 25 | |
| 30 | | 30 | |
| 40 | | 40 | |
| 50 | | 50 | |
| 60 | | 60 | |

## Map of Well Location

Please provide a map below following instructions on the back.




Comments: Tagged well is located on the south side of the Fenelon Landfill site (operating) on the right side of Hatch Rd.

## Well Contractor and Well Technician Information

| Business Name of Well Contractor | Well Contractor's Licence No. |
|---|---|
| All-Terrain Drilling Ltd. | 7123 |

| Business Address (Street Number/Name) | Municipality |
|---|---|
| 3-641 Colby Drive | Waterloo |

| Province | Postal Code | Business E-mail Address |
|---|---|---|
| ON. | N2V1C1 | allterrain@golden.net |

| Bus. Telephone No. (inc. area code) | Name of Well Technician (Last Name, First Name) |
|---|---|
| 5199886810 | Grant, Don |

| Well Technician's Licence No. | Signature of Technician and/or Contractor | Date Submitted |
|---|---|---|
| 3211 | | YYYYMMDD |

| Well owner's information package delivered | Date Package Delivered | Ministry Use Only |
|---|---|---|
| ☐ Yes ☑ No | YYYYMMDD | Audit No. Z099100 |
| | Date Work Completed: YYYYMMDD | Received |

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PROJECT: 11-1188-0007

# RECORD OF BOREHOLE: MW26-2

SHEET 1 OF 2

LOCATION: N ;E

BORING DATE: May 31 - June 2, 2011

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE: DESCRIPTION | STRATA PLOT | ELEV. / DEPTH (m) | SAMPLES: NUMBER | TYPE | BLOWS/0.3m | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●; rem V. ⊕ U - ○) (20 40 60 80) | HYDRAULIC CONDUCTIVITY, k, cm/s ($10^{-6}$ $10^{-5}$ $10^{-4}$ $10^{-3}$) / WATER CONTENT PERCENT (Wp ⊢—○W—⊣ Wl) (10 20 30 40) | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | GROUND SURFACE | | | | | | | | | June 2, 2011 |
| 0 | Wash Boring, 114 mm HW Casing | Wet, dark brown to black, Organic TOPSOIL/PEAT, containing rootlets and debris | | 0.00 | 1 | AS | | | | | Concrete |
| 1 | | | | | 2 | AS | | | | | |
| | | Dense, wet, brown to grey, well graded, SAND and GRAVEL, trace to some silt, cobbles | | 1.42 | | | | | | | Bentonite Seal |
| 2 | | | | | | | | | | | |
| 3 | | | | | 3 | 50 DO | 37 | | | | |
| | | Compact, wet, grey, coarse to medium grained, GRAVEL (COBBLES), trace sand and silt | | 3.50 | | | | | | | |
| 4 | | | | | 4 | 50 DO | 21 | | | | |
| | | Compact, wet, grey, well graded, SAND and GRAVEL, trace clay and silt | | 4.57 | | | | | | | |
| 5 | | | | | 5 | 50 DO | 11 | | | | |
| | | | | | 6 | 50 DO | 28 | | | | |
| 6 | | Very dense, grey, fine to medium grained, GRAVEL, trace sand and silt | | 6.01 | | | | | | | |
| | | | | | 7 | 50 DO | 69 | | | | Benseal Grout |
| 7 | | Dense, grey, well graded, Silty SAND, trace clay, some gravel (cobbles) | | 7.16 | | | | | | | |
| 8 | | | | | 8 | 50 DO | 39 | | | | |
| | | Very dense to dense, grey, well graded, SAND and GRAVEL, trace clay, trace silt (cobbles) | | 8.69 | | | | | | | |
| 9 | | | | | 9 | 50 DO | 53 | | | | |
| 10 | | | | | | | | | | | Bentonite Seal |

*CONTINUED NEXT PAGE*

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: CR

CHECKED: FB

PROJECT: 11-1188-0007

# RECORD OF BOREHOLE: MW26-2

SHEET 2 OF 2

LOCATION: N ;E

BORING DATE: May 31 - June 2, 2011

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE: DESCRIPTION | STRATA PLOT | ELEV. / DEPTH (m) | SAMPLES: NUMBER | TYPE | BLOWS/0.3m | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80) | HYDRAULIC CONDUCTIVITY, k, cm/s ($10^{-6}$ $10^{-5}$ $10^{-4}$ $10^{-3}$) / WATER CONTENT PERCENT (Wp ⊖W Wl) (10 20 30 40) | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *--- CONTINUED FROM PREVIOUS PAGE ---* | | | | | | | | | |
| 10 | Wash Boring, 114 mm HW Casing | Very dense to dense, grey, well graded, SAND and GRAVEL, trace clay, trace silt (cobbles) | | | 10 | 50 DO | 67 | | | | Bentonite Seal |
| 11 | | | | | | | | | | | Sand |
| 12 | | | | | 11 | 50 DO | 41 | | | | 50 mm Diam. PVC Screen |
| 13 | | | | | | | | | | | |
| 14 | | | | | 12 | 50 DO | 69 | | | | Cave |
| | | END OF BOREHOLE | | 14.50 | | | | | | | Grounwater level approximately at ground surface on June 2, 2011. |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: CR

CHECKED: FB

| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-I 1 of 2 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HQ Casing<br>**Contractor:** Lantech Drilling | **DATE:** March 13, 2014<br>**LOGGED BY** KGA<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | SAMPLE INTERVAL | SAMPLE TYPE | SAMPLE N VALUE | SAMPLE % WATER | SAMPLE % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **PEAT**<br>Black silty organic soil, rootlets, twigs, saturated, very loose. | | | | | | | | | |
| 1 | | | | ▽ | | | | | | | |
| 1.7 | | **SILTY SAND / SANDY SILT**<br>Grey silty sand to sandy silt, saturated, compact. | | | | | | | | | Lithology above 13 m is inferred from BH27-II and BH27-III. |
| 2 | | | | | | | | | | | |
| 3.1 | | **SANDY SILT**<br>Grey sandy silt, trace clay, trace gravel, saturated, loose to compact. | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5.0 | | **SILTY SAND**<br>Grey silty fine sand, trace clay, trace gravel, saturated, compact. | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6.1 | | **SAND**<br>Grey fine sand, trace silt, saturated, loose to compact. | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | - Grey fine sand below about 7.6 m. | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 9.9 | | **SAND**<br>Light brown fine sand, saturated, compact. | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |



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| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-I 2 of 2 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HQ Casing<br>**Contractor:** Lantech Drilling | **DATE:** March 13, 2014<br>**LOGGED BY** KGA<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | INTERVAL | TYPE | N VALUE | % WATER | % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13.1 | | **SAND & GRAVEL**<br>Grey coarse sand and gravel, minor oxidation, rounded gravel, saturated. | | | 1 | | SS | 33 | | 46 | |
| 13.7 | | **SAND**<br>Brown medium coarse sand, trace silt, saturated. | | | | | | | | | |
| 15 | | | | | 2 | | SS | 26 | | 38 | |
| 16.5 | | **GRAVEL**<br>Gravel, some sand, gravel is angular, broken metamorphic rock, saturated. | | | 3 | | SS | 33 | | 25 | |
| 18.3 | | | | | 4 | | SS | >50 | | 44 | |
| | | **LIMESTONE BEDROCK**<br>Grey competent limestone, dark and light grey bedding 1 mm to 3 mm in thickness. Horizontal fracturing, 2-5 mm of broken rock and fracturing at 19.2 m and 19.74 m. | | | 1 | | HQ | | | | RQD 76% |
| 20 | | | | | 2 | | HQ | | | | RQD 80% |
| 21.3 | | | | | | | | | | | |

Printed: Apr 22, 14
File Location:

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| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-II 1 of 1 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HSA / SS<br>**Contractor:** Lantech Drilling | **DATE:** March 10, 2014<br>**LOGGED BY** SRB<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | INTERVAL | TYPE | N VALUE | % WATER | % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **PEAT**<br>Black silty organic soil, rootlets, twigs, saturated, very loose. | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 1.7 | | **SILTY SAND / SANDY SILT**<br>Grey silty sand to sandy silt, saturated, compact. | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3.1 | | **SANDY SILT**<br>Grey sandy silt, trace clay, trace gravel, saturated, loose to compact. | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| | | | | | 1 | | SS | 15 | | 83 | |
| 5.0 | | **SILTY SAND**<br>Grey silty fine sand, trace clay, trace gravel, saturated, compact. | | | | | | | | | |
| 5 | | | | | | | | | | | |
| | | | | | 2 | | SS | 14 | | 71 | |
| 6.1 | | **SAND**<br>Grey fine sand, trace silt, saturated, loose to compact. | | | | | | | | | |
| 6 | | | | | | | | | | | |
| | | | | | 3 | | SS | 7 | | 92 | |
| 7 | | | | | 4 | | SS | 10 | | 63 | |
| | | - Grey fine sand below about 7.6 m. | | | 5 | | SS | 6 | | 75 | |
| 8 | | | | | | | | | | | |
| | | | | | 6 | | SS | 10 | | 67 | |
| 9 | | | | | | | | | | | Rod sinking in the flowing sand past augers. |
| 9.9 | | | | | | | | | | | |
| 10 | | **SAND**<br>Light brown fine sand, saturated, compact. | | | 7 | | SS | 23 | | 75 | |
| 10.7 | | Borehole terminated at 10.67 m in fine sand.<br><br>Augered directly to 4.57 m without sampling, stratigraphy inferred from adjacent borehole BH27-III. | | | | | | | | | |

Printed: Apr 22, 14
File Location:

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| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-III 1 of 1 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HSA / SS<br>**Contractor:** Lantech Drilling | **DATE:** March 6, 2014<br>**LOGGED BY** SRB<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | INTERVAL | TYPE | N VALUE | % WATER | % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **PEAT**<br>Black silty organic soil, rootlets, twigs, saturated, very loose. | | ▽ | 1 | | SS | 3 | | 100 | |
| 1 | | | | | 2 | | SS | 2 | | 54 | |
| 1.7 | | **SILTY SAND / SANDY SILT**<br>Grey silty sand to sandy silt, saturated, compact. | | | 3 | | SS | 2 | | 54 | |
| 2 | | | | | 4 | | SS | 14 | | 63 | |
| 3.1 3 | | **SANDY SILT**<br>Grey sandy silt, trace clay, trace gravel, saturated, loose to compact. | | | 5 | | SS | 15 | | 67 | |
| 4 | | | | | 6 | | SS | 6 | | 100 | |
| 4.6 | | Borehole terminated at 4.57 m in sandy silt. | | | | | | | | | |



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PO Box 325 • 52 Hunter Street East
Peterborough • Ontario • K9H 1G5

# *Log of Borehole: WP1*

***Project No.:*** 1816-001

***Project Name:*** Fenelon Falls Landfill Well Install

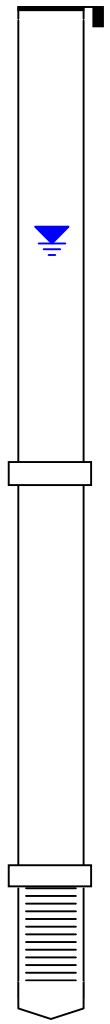
***Client:*** City of Kawartha Lakes

***Logged By:*** S. Dolstra

***Location:*** Fenelon Falls Landfill

***Project Manager:*** D. Bucholtz

## SUBSURFACE PROFILE

| Depth (ft / m) | Symbol | Description | Well Installation | Remarks |
|---|---|---|---|---|
| -4 | | |  | Well stick up 0.87m |
| -2 | | | | Steel well riser equiped with lockable J-Plug and weather proof lock |
| | | | | Water level December 2, 2010 from top of pipe (0.72 m) |
| 0 | | Ground Surface | | |
| | | ***Organic Material*** Dark brown, wet | | |
| | | ***Drive Point Well - No Samples*** | | 0.051m steel well riser |
| 2 | | | | |
| 1 | | | | |
| 4 | | | | |
| 6 | | | | |
| | | | | 0.051m x 0.30m stainless steel screen |
| 8 | | | | |
| | | End of Borehole | | |

***Drilled By:*** S. Dolstra

***Drill Method:*** Drive Point

***Drill Date:*** December 2, 2010

***Input By:*** S. Dolstra

***Checked By:*** D. Bucholtz

***Sheet:*** 1 of 1

**Cambium Environmental Inc.**
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Peterborough • Ontario • K9H 1G5

# *Log of Borehole: WP2*

***Project No.:*** 1816-001

***Project Name:*** Fenelon Falls Landfill Well Install

***Client:*** City of Kawartha Lakes

***Logged By:*** S. Dolstra

***Location:*** Fenelon Falls Landfill

***Project Manager:*** D. Bucholtz

## SUBSURFACE PROFILE

| Depth (ft / m) | Symbol | Description | Well Installation | Remarks |
|---|---|---|---|---|
| -4 | | | | Well stick up 1.0m |
| -2 | | | | Steel well riser equiped with lockable J-Plug and weather proof lock |
| | | | | Water level December 2, 2010 from top of pipe (0.85 m) |
| 0 | | Ground Surface | | |
| | | ***Organic Material*** Dark brown, wet | | |
| | | ***Drive Point Well - No Samples*** | | 0.051m steel well riser |
| 2 | | | | |
| 1 | | | | |
| 4 | | | | |
| 6 | | | | |
| | | | | 0.051m x 0.30m stainless steel screen |
| 8 | | End of Borehole | | |

***Drilled By:*** S. Dolstra

***Drill Method:*** Drive Point

***Drill Date:*** December 2, 2010

***Input By:*** S. Dolstra

***Checked By:*** D. Bucholtz

***Sheet:*** 1 of 1

**Cambium Environmental Inc.**
PO Box 325 • 52 Hunter Street East
Peterborough • Ontario • K9H 1G5

# *Log of Borehole: WP3*

***Project No.:*** 1816-001

***Project Name:*** Fenelon Falls Landfill Well Install

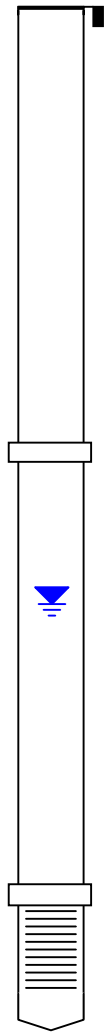
***Client:*** City of Kawartha Lakes

***Logged By:*** S. Dolstra

***Location:*** Fenelon Falls Landfill

***Project Manager:*** D. Bucholtz

## SUBSURFACE PROFILE

| Depth (ft / m) | Symbol | Description | Well Installation | Remarks |
|---|---|---|---|---|
| -4 | | |  | Well stick up 0.95m |
| -2 | | | | Steel well riser equiped with lockable J-Plug and weather proof lock |
| 0 | | Ground Surface | | |
| | | ***Organic Material*** Dark brown, wet | | |
| | | ***Drive Point Well - No Samples*** | | 0.051m steel well riser |
| 2 | | | | |
| 1 | | | | Water level December 2, 2010 from top of pipe (2.04 m) |
| 4 | | | | |
| 6 | | | | |
| 8 | | | | 0.051m x 0.30m stainless steel screen |
| | | End of Borehole | | |

***Drilled By:*** S. Dolstra

***Drill Method:*** Drive Point

***Drill Date:*** December 2, 2010

***Input By:*** S. Dolstra

***Checked By:*** D. Bucholtz

***Sheet:*** 1 of 1

**Cambium Environmental Inc.**
PO Box 325 • 52 Hunter Street East
Peterborough • Ontario • K9H 1G5

# *Log of Borehole: WP4*

***Project No.:*** 1816-001

***Project Name:*** Fenelon Falls Landfill Well Install

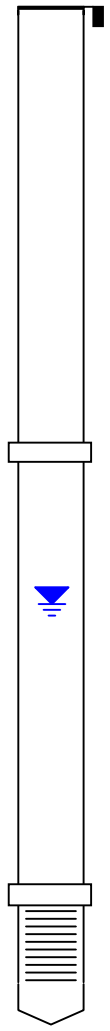
***Client:*** City of Kawartha Lakes

***Logged By:*** S. Dolstra

***Location:*** Fenelon Falls Landfill

***Project Manager:*** D. Bucholtz

## SUBSURFACE PROFILE

| Depth (ft / m) | Symbol | Description | Well Installation | Remarks |
|---|---|---|---|---|
| -4 | | |  | Well stick up 0.86m |
| -2 | | | | Steel well riser equiped with lockable J-Plug and weather proof lock. |
| 0 | | Ground Surface | | |
| | | ***Organic Material*** Dark brown, wet | | |
| | | ***Drive Point Well - No Samples*** | | 0.051m steel well riser |
| 2 | | | | |
| 1 | | | | Water level December 2, 2010 from top of pipe (2.04 m) |
| 4 | | | | |
| 6 | | | | |
| | | | | 0.051m x 0.30m stainless steel screen |
| 8 | | End of Borehole | | |

***Drilled By:*** S. Dolstra

***Drill Method:*** Drive Point

***Drill Date:*** December 2, 2010

***Input By:*** S. Dolstra

***Checked By:*** D. Bucholtz

***Sheet:*** 1 of 1

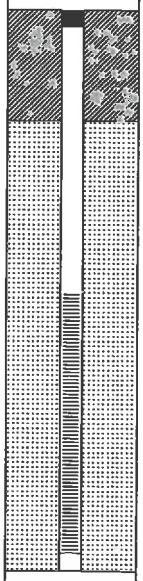
**Pinchin Environmental**
204-160 Charlotte Street
Peterborough, Ontario, K9J 2T8

# Stratigraphic and Instrumentation Log: WP6-13

**Project No.:** 81838
**Project:** Fenelon Landfill
**Client:** City of Kawatha Lakes
**Location:** 341 Mark Road, Fenelon Falls, Ontario

**Logged By:** C. Moose
**Entered By:** L. DiAngelo
**Project Manager:** C. Moose
**Drill Date:** August 22, 2013

| SUBSURFACE PROFILE | | | | SAMPLE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (m) | Symbol | Description | Elevation | Number | Type | Sample | N-Value | Recovery (%) | Vapour Reading (ppm) △ ppm △ 50 100 150 200 | Monitoring Well |
| 0 | | Ground Surface 258.592 | 0.0 | NA | NA | NA | NA | NA | | |
| | | **Topsoil** | -0.2 | | | | | | | |
| | | **Sand**<br>Wet, brown, fine to coarse grained, no odour | | NA | NA | NA | NA | NA | | |
| 1 | | | | NA | NA | NA | NA | NA | | |
| | | | -1.5 | | | | | | | |
| | | **Silty Clay**<br>Wet, grey, no odour | | NA | NA | NA | NA | NA | | |
| 2 | | | | NA | NA | NA | NA | NA | | |
| 3 | | | -3.0 | NA | NA | NA | NA | NA | | |
| | | End of Borehole | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |



**Drilled By:** Strata Drilling
**Drill Method:** GeoProbe 7822 DT
**Vapour Instrument:** NA
**Well Casing Size:** 5.1 cm

**Datum:** NA
**Casing Elevation:** NA
**Ground Elevation:** ~~NA~~ 258.592
**Sheet:** 1 of 1

**Pinchin Environmental**
204-160 Charlotte Street
Peterborough, Ontario, K9J 2T8

# Stratigraphic and Instrumentation Log: MW-7 (2013)

**Project No.:** 81838
**Project:** Fenelon Landfill
**Client:** City of Kawatha Lakes
**Location:** 341 Mark Road, Fenelon Falls, Ontario

**Logged By:** C. Moose
**Entered By:** L. DiAngelo
**Project Manager:** C. Moose
**Drill Date:** August 22, 2013

| SUBSURFACE PROFILE | | | | SAMPLE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (m) | Symbol | Description | Elevation | Number | Type | Sample | N-Value | Recovery (%) | Vapour Reading (ppm) ▵ 50 ppm 100 150 ▵ 200 | Monitoring Well |
| | | Ground Surface | 0.0 | | | | | | | |
| 0 | | ***Fill - Sand and Gravel*** Domestic refuse, moist, brown, fine to coarse grained | | NA | NA | NA | NA | NA | | |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | NA | NA | NA | NA | NA | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | NA | NA | NA | NA | NA | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | Wet below 9 m depth | | NA | NA | NA | NA | NA | | |
| 10 | | | | | | | | | | |
| 11 | | | | | | | | | | |
| 12 | | | | NA | NA | NA | NA | NA | | |
| 13 | | | | | | | | | | |
| 14 | | | | | | | | | | |
| 15 | | | | NA | NA | NA | NA | NA | | |
| 16 | | | | | | | | | | |
| 17 | | | -17.1 | | | | | | | |
| | | End of Borehole | | | | | | | | |

**Drilled By:** Strata Drilling
**Drill Method:** GeoProbe 7822 DT
**Vapour Instrument:** NA
**Well Casing Size:** 5.1 cm

**Datum:** NA
**Casing Elevation:** NA
**Ground Elevation:** NA
**Sheet:** 1 of 1

| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-I 1 of 2 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HQ Casing<br>**Contractor:** Lantech Drilling | **DATE:** March 13, 2014<br>**LOGGED BY** KGA<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | SAMPLE INTERVAL | SAMPLE TYPE | SAMPLE N VALUE | SAMPLE % WATER | SAMPLE % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **PEAT**<br>Black silty organic soil, rootlets, twigs, saturated, very loose. | | | | | | | | | |
| 1 | | | | ▽ | | | | | | | |
| 1.7 | | **SILTY SAND / SANDY SILT**<br>Grey silty sand to sandy silt, saturated, compact. | | | | | | | | | Lithology above 13 m is inferred from BH27-II and BH27-III. |
| 2 | | | | | | | | | | | |
| 3.1 | | **SANDY SILT**<br>Grey sandy silt, trace clay, trace gravel, saturated, loose to compact. | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5.0 | | **SILTY SAND**<br>Grey silty fine sand, trace clay, trace gravel, saturated, compact. | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6.1 | | **SAND**<br>Grey fine sand, trace silt, saturated, loose to compact. | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | - Grey fine sand below about 7.6 m. | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 9.9 | | **SAND**<br>Light brown fine sand, saturated, compact. | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |



AECOM

| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-I 2 of 2 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HQ Casing<br>**Contractor:** Lantech Drilling | **DATE:** March 13, 2014<br>**LOGGED BY** KGA<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | INTERVAL | TYPE | N VALUE | % WATER | % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13.1 | | **SAND & GRAVEL**<br>Grey coarse sand and gravel, minor oxidation, rounded gravel, saturated. | | | 1 | | SS | 33 | | 46 | |
| 13.7 | | **SAND**<br>Brown medium coarse sand, trace silt, saturated. | | | | | | | | | |
| 15 | | | | | 2 | | SS | 26 | | 38 | |
| 16.5 | | **GRAVEL**<br>Gravel, some sand, gravel is angular, broken metamorphic rock, saturated. | | | 3 | | SS | 33 | | 25 | |
| 18.3 | | | | | 4 | | SS | >50 | | 44 | |
| | | **LIMESTONE BEDROCK**<br>Grey competent limestone, dark and light grey bedding 1 mm to 3 mm in thickness. Horizontal fracturing, 2-5 mm of broken rock and fracturing at 19.2 m and 19.74 m. | | | 1 | | HQ | | | | RQD 76% |
| 20 | | | | | 2 | | HQ | | | | RQD 80% |
| 21.3 | | | | | | | | | | | |

Printed: Apr 22, 14
File Location:

AECOM

| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-II 1 of 1 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HSA / SS<br>**Contractor:** Lantech Drilling | **DATE:** March 10, 2014<br>**LOGGED BY** SRB<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | INTERVAL | TYPE | N VALUE | % WATER | % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **PEAT**<br>Black silty organic soil, rootlets, twigs, saturated, very loose. | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 1.7 | | **SILTY SAND / SANDY SILT**<br>Grey silty sand to sandy silt, saturated, compact. | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3.1 | | **SANDY SILT**<br>Grey sandy silt, trace clay, trace gravel, saturated, loose to compact. | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| | | | | | 1 | | SS | 15 | | 83 | |
| 5.0 | | **SILTY SAND**<br>Grey silty fine sand, trace clay, trace gravel, saturated, compact. | | | | | | | | | |
| 5 | | | | | | | | | | | |
| | | | | | 2 | | SS | 14 | | 71 | |
| 6.1 | | **SAND**<br>Grey fine sand, trace silt, saturated, loose to compact. | | | | | | | | | |
| 6 | | | | | | | | | | | |
| | | | | | 3 | | SS | 7 | | 92 | |
| 7 | | | | | 4 | | SS | 10 | | 63 | |
| | | - Grey fine sand below about 7.6 m. | | | 5 | | SS | 6 | | 75 | |
| 8 | | | | | | | | | | | |
| | | | | | 6 | | SS | 10 | | 67 | |
| 9 | | | | | | | | | | | Rod sinking in the flowing sand past augers. |
| 9.9 | | | | | | | | | | | |
| 10 | | **SAND**<br>Light brown fine sand, saturated, compact. | | | 7 | | SS | 23 | | 75 | |
| 10.7 | | Borehole terminated at 10.67 m in fine sand.<br><br>Augered directly to 4.57 m without sampling, stratigraphy inferred from adjacent borehole BH27-III. | | | | | | | | | |

Printed: Apr 22, 14
File Location:

AECOM

| BOREHOLE LOG | PROJECT: 60317459 | BOREHOLE: BH27-III 1 of 1 |
|---|---|---|
| Fenelon Landfill Drilling<br>Fenelon Landfill<br>**Client:** City of Kawartha Lakes | **Northing:** 4926696<br>**Easting:** 675656<br>**Methodology:** HSA / SS<br>**Contractor:** Lantech Drilling | **DATE:** March 6, 2014<br>**LOGGED BY** SRB<br>**GROUND ELEV** N/A m ASL |

| DEPTH (m) | STRATIGRAPHY | STRATIGRAPHIC DESCRIPTION | MONITOR DETAILS & NUMBER | WATER LEVEL | SAMPLE NUMBER | INTERVAL | TYPE | N VALUE | % WATER | % REC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **PEAT**<br>Black silty organic soil, rootlets, twigs, saturated, very loose. | | ▽ | 1 | | SS | 3 | | 100 | |
| 1 | | | | | 2 | | SS | 2 | | 54 | |
| 1.7 | | **SILTY SAND / SANDY SILT**<br>Grey silty sand to sandy silt, saturated, compact. | | | 3 | | SS | 2 | | 54 | |
| 2 | | | | | 4 | | SS | 14 | | 63 | |
| 3.1 3 | | **SANDY SILT**<br>Grey sandy silt, trace clay, trace gravel, saturated, loose to compact. | | | 5 | | SS | 15 | | 67 | |
| 4 | | | | | 6 | | SS | 6 | | 100 | |
| 4.6 | | Borehole terminated at 4.57 m in sandy silt. | | | | | | | | | |

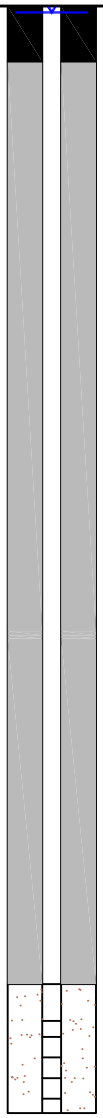


AECOM

| Depth (m) | Lithologic Description |
|---|---|
| 0–1.5 | Peat: black silty organic soil, wet to saturated, loose — Depth (1.5m) |
| 1.5–2.3 | Silty Sand: grey silty fine sand, saturated, compact — Depth (2.3m) |
| 2.3–2.9 | Clayey Silt: grey clayey silt, trace sand, saturated, compact — Depth (2.9m) |
| 2.9–13.5 | Sand: grey fine sand, trace silt, saturated, very loose to compact — Depth (13.5m) |
| 13.5–14.8 | Gravel, Cobble, and Boulders: smoothed granatic gravel, cobble and boulders, some fine sand, saturated, compact — Depth (14.8m) |
| 14.8–18.3 | Limestone Bedrock: grey weathered/broken limestone, dark and light bedding 1-10mm in thickness, significant horizontal fracturing — Depth (18.3m) |
| 18.3 | Bottom of Hole = 18.3 m |

Well Construction Details

MW28I



# Monitoring Well

# MW28I

Fenelon Landfill Drilling
Mark Rd.,
Kawartha Lakes, ON

## DRILLING DETAILS

| | |
|---|---|
| Drill Date: | 4-9/02/2015 |
| Drilling Method: | Auger/Core |
| Driller: | Lantech Drilling Services |
| Geologist: | Drew West |

## MONITORING WELL INFORMATION

NAD — Easting: 674481 — Northing: 4926636

| | | | |
|---|---|---|---|
| Monitoring Well | MW28I | | |
| Ground Elev. | | | |
| Top of Casing Elev. | | | |
| Stick Up (m) | 0.85m | | |
| Well Depth (m) | 18.3 | | |
| High Water Level (date of water level) | 0.10mbgs 9/02/2015 | | |

All units expressed as metres above sea level unless otherwise noted

## LEGEND

- Water Level Elevation
- Perched Water Table Elevation
- Bentonite Slurry
- Backfill
- Silica Sand
- Schedule 40 (2") PVC Riser Pipe
- Schedule 40 (2") 10-slot PVC Screen
- Steel Casing (6")

Geologic materials recovered and evaluated by: Drew West

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

| | |
|---|---|
| Date Issued: | February 2015 |
| Created By: | JLM |
| Project No. | 14-367 |
| File Name: | 14-367bh |

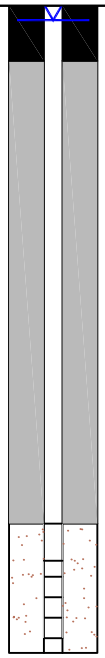


Plotted by: JMCCARTNEY on March 5, 2015 at 9:15am
File: M:\14 Projects\14-367 2015 Fenelon Landfill Drilling\04.0 - Drafting\14-367bh.dwg Layout: MW28I Plotscale: 40

| Depth (m) | Lithology | Lithologic Description |
|---|---|---|
| | | Peat: black silty organic soil, wet to saturated, loose — Depth (1.5m) |
| | | Silty Sand: grey silty fine sand, saturated, compact — Depth (2.3m) |
| | | Clayey Silt: grey clayey silt, trace sand, saturated, compact — Depth (2.9m) |
| | | Sand: grey fine sand, trace silt, saturated, very loose to compact — Depth (10.3m) |
| | | Bottom of Hole = 10.3 m |

Well Construction Details

MW28II



# Monitoring Well

## MW28II

Fenelon Landfill Drilling
Mark Rd.,
Kawartha Lakes, ON

### DRILLING DETAILS

| | |
|---|---|
| Drill Date: | 10/02/2015 |
| Drilling Method: | Auger/Core |
| Driller: | Lantech Drilling Services |
| Geologist: | Drew West |

### MONITORING WELL INFORMATION

NAD — Easting: 674478 — Northing: 4926625

| Monitoring Well | MW28II | | |
|---|---|---|---|
| Ground Elev. | | | |
| Top of Casing Elev. | | | |
| Stick Up (m) | 0.90m | | |
| Well Depth (m) | 10.7 | | |
| High Water Level (date of water level) | 0.24mbgs 10/02/2015 | | |

All units expressed as metres above sea level unless otherwise noted

### LEGEND

- Water Level Elevation
- Perched Water Table Elevation
- Bentonite Slurry
- Backfill
- Silica Sand
- Schedule 40 (2") PVC Riser Pipe
- Schedule 40 (2") 10-slot PVC Screen
- Steel Casing (6")

Geologic materials recovered and evaluated by: Drew West

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

| | |
|---|---|
| Date Issued: | February 2015 |
| Created By: | JLM |
| Project No. | 14-367 |
| File Name: | 14-367bh |

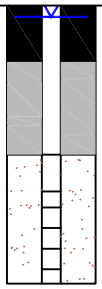
Page 1 of 1

Plotted by: JMCCARTNEY on March 5, 2015 at 9:15am
File: M:\14 Projects\14-367 2015 Fenelon Landfill Drilling\04.0 - Drafting\14-367bh.dwg Layout: MW28II Plotscale: 40

| Depth (m) | Lithology | Lithologic Description |
|---|---|---|
| | | Peat: black silty organic soil, wet to saturated, loose — Depth (1.5m) |
| | | Silty Sand: grey silty fine sand, saturated, compact — Depth (2.3m) |
| | | Clayey Silt: grey clayey silt, trace sand, saturated, compact — Depth (2.9m) |
| | | Sand: grey fine sand, trace silt, saturated, very loose to compact — Depth (4.6m) |
| | | Bottom of Hole = 4.6 m |

Well Construction Details

MW28III



# Monitoring Well

## MW28III

Fenelon Landfill Drilling
Mark Rd.,
Kawartha Lakes, ON

### DRILLING DETAILS

| | |
|---|---|
| Drill Date: | 03/02/2015 |
| Drilling Method: | Auger/Core |
| Driller: | Lantech Drilling Services |
| Geologist: | Drew West |

### MONITORING WELL INFORMATION

NAD — Easting: 674484 — Northing: 4926634

| Monitoring Well | MW28III | | |
|---|---|---|---|
| Ground Elev. | | | |
| Top of Casing Elev. | | | |
| Stick Up (m) | 0.95m | | |
| Well Depth (m) | 4.6 | | |
| High Water Level (date of water level) | 0.19mbgs 03/02/2015 | | |

All units expressed as metres above sea level unless otherwise noted

### LEGEND

- Water Level Elevation
- Perched Water Table Elevation
- Bentonite Slurry
- Backfill
- Silica Sand
- Schedule 40 (2") PVC Riser Pipe
- Schedule 40 (2") 10-slot PVC Screen
- Steel Casing (6")

Geologic materials recovered and evaluated by: Drew West

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

| | |
|---|---|
| Date Issued: | February 2015 |
| Created By: | JLM |
| Project No. | 14-367 |
| File Name: | 14-367bh |

Page 1 of 1

Plotted by: JMCCARTNEY on March 5, 2015 at 2:27pm
File: M:\14 Projects\14-367 2015 Fenelon Landfill Drilling\04.0 - Drafting\14-367bh.dwg Layout: MW28III Plotscale: 40

# BOREHOLE NO. 7-17



**PROJECT NAME:** CITY OF KAWARTHA LAKES - FENELON LANDFILL
**PROJECT NO.:** 171-00763-00
**CLIENT:** CITY OF KAWARTHA LAKES
**DATE COMPLETED:** Feb 01, 2017
**BOREHOLE TYPE:** DIRECT PUSH/168 mm HOLLOW STEM AUGER METHOD
**SUPERVISOR:** TB / LGC
**GROUND ELEVATION:** NOT SURVEYED
**REVIEWER:** JSA

**UTM CO-ORDINATES**
UTM Zone: NAD:
Easting:
Northing:

| DEPTH (m) | ELEV (mASL) | STRATIGRAPHIC DESCRIPTION | SAMPLE TYPE | N VALUE | % WATER | % RECOVERY | PID/TOV (ppm) | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 0.0 | | **FILL:** Brown clayey silt FILL (final cover), trace sand, frozen | | | | | | Monitoring well installed with 50 mm inner diameter, schedule 80 PVC risers, with a 3.05 m length No. 10 screen size well screen. |
| 0.3 | | **FILL** Grey sand FILL, moist | DP1 | | | 20 | | |
| 1.0 | | | | | | | | |
| 1.6 | | **WASTE** WASTE, with intermittent layers of grey to dark grey sand (daily cover) | | | | | | |
| 2.0 | | | DP2 | | | 20 | | |
| 3.0 | | | DP3 | | | 35 | | |
| 4.0 | | | | | | | | |
| 5.0 | | | DP4 | | | 18 | | |
| 6.0 | | | | | | | | |
| 7.0 | | | | | | | | |
| 8.0 | | | | | | | | |
| 9.0 | | | | | | | | |
| 10.0 | | | | | | | | |
| 11.0 | | -Wood debris | DP5 | | | 27 | | Groundwater level measured at 10.7 m below ground surface in monitoring well on completion of well installation. |
| 12.0 | | | | | | | | |
| 13.0 | | - Wet to saturated | DP6 | | | 17 | | |
| 13.7 | | **SILTY SAND:** Grey SILTY SAND, saturated | | | | | | |
| 14.0 | | | DP7 | | | 50 | | |
| 14.6 | | Borehole terminated at 14.6 m below ground surface in SILTY SAND. | | | | | | |
| 15.0 | | | | | | | | |
| 16.0 | | | | | | | | |

CONE PENETRATION "N" VALUE 10 20 30
SHEAR STRENGTH 50 100 150 200 — Intact (MaX) Cu; - Remoulded Cu
WATER CONTENT % 10 20 30 — $W_P$ $W_L$

WSP GEOTECH (METRIC) WITH UTM AND MASL FENELON BOREHOLE LOGS.GPJ WSP_ENV_V1.GDT 3/20/17

# BOREHOLE NO. WP1



**PROJECT NAME:** CITY OF KAWARTHA LAKES - FENELON FALLS LANDFILL
**PROJECT NO.:** 171-00763-01
**CLIENT:** CITY OF KAWARTHA LAKES
**DATE COMPLETED:** Jul 12, 2018
**BOREHOLE TYPE:** 157.8 mm HAND AUGER
**SUPERVISOR:** TB
**GROUND ELEVATION:** 259.8 m (Geodetic)
**REVIEWER:** RDJ

| DEPTH (m) | ELEV (mASL) | STRATIGRAPHIC DESCRIPTION | STRATIGRAPHY | MONITOR DETAILS | SAMPLE TYPE | SAMPLE N VALUE | SAMPLE % WATER | SAMPLE % RECOVERY | SAMPLE PID/TOV (ppm) | CONE PENETRATION / "N" VALUE (10 20 30) / SHEAR STRENGTH (10 20 30 40) Intact (MaX) Cu, Remoulded Cu | WATER CONTENT % (15 30 45) $W_P$ $W_L$ | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | | **TOPSOIL:** Black silty TOPSOIL, trace sand, some organics, wet to saturated. | | | | | | | | | | Monitoring well installed with 50 mm inner diameter, schedule 40 PVC risers, with a 3.05 m length No. 10 screen size well screen. Top of pipe elevation = 260.53 m (Geodetic). Groundwater level measured at 0.6 m below ground surface in monitoring well on July 13, 2018. |
| 0.8 | 259.0 | **SILTY SAND:** Light brown SILTY SAND, trace gravel, saturated. | | | | | | | | | | |
| 1.0 | | | | | | | | | | | | |
| 2.0 | | | | | | | | | | | | |
| 2.4 | 257.4 | Borehole terminated at 2.44 m below ground surface in SILTY SAND. | | | | | | | | | | |
| 3.0 | | | | | | | | | | | | |

**UTM CO-ORDINATES**
UTM Zone: NAD:
Easting:
Northing:

WSP GEOTECH (METRIC) WITH UTM AND MASL FENELON BOREHOLE LOGS.GPJ WSP_ENV_V1.GDT 8/9/18

# BOREHOLE NO. WP2



**PROJECT NAME:** CITY OF KAWARTHA LAKES - FENELON FALLS LANDFILL
**PROJECT NO.:** 171-00763-01
**CLIENT:** CITY OF KAWARTHA LAKES
**DATE COMPLETED:** Jul 12, 2018
**BOREHOLE TYPE:** 157.8 mm HAND AUGER
**SUPERVISOR:** TB
**GROUND ELEVATION:** 259.6 m (Geodetic)
**REVIEWER:** RDJ

| DEPTH (m) | ELEV (mASL) | STRATIGRAPHIC DESCRIPTION | STRATIGRAPHY | MONITOR DETAILS | SAMPLE TYPE | SAMPLE N VALUE | SAMPLE % WATER | SAMPLE % RECOVERY | SAMPLE PID/TOV (ppm) | CONE PENETRATION / "N" VALUE (10 20 30) / SHEAR STRENGTH (10 20 30 40) Intact (MaX) Cu, Remoulded Cu | WATER CONTENT % (15 30 45) $W_P$ $W_L$ | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | | **TOPSOIL:** Black silty TOPSOIL, trace sand, some organics, wet to saturated. | | | | | | | | | | Monitoring well installed with 50 mm inner diameter, schedule 40 PVC risers, with a 3.05 m length No. 10 screen size well screen. Top of pipe elevation = 260.62 m (Geodetic). |
| 0.7 | 259.0 | **SILTY SAND:** Light brown SILTY SAND, trace gravel, saturated. | | | | | | | | | | Groundwater level measured at 0.7 m below ground surface in monitoring well on July 13, 2018. |
| 1.0 | | | | | | | | | | | | |
| 2.0 | | | | | | | | | | | | |
| 2.4 | 257.2 | Borehole terminated at 2.4 m below ground surface in SILTY SAND. | | | | | | | | | | |
| 3.0 | | | | | | | | | | | | |

**UTM CO-ORDINATES**
UTM Zone: NAD:
Easting:
Northing:

WSP GEOTECH (METRIC) WITH UTM AND MASL FENELON BOREHOLE LOGS.GPJ WSP_ENV_V1.GDT 8/9/18

# BOREHOLE NO. WP3



**PROJECT NAME:** CITY OF KAWARTHA LAKES - FENELON FALLS LANDFILL
**PROJECT NO.:** 171-00763-01
**CLIENT:** CITY OF KAWARTHA LAKES
**DATE COMPLETED:** Jul 12, 2018
**BOREHOLE TYPE:** 157.8 mm HAND AUGER
**SUPERVISOR:** TB
**GROUND ELEVATION:** 259.4 m (Geodetic)
**REVIEWER:** RDJ

| DEPTH (m) | ELEV (mASL) | STRATIGRAPHIC DESCRIPTION | STRATIGRAPHY | MONITOR DETAILS | SAMPLE TYPE | SAMPLE N VALUE | SAMPLE % WATER | SAMPLE % RECOVERY | SAMPLE PID/TOV (ppm) | CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH 10 20 30 40 (Intact (MaX) Cu, Remoulded Cu) | WATER CONTENT % 15 30 45 ($W_P$ – $W_L$) | UTM CO-ORDINATES / REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | | **TOPSOIL:** Black silty TOPSOIL, trace sand, some organics, wet to saturated. | | | | | | | | | | Monitoring well installed with 50 mm inner diameter, schedule 40 PVC risers, with a 3.05 m length No. 10 screen size well screen. Top of pipe elevation = 260.24 m (Geodetic). |
| 0.8 | 258.7 | **SILTY SAND:** Light brown SILTY SAND, trace gravel, saturated. | | | | | | | | | | Groundwater level measured at 0.9 m below ground surface in monitoring well on July 13, 2018. |
| 1.0 | | | | | | | | | | | | |
| 2.0 | | | | | | | | | | | | |
| 2.4 | 257.0 | Borehole terminated at 2.4 m below ground surface in SILTY SAND. | | | | | | | | | | |
| 3.0 | | | | | | | | | | | | |

UTM CO-ORDINATES
UTM Zone: NAD:
Easting:
Northing:

WSP GEOTECH (METRIC) WITH UTM AND MASL FENELON BOREHOLE LOGS.GPJ WSP_ENV_V1.GDT 8/9/18

# BOREHOLE NO. WP4



**PROJECT NAME:** CITY OF KAWARTHA LAKES - FENELON FALLS LANDFILL
**PROJECT NO.:** 171-00763-01
**CLIENT:** CITY OF KAWARTHA LAKES
**DATE COMPLETED:** Jul 12, 2018
**BOREHOLE TYPE:** 157.8 mm HAND AUGER
**SUPERVISOR:** TB
**GROUND ELEVATION:** 259.4 m (Geodetic)
**REVIEWER:** RDJ

| DEPTH (m) | ELEV (mASL) | STRATIGRAPHIC DESCRIPTION | STRATIGRAPHY | MONITOR DETAILS | SAMPLE TYPE | SAMPLE N VALUE | SAMPLE % WATER | SAMPLE % RECOVERY | SAMPLE PID/TOV (ppm) | CONE PENETRATION / "N" VALUE / SHEAR STRENGTH (Intact (MaX) Cu, Remoulded Cu) | WATER CONTENT % ($W_P$ – $W_L$) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | | **TOPSOIL:** Black silty TOPSOIL, trace sand, some organics, wet to saturated. | | | | | | | | | | Monitoring well installed with 50 mm inner diameter, schedule 40 PVC risers, with a 3.05 m length No. 10 screen size well screen. Top of pipe elevation = 260.05 m (Geodetic). |
| 0.9 | 258.6 | **SILTY SAND:** Light brown SILTY SAND, trace gravel, saturated. | | | | | | | | | | Groundwater level measured at 0.8 m below ground surface in monitoring well on July 13, 2018. |
| 1.0 | | | | | | | | | | | | |
| 2.0 | | | | | | | | | | | | |
| 2.4 | 257.0 | Borehole terminated at 2.4 m below ground surface in SILTY SAND. | | | | | | | | | | |
| 3.0 | | | | | | | | | | | | |

**UTM CO-ORDINATES**
UTM Zone: NAD:
Easting:
Northing:

WSP GEOTECH (METRIC) WITH UTM AND MASL FENELON BOREHOLE LOGS.GPJ WSP_ENV_V1.GDT 8/9/18

# BOREHOLE NO. WP5



**PROJECT NAME:** CITY OF KAWARTHA LAKES - FENELON FALLS LANDFILL
**PROJECT NO.:** 171-00763-01
**CLIENT:** CITY OF KAWARTHA LAKES
**DATE COMPLETED:** Jul 12, 2018
**BOREHOLE TYPE:** 157.8 mm HAND AUGER
**SUPERVISOR:** TB
**GROUND ELEVATION:** 259.2 m (Geodetic)
**REVIEWER:** RDJ

| DEPTH (m) | ELEV (mASL) | STRATIGRAPHIC DESCRIPTION | STRATIGRAPHY | MONITOR DETAILS | SAMPLE: TYPE | SAMPLE: N VALUE | SAMPLE: % WATER | SAMPLE: % RECOVERY | SAMPLE: PID/TOV (ppm) | CONE PENETRATION / "N" VALUE (10 20 30) / SHEAR STRENGTH (10 20 30 40) Intact (MaX) Cu, Remoulded Cu | WATER CONTENT % (15 30 45) $W_P$ $W_L$ | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | | **TOPSOIL:** Black silty TOPSOIL, trace sand, some organics, wet to saturated. | | | | | | | | | | Monitoring well installed with 50 mm inner diameter, schedule 40 PVC risers, with a 0.45 m length No. 10 screen size well screen. Top of pipe elevation = 260.18 m (Geodetic). |
| 0.5 | 258.7 | **SILTY SAND:** Light brown SILTY SAND, trace gravel, saturated. | | | | | | | | | | Groundwater level measured at 0.1 m below ground surface in monitoring well on July 13, 2018. |
| 0.9 | 258.2 | Borehole terminated at 0.9 m below ground surface in SILTY SAND. | | | | | | | | | | |
| 1.0 | | | | | | | | | | | | |
| 2.0 | | | | | | | | | | | | |
| 3.0 | | | | | | | | | | | | |

**UTM CO-ORDINATES**
UTM Zone: NAD:
Easting:
Northing:

WSP GEOTECH (METRIC) WITH UTM AND MASL FENELON BOREHOLE LOGS.GPJ WSP_ENV_V1.GDT 8/9/18

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

# BOREHOLE/MONITORING WELL WP-7

**PROJECT NUMBER** 25-441
**PROJECT NAME** Fenelon Landfill Drilling
**CLIENT** City of Kawartha Lakes

**DRILLING DATE** December 8, 2025
**TOTAL DEPTH** 2.3 m
**DIAMETER** 50.8 mm
**CASING** PVC
**SCREEN** PVC Factory Slotted

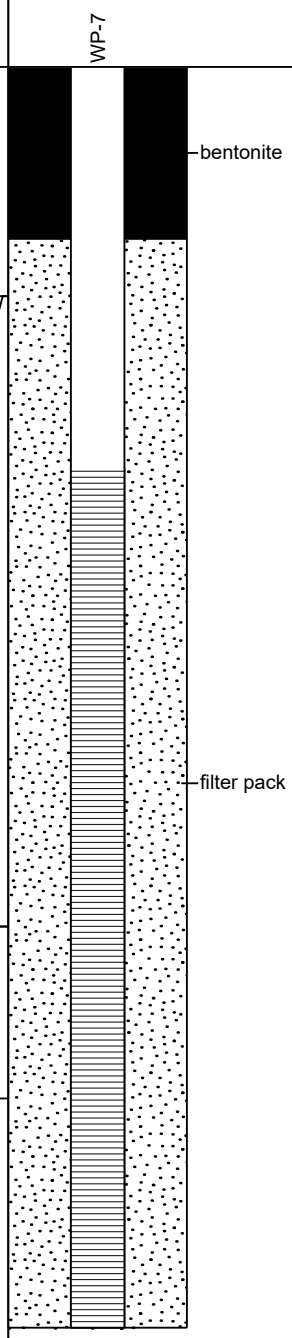
**COORDINATES** NAD 83, Zone 17T
**EASTING** 673632
**NORTHING** 4926705
**GROUND ELEVATION** Not Surveyed
**STICKUP** 0.85 m

**COMMENTS**

**LOGGED BY** BP
**CHECKED BY** CR

| Depth (m) | Samples | N-Value | % Sample Recovery | Graphic Log | Material Description |
|---|---|---|---|---|---|
| | GS1 | - | | | PEAT: Dark brown, peat, loose organics, moist |
| 0.1 | | | | | |
| 0.2 | | | | | |
| 0.3 | | | | | |
| 0.4 | | | | | Becoming saturated |
| 0.5 | | | | | |
| 0.6 | | | | | |
| 0.7 | | | | | |
| 0.8 | | | | | |
| 0.9 | | | | | |
| 1 | | | | | |
| 1.1 | | | | | |
| 1.2 | | | | | |
| 1.3 | | | | | |
| 1.4 | | | | | |
| 1.5 | GS2 | - | | | SAND: Compact, brown to grey, sand with some silt, saturated |
| 1.6 | | | | | |
| 1.7 | | | | | |
| 1.8 | GS3 | - | | | SILTY SAND: Compact, grey, fine silty sand, saturated |
| 1.9 | | | | | |
| 2 | | | | | |
| 2.1 | | | | | |
| 2.2 | | | | | |
| 2.3 | | | | | Borehole termination Depth at 2.3 m |
| 2.4 | | | | | |
| 2.5 | | | | | |

**Well Diagram**




**Disclaimer** This bore log is intended for environmental not geotechnical purposes.
produced by ESlog.ESdat.net on 09 Dec 2025

# APPENDIX C

## Ground Water Elevation Tables

**Ground Water Elevations**

| Monitor No. | Ground Elevation (mASL) | Top of Pipe Elevation (mASL) | Monitored Unit | Jul-02 | Oct-02 | Jul-03 | Nov-03 | Jun-04 | Nov-04 | May-05 | Nov-05 | Jun-06 | Oct-06 | Jun-07 | May-08 | Sep-08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 271.47 | 272.25 | Lower OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2 | 267.79 | 268.35 | Shallow OB | 260.02 | 259.63 | 259.87 | 260.10 | 260.21 | 259.82 | 260.10 | 259.33 | 260.06 | 259.73 | 260.01 | 260.10 | 259.93 |
| 3 | 261.15 | 261.65 | Lower OB | 259.98 | 259.37 | 259.85 | 259.72 | 260.18 | 258.60 | 260.09 | 259.16 | 260.02 | 259.63 | 260.00 | 260.05 | 259.92 |
| 3A | 261.25 | 261.93 | Shallow OB | 260.01 | 259.91 | 259.87 | 259.73 | 260.20 | 259.50 | 260.10 | 259.08 | 259.03 | 258.66 | 260.00 | 259.93 | 259.95 |
| 5 | 268.56 | 269.33 | Shallow OB | 259.86 | 259.42 | 259.70 | 259.48 | 260.02 | 259.40 | 259.92 | 259.16 | 259.90 | 259.53 | 259.81 | 259.93 | 259.99 |
| 5A | 268.10 | 269.50 | Lower OB | 260.08 | 259.69 | 259.95 | 259.72 | 260.29 | 259.65 | 260.19 | 261.39 | 260.15 | 259.80 | 260.10 | 260.17 | 259.70 |
| 6-07 | 260.91 | 261.53 | Lower OB | - | - | - | - | - | - | - | - | - | - | - | 259.74 | 259.47 |
| 6A-07 | 260.93 | 260.65 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | 259.68 | 259.64 |
| 7-17 | 270.87 | 271.67 | Leachate | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | 262.43 | 262.71 | Shallow OB | 260.03 | 259.66 | 259.89 | 259.77 | 260.22 | 259.61 | 260.11 | 259.21 | 260.08 | 259.66 | 260.03 | 260.12 | 259.85 |
| 11A | 261.354 | 261.82 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 | 263.70 | 264.24 | Shallow OB | 259.79 | 259.51 | 259.65 | 259.56 | 259.95 | 259.46 | 259.88 | 259.29 | 259.81 | 259.61 | 259.77 | 259.86 | 259.71 |
| 13 | 259.84 | 260.59 | Shallow OB | 259.88 | 259.56 | 259.76 | 259.67 | 260.07 | 259.39 | 259.97 | 259.14 | 258.93 | 259.56 | 259.87 | 259.98 | 259.81 |
| 14 | 259.18 | 260.52 | Shallow OB | 259.23 | 259.13 | 259.06 | 259.26 | 259.26 | 258.94 | 259.16 | 258.30 | 259.20 | 259.08 | 259.11 | 259.14 | 259.08 |
| 15 | 261.53 | 262.44 | Shallow OB | 259.59 | 259.37 | 259.47 | 259.46 | 259.74 | 259.31 | 259.65 | 259.04 | 259.62 | 259.40 | 259.52 | 259.68 | 259.49 |
| 15A | 261.45 | 262.11 | Lower OB | 260.03 | 259.78 | 259.92 | 259.87 | 260.20 | 259.74 | 260.12 | 259.41 | 260.07 | 259.89 | 259.99 | 260.12 | 259.97 |
| 15B | 261.45 | 262.30 | Bedrock | 259.37 | 259.09 | 259.21 | 259.17 | 259.51 | 259.06 | 259.42 | 258.78 | 259.19 | 259.18 | 259.31 | 259.39 | 259.25 |
| 16 | 267.11 | 267.82 | Shallow OB | 259.81 | 259.53 | 259.68 | 259.57 | 259.98 | 259.49 | 259.90 | 259.25 | 259.85 | 259.62 | 259.81 | 259.72 | 259.74 |
| 17 | 274.06 | 274.53 | Lower OB | 259.88 | 259.55 | 259.74 | 259.60 | 260.06 | 259.38 | 260.38 | 259.22 | 259.73 | 259.21 | 259.40 | 259.93 | - |
| 18 | 267.07 | 267.62 | Shallow OB | 259.89 | 259.54 | 259.75 | 259.58 | 260.07 | 259.47 | 260.10 | 259.24 | 259.97 | 259.64 | 259.91 | 260.01 | 259.81 |
| 18A | 267.17 | 268.06 | Bedrock | 259.88 | 259.11 | 259.75 | 259.61 | 260.06 | 259.50 | 259.96 | 259.37 | 259.95 | 259.67 | 259.89 | 259.98 | 259.79 |
| 18B | 267.17 | 268.07 | Lower OB | 259.88 | 259.54 | 259.74 | 259.60 | 260.06 | 259.49 | 259.96 | 259.34 | 259.94 | 259.63 | 259.85 | 259.97 | 259.79 |
| 19 | 264.43 | 265.04 | Lower OB | 259.83 | 259.56 | 259.71 | 259.60 | 260.01 | 259.56 | 259.99 | 259.32 | 259.59 | 259.71 | 259.89 | 259.99 | 259.82 |
| 22 | 269.81 | 270.84 | Bedrock | 260.41 | 259.96 | 260.25 | 260.10 | 260.57 | 259.98 | 260.49 | 259.84 | 260.48 | 260.18 | 260.42 | 260.68 | 260.19 |
| 22A | 269.81 | 270.74 | Lower OB | 260.63 | 260.22 | 260.29 | 260.12 | 260.80 | 259.97 | 259.70 | 259.81 | 260.51 | 260.18 | 260.42 | 260.53 | 260.18 |
| 22B | 269.81 | 270.80 | Shallow OB | 260.44 | 260.03 | 260.31 | 260.12 | 260.62 | 259.99 | 260.52 | 259.81 | 260.50 | 260.18 | 260.44 | 262.16 | 260.19 |
| 23 | 259.44 | 260.68 | Bedrock | 259.32 | 259.15 | 259.22 | 259.29 | 259.49 | 259.10 | 259.14 | 259.01 | 259.40 | 259.27 | 259.33 | 259.32 | 259.27 |
| 23A | 259.44 | 260.68 | Lower OB | 259.24 | 247.92 | 259.16 | 259.26 | 259.42 | 259.09 | 259.34 | 258.91 | 259.36 | 259.26 | 259.27 | 259.31 | 259.24 |
| 23B | 259.44 | 260.65 | Shallow OB | 259.25 | 259.14 | 259.17 | 259.28 | 259.43 | 259.08 | 258.73 | 258.93 | 259.36 | 259.23 | 259.24 | 259.30 | 259.25 |
| 26 | 258.036 | 259.00 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | 259.12 |
| 26-1 | 258.08 | 258.87 | Bedrock | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26-2 | 258.22 | 259.01 | Lower OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 27-II | 257.34 | 258.32 | Lower OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 27-III | 257.40 | 258.44 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 28-I | 258.30 | 259.41 | Bedrock | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 28-II | 258.44 | 259.47 | Lower OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 28-III | 258.32 | 259.48 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP1-18 | 259.77 | 260.62 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP2-18 | 259.54 | 260.64 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP3-18 | 259.43 | 260.34 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP4-18 | 259.43 | 260.05 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP5-18 | 259.16 | 260.18 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP6-13 | 257.84 | 258.61 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |

Notes:
new survey completed in 2019, many reference elevations shifted from previous years
OB - Overburden

**Ground Water Elevations**

| Monitor No. | Ground Elevation (mASL) | Top of Pipe Elevation (mASL) | Monitored Unit | Jun-09 | Aug-09 | Apr-10 | Oct-10 | Jun-11 | Nov-11 | May-22 | Oct-12 | May-13 | Oct-13 | Apr-14 | Oct-14 | Apr-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 271.47 | 272.25 | Lower OB | - | - | - | - | - | - | dry | dry | Dry | Dry | 260.70 | 260.12 | Dry |
| 2 | 267.79 | 268.35 | Shallow OB | 260.08 | 259.72 | 260.03 | 259.93 | 260.10 | 259.94 | 259.97 | 259.52 | 260.09 | 259.91 | 260.51 | 259.90 | 260.10 |
| 3 | 261.15 | 261.65 | Lower OB | 260.05 | 259.90 | 260.05 | 259.93 | 260.08 | 259.94 | 259.95 | 259.51 | 260.09 | 259.90 | 260.48 | 259.86 | 260.10 |
| 3A | 261.25 | 261.93 | Shallow OB | 260.07 | 259.87 | 260.06 | 259.93 | 260.09 | 259.95 | 259.97 | 259.53 | - | 259.92 | 260.40 | 259.88 | 260.12 |
| 5 | 268.56 | 269.33 | Shallow OB | 260.17 | 259.78 | 259.85 | 259.73 | 259.925 | 259.74 | 259.75 | 259.33 | 259.90 | 259.71 | 260.36 | 259.67 | 259.89 |
| 5A | 268.10 | 269.50 | Lower OB | 259.89 | 259.54 | 260.12 | 259.99 | 260.175 | 260.01 | 260.04 | 259.60 | 260.17 | 259.98 | 260.59 | 259.94 | 260.16 |
| 6-07 | 260.91 | 261.53 | Lower OB | 259.60 | 259.50 | 259.80 | 259.77 | 259.90 | 259.76 | 259.75 | 259.38 | 259.89 | 259.71 | 260.03 | 259.68 | 259.87 |
| 6A-07 | 260.93 | 260.65 | Shallow OB | 259.75 | 259.55 | 259.89 | 259.93 | 260.18 | 259.95 | 259.93 | 259.56 | 260.08 | 259.91 | 260.46 | 259.85 | 260.03 |
| 7-17 | 270.87 | 271.67 | Leachate | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | 262.43 | 262.71 | Shallow OB | 260.24 | 261.87 | 258.95 | 259.02 | 259.17 | - | 259.05 | 259.05 | 259.19 | 259.01 | 258.57 | 259.04 | 259.19 |
| 11A | 261.354 | 261.82 | Shallow OB | 260.76 | 260.67 | 260.98 | 260.89 | 261.00 | 260.85 | 260.86 | 260.36 | 261.00 | 260.87 | 261.27 | 260.82 | 261.00 |
| 12 | 263.70 | 264.24 | Shallow OB | 259.88 | 259.67 | 259.81 | 259.72 | 259.86 | 259.74 | 259.75 | 259.38 | 259.87 | 259.72 | 260.22 | 259.68 | 259.90 |
| 13 | 259.84 | 260.59 | Shallow OB | 259.95 | 259.70 | 259.90 | 259.82 | 259.93 | 259.80 | 259.80 | 259.41 | 259.95 | 259.77 | 260.31 | 259.73 | 259.95 |
| 14 | 259.18 | 260.52 | Shallow OB | 258.74 | 258.96 | 259.11 | 259.07 | 259.05 | 259.03 | 258.95 | 258.69 | 259.06 | 258.92 | 259.18 | 258.96 | 259.03 |
| 15 | 261.53 | 262.44 | Shallow OB | 259.98 | 259.45 | 259.64 | 259.51 | 259.62 | 259.50 | 259.51 | 259.16 | 259.41 | 259.47 | 259.96 | 259.44 | 259.66 |
| 15A | 261.45 | 262.11 | Lower OB | 259.76 | 259.93 | 260.10 | 259.99 | 260.11 | 260.00 | 260.00 | 259.64 | 260.11 | 259.97 | 261.22 | 259.93 | 260.15 |
| 15B | 261.45 | 262.30 | Bedrock | 259.42 | 259.23 | 259.41 | 259.30 | 259.43 | 259.30 | 259.32 | 258.92 | 259.42 | 259.28 | 259.74 | 259.24 | 259.46 |
| 16 | 267.11 | 267.82 | Shallow OB | 259.91 | 259.70 | 259.84 | 259.75 | 259.90 | 259.77 | 259.78 | 259.41 | 259.89 | 259.75 | 260.22 | 259.70 | 259.92 |
| 17 | 274.06 | 274.53 | Lower OB | 259.95 | 259.65 | 259.89 | 259.63 | 259.95 | 259.82 | 259.84 | 259.42 | 259.95 | 259.81 | 260.34 | 259.79 | 259.99 |
| 18 | 267.07 | 267.62 | Shallow OB | 260.01 | 259.79 | 259.46 | 259.80 | 259.98 | 259.72 | 259.86 | 259.44 | 259.98 | 259.80 | 260.41 | 259.77 | 259.98 |
| 18A | 267.17 | 268.06 | Bedrock | 260.07 | 259.42 | 259.56 | 259.83 | 259.97 | 259.83 | 259.86 | 259.47 | 259.98 | 259.80 | 264.35 | 259.75 | 259.99 |
| 18B | 267.17 | 268.07 | Lower OB | 259.97 | 259.78 | 259.67 | 259.80 | 259.97 | 259.82 | 259.84 | 259.42 | 259.96 | 259.78 | 260.35 | 259.79 | 259.99 |
| 19 | 264.43 | 265.04 | Lower OB | 259.99 | 259.79 | 259.93 | 259.84 | 259.98 | 259.84 | 259.86 | 259.49 | 259.92 | 259.79 | 260.32 | 259.45 | 260.00 |
| 22 | 269.81 | 270.84 | Bedrock | 260.53 | 260.20 | 260.51 | 260.41 | 260.53 | 260.39 | 260.50 | 259.98 | 260.54 | 260.39 | 260.88 | 260.34 | 260.54 |
| 22A | 269.81 | 270.74 | Lower OB | 260.70 | 260.33 | 260.68 | 260.59 | 260.71 | 260.56 | 260.60 | 260.15 | 260.72 | 260.56 | 261.07 | 260.48 | 260.54 |
| 22B | 269.81 | 270.80 | Shallow OB | 260.53 | 260.18 | 260.52 | 260.43 | 260.56 | 260.41 | 260.42 | 259.96 | 260.58 | 260.40 | 260.91 | 260.33 | 260.71 |
| 23 | 259.44 | 260.68 | Bedrock | 259.37 | 259.24 | 259.36 | 259.32 | 259.42 | 259.33 | 259.31 | 258.99 | 259.42 | 259.30 | 259.67 | 259.28 | 259.48 |
| 23A | 259.44 | 260.68 | Lower OB | 259.32 | 259.19 | 259.31 | 259.30 | 259.35 | 259.28 | 259.27 | 258.96 | 259.37 | 259.25 | 259.59 | 259.26 | 259.44 |
| 23B | 259.44 | 260.65 | Shallow OB | 259.33 | 259.22 | 259.08 | 259.30 | 259.36 | 259.29 | 259.28 | 258.98 | 259.38 | 259.27 | 259.61 | 259.20 | 259.46 |
| 26 | 258.036 | 259.00 | Shallow OB | 259.08 | 258.95 | 258.89 | 259.16 | 258.19 | 258.16 | 259.13 | 258.93 | 258.21 | 258.15 | 258.23 | 258.18 | 258.26 |
| 26-1 | 258.08 | 258.87 | Bedrock | 259.29 | 259.23 | 259.35 | 259.34 | 258.22 | 258.18 | 259.29 | 259.10 | 258.22 | 258.16 | 258.29 | 258.17 | 258.27 |
| 26-2 | 258.22 | 259.01 | Lower OB | - | - | - | - | 258.21 | 258.17 | 258.14 | 257.95 | 258.21 | 258.15 | 258.18 | 258.19 | 258.26 |
| 27-II | 257.34 | 258.32 | Lower OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 27-III | 257.40 | 258.44 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | 257.338 |
| 28-I | 258.30 | 259.41 | Bedrock | - | - | - | - | - | - | - | - | - | - | - | - | 258.544 |
| 28-II | 258.44 | 259.47 | Lower OB | - | - | - | - | - | - | - | - | - | - | - | - | 258.461 |
| 28-III | 258.32 | 259.48 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | 258.454 |
| WP1-18 | 259.77 | 260.62 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP2-18 | 259.54 | 260.64 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP3-18 | 259.43 | 260.34 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP4-18 | 259.43 | 260.05 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP5-18 | 259.16 | 260.18 | Shallow OB | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WP6-13 | 257.84 | 258.61 | Shallow OB | - | - | - | - | - | - | - | - | - | 257.31 | 257.57 | 257.33 | 257.47 |

Notes:
new survey completed in 2019, many reference elevations shifted from previous years
OB - Overburden

**Ground Water Elevations**

| Monitor No. | Ground Elevation (mASL) | Top of Pipe Elevation (mASL) | Monitored Unit | Oct-15 | Apr-16 | Oct-16 | Feb-17 | Apr-17 | Jul-17 | Oct-17 | Apr-18 | Oct-18 | Apr-19 | Oct-19 | Apr-20 | Oct-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 271.47 | 272.25 | Lower OB | Dry | 260.22 | Dry | - | 260.47 | - | 260.11 | 260.49 | Dry | 259.63 | Dry | Dry | Dry |
| 2 | 267.79 | 268.35 | Shallow OB | 259.58 | 260.27 | 259.64 | - | 260.33 | - | 259.93 | 260.36 | 259.62 | 259.49 | 258.74 | 259.47 | 258.95 |
| 3 | 261.15 | 261.65 | Lower OB | 259.56 | 260.25 | 259.62 | - | 260.27 | - | 259.64 | 260.37 | 259.62 | 259.47 | 258.71 | 259.44 | 258.92 |
| 3A | 261.25 | 261.93 | Shallow OB | 259.58 | 260.26 | 259.62 | - | 260.30 | - | 260.21 | 260.38 | 259.63 | 259.51 | 258.73 | 259.45 | 258.95 |
| 5 | 268.56 | 269.33 | Shallow OB | 259.41 | 260.08 | 259.46 | - | 260.14 | - | 259.73 | 260.07 | 258.91 | 259.53 | 258.75 | 259.52 | 257.98 |
| 5A | 268.10 | 269.50 | Lower OB | 259.66 | 260.35 | 259.71 | - | 260.40 | - | 257.70 | 259.92 | Dry | Dry | Dry | Dry | Dry |
| 6-07 | 260.91 | 261.53 | Lower OB | 259.38 | 259.87 | 259.45 | - | 259.88 | - | 259.69 | 259.97 | 259.52 | 259.92 | 259.29 | 259.85 | 258.52 |
| 6A-07 | 260.93 | 260.65 | Shallow OB | 259.37 | 259.85 | 259.45 | - | 259.85 | - | 259.62 | 259.98 | 260.40 | 259.95 | 259.45 | 259.75 | 257.71 |
| 7-17 | 270.87 | 271.67 | Leachate | - | - | - | - | 260.11 | - | - | 260.47 | 260.15 | 263.67 | 259.99 | 260.47 | 260.02 |
| 10 | 262.43 | 262.71 | Shallow OB | 258.65 | 259.33 | 258.7 | - | 259.37 | - | 258.98 | 259.46 | 258.72 | 259.51 | 258.75 | 259.47 | 258.95 |
| 11A | 261.354 | 261.82 | Shallow OB | 260.45 | 261.08 | 260.52 | - | 261.14 | - | 260.87 | 261.18 | 260.56 | 260.12 | 259.37 | 260.11 | 259.62 |
| 12 | 263.70 | 264.24 | Shallow OB | 259.5 | 260.01 | 259.45 | - | 260.09 | - | 259.70 | 259.85 | 259.49 | 259.24 | 258.60 | 259.18 | 258.18 |
| 13 | 259.84 | 260.59 | Shallow OB | 259.34 | 260.08 | 259.46 | - | 260.11 | - | 259.77 | 260.19 | 259.49 | 259.38 | 258.65 | 259.34 | 258.87 |
| 14 | 259.18 | 260.52 | Shallow OB | 258.53 | 258.98 | 258.58 | - | 258.99 | - | 258.81 | 259.11 | 258.66 | 258.77 | 258.25 | 258.59 | 258.41 |
| 15 | 261.53 | 262.44 | Shallow OB | 259.17 | 259.73 | 259.22 | - | 259.80 | - | 259.47 | 259.70 | 259.23 | 259.09 | 258.49 | 259.05 | 258.65 |
| 15A | 261.45 | 262.11 | Lower OB | 260.67 | 260.22 | 259.72 | - | 260.28 | - | 259.67 | 260.33 | 259.74 | 259.14 | 258.55 | 259.08 | 258.71 |
| 15B | 261.45 | 262.30 | Bedrock | 258.96 | 259.53 | 260.02 | - | 259.57 | - | 259.64 | 259.60 | 259.12 | 259.03 | 258.33 | 259.05 | 258.55 |
| 16 | 267.11 | 267.82 | Shallow OB | 260.42 | 260.03 | 259.47 | - | 260.08 | - | 259.77 | 260.08 | 259.51 | 259.27 | 258.44 | 259.21 | 258.55 |
| 17 | 274.06 | 274.53 | Lower OB | 259.48 | 260.11 | 259.53 | - | 260.15 | - | 259.80 | 260.22 | 259.57 | 259.36 | 258.56 | 259.30 | 258.55 |
| 18 | 267.07 | 267.62 | Shallow OB | 259.49 | 260.15 | 259.54 | - | 260.17 | - | 259.81 | 260.22 | 259.54 | 259.36 | 258.65 | 259.36 | 258.83 |
| 18A | 267.17 | 268.06 | Bedrock | 259.49 | 260.12 | 259.54 | - | 260.15 | - | 259.81 | 260.23 | 259.54 | 259.35 | 258.66 | 259.32 | 258.83 |
| 18B | 267.17 | 268.07 | Lower OB | 259.47 | 260.12 | 259.53 | - | 260.16 | - | 259.80 | 260.21 | 259.53 | 259.36 | 258.66 | 259.32 | 258.84 |
| 19 | 264.43 | 265.04 | Lower OB | 259.49 | 260.11 | 259.55 | - | 260.15 | - | 259.83 | 260.20 | 259.59 | 259.30 | 258.65 | 259.23 | 258.82 |
| 22 | 269.81 | 270.84 | Bedrock | 260.03 | 260.65 | 260.25 | - | 261.73 | - | 260.40 | 259.97 | 259.32 | 261.34 | 260.65 | 261.33 | 259.30 |
| 22A | 269.81 | 270.74 | Lower OB | 260.14 | 260.83 | 260.09 | - | 260.70 | - | 260.56 | 260.01 | 259.24 | 261.31 | 260.62 | 261.32 | 259.27 |
| 22B | 269.81 | 270.80 | Shallow OB | 260.04 | 260.69 | 260.1 | - | 260.75 | - | 260.40 | 260.11 | 259.38 | 261.47 | 260.59 | 261.29 | 259.32 |
| 23 | 259.44 | 260.68 | Bedrock | 258.95 | 259.49 | 259.01 | - | 259.46 | - | 259.29 | 259.65 | 259.10 | 258.82 | 258.21 | 258.70 | 258.38 |
| 23A | 259.44 | 260.68 | Lower OB | 258.94 | 259.44 | 258.99 | - | 259.45 | - | 259.26 | 259.57 | 259.08 | 258.76 | 258.21 | 258.64 | 258.37 |
| 23B | 259.44 | 260.65 | Shallow OB | 258.96 | 259.41 | 259.01 | - | 259.47 | - | 259.28 | 259.60 | 259.09 | dry | 258.20 | 258.63 | 258.15 |
| 26 | 258.036 | 259.00 | Shallow OB | 257.90 | 258.21 | 257.949 | - | 258.21 | - | 258.15 | 258.42 | 258.04 | 258.32 | 258.01 | 258.21 | 258.12 |
| 26-1 | 258.08 | 258.87 | Bedrock | 257.91 | 258.23 | 257.954 | - | 258.22 | - | 258.17 | 258.15 | 258.05 | 258.34 | 258.02 | 258.23 | 258.13 |
| 26-2 | 258.22 | 259.01 | Lower OB | 257.90 | 258.22 | 257.948 | - | 258.21 | - | 258.15 | 258.29 | 258.02 | 258.31 | 258.01 | 258.21 | 258.11 |
| 27-II | 257.34 | 258.32 | Lower OB | 257.155 | - | Flowing | Flowing | Flowing | Flowing | Flowing | couldn't open | Flowing | Flowing | Flowing | Flowing | Flowing |
| 27-III | 257.40 | 258.44 | Shallow OB | 257.118 | 257.38 | 257.238 | 257.34 | 257.38 | 257.44 | 257.33 | 257.52 | 257.28 | 257.58 | 257.28 | 257.35 | 257.31 |
| 28-I | 258.30 | 259.41 | Bedrock | 258.154 | 258.53 | 258.264 | 258.48 | 258.54 | 258.54 | 258.46 | 258.59 | 258.31 | 258.58 | 258.28 | 258.57 | 258.39 |
| 28-II | 258.44 | 259.47 | Lower OB | 258.371 | 258.47 | 258.241 | 258.43 | 258.45 | 258.47 | 258.39 | 258.51 | 258.29 | 258.44 | 258.19 | 258.39 | 258.33 |
| 28-III | 258.32 | 259.48 | Shallow OB | 258.224 | 258.46 | 258.244 | 258.39 | 258.47 | 258.51 | 258.40 | 258.49 | 258.29 | 258.42 | 258.21 | 258.38 | 258.30 |
| WP1-18 | 259.77 | 260.62 | Shallow OB | - | - | - | - | - | - | - | - | 259.67 | 260.12 | 259.43 | 259.99 | 259.67 |
| WP2-18 | 259.54 | 260.64 | Shallow OB | - | - | - | - | - | - | - | - | 259.62 | plugged | 259.70 | 259.92 | 259.86 |
| WP3-18 | 259.43 | 260.34 | Shallow OB | - | - | - | - | - | - | - | - | 259.28 | 259.64 | 259.10 | 259.52 | 259.40 |
| WP4-18 | 259.43 | 260.05 | Shallow OB | - | - | - | - | - | - | - | - | 259.04 | 259.40 | 258.84 | 259.34 | 259.08 |
| WP5-18 | 259.16 | 260.18 | Shallow OB | - | - | - | - | - | - | - | - | 258.92 | 259.31 | 258.77 | 259.24 | 259.07 |
| WP6-13 | 257.84 | 258.61 | Shallow OB | 257.19 | 257.37 | 257.27 | - | 257.46 | - | 257.42 | 257.63 | 257.22 | 257.70 | 257.25 | 257.35 | 257.30 |

Notes:
new survey completed in 2019, many reference elevations shifted from previous years
OB - Overburden

**Ground Water Elevations**

| Monitor No. | Ground Elevation (mASL) | Top of Pipe Elevation (mASL) | Monitored Unit | Apr-21 | Oct-21 | May-22 | Nov-22 | Apr-23 | Oct-23 | Apr-24 | Oct-24 | Apr-25 | Oct-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 271.47 | 272.25 | Lower OB | Dry | Dry | Dry | Dry | Dry | Dry | Dry | - | Dry | Dry |
| 2 | 267.79 | 268.35 | Shallow OB | 259.32 | 259.25 | 259.44 | 259.18 | 259.54 | 259.08 | 259.47 | - | 259.62 | 258.59 |
| 3 | 261.15 | 261.65 | Lower OB | 259.30 | 259.23 | 259.42 | 259.14 | 259.47 | 259.06 | 259.46 | - | 259.58 | 258.54 |
| 3A | 261.25 | 261.93 | Shallow OB | 259.30 | 259.25 | 259.43 | 259.15 | 259.52 | 259.08 | 259.49 | - | 259.59 | 258.56 |
| 5 | 268.56 | 269.33 | Shallow OB | 261.16 | 259.28 | 259.49 | 259.19 | 259.59 | 259.12 | 259.52 | - | 259.68 | 258.63 |
| 5A | 268.10 | 269.50 | Lower OB | 259.34 | 259.30 | 259.50 | 259.20 | 259.62 | 259.13 | 259.52 | - | - | 257.98 |
| 6-07 | 260.91 | 261.53 | Lower OB | 259.78 | 259.68 | 259.86 | 259.61 | 259.88 | 259.59 | 259.92 | - | 259.89 | 258.91 |
| 6A-07 | 260.93 | 260.65 | Shallow OB | 258.98 | 258.89 | 259.06 | 258.81 | 259.15 | 258.79 | 259.68 | - | 256.84 | 258.17 |
| 7-17 | 270.87 | 271.67 | Leachate | 260.30 | 260.17 | 260.47 | 260.12 | 260.13 | 263.97 | 260.33 | - | 260.52 | 259.96 |
| 10 | 262.43 | 262.71 | Shallow OB | 259.32 | 259.19 | 259.47 | Dry | 259.55 | Dry | 259.51 | 259.11 | 259.53 | 258.61 |
| 11A | 261.354 | 261.82 | Shallow OB | 260.02 | 260.01 | 260.10 | 259.89 | 260.14 | 259.82 | 260.17 | 260.35 | 259.88 | 259.24 |
| 12 | 263.70 | 264.24 | Shallow OB | 259.07 | 259.00 | 259.17 | 258.92 | 259.26 | 258.86 | 261.23 | 258.90 | 259.32 | 258.39 |
| 13 | 259.84 | 260.59 | Shallow OB | 259.21 | 259.15 | 259.32 | 259.04 | 259.41 | 258.99 | 259.30 | 259.03 | 259.47 | 258.47 |
| 14 | 259.18 | 260.52 | Shallow OB | 258.57 | 258.58 | 258.56 | 258.47 | 258.60 | 258.51 | 258.85 | 259.81 | 258.97 | 258.25 |
| 15 | 261.53 | 262.44 | Shallow OB | 258.96 | 258.87 | 259.02 | 258.78 | 259.09 | 258.75 | 259.14 | 258.76 | 259.17 | 258.26 |
| 15A | 261.45 | 262.11 | Lower OB | 258.97 | 258.93 | 259.08 | 258.83 | 259.14 | 258.81 | 259.10 | 258.81 | 259.17 | 258.30 |
| 15B | 261.45 | 262.30 | Bedrock | 258.84 | 258.77 | 258.92 | 258.67 | 258.98 | 258.65 | 258.90 | 258.67 | 258.93 | 258.15 |
| 16 | 267.11 | 267.82 | Shallow OB | 259.09 | 259.05 | 259.19 | 258.94 | 259.29 | 258.90 | 259.20 | 258.92 | 259.19 | 258.42 |
| 17 | 274.06 | 274.53 | Lower OB | 259.17 | 259.11 | 259.27 | Dry | 259.38 | Dry | Dry | Dry | Dry | Dry |
| 18 | 267.07 | 267.62 | Shallow OB | 259.18 | 259.11 | 259.32 | 259.02 | 259.42 | 258.96 | 259.31 | 258.97 | 259.52 | 258.47 |
| 18A | 267.17 | 268.06 | Bedrock | 259.17 | 259.12 | 259.30 | 259.02 | 259.38 | 258.97 | 259.32 | 259.01 | 259.46 | 258.49 |
| 18B | 267.17 | 268.07 | Lower OB | 259.18 | 259.11 | 259.29 | 259.02 | 259.29 | 258.97 | 259.32 | 259.00 | 259.46 | 258.47 |
| 19 | 264.43 | 265.04 | Lower OB | 259.12 | 259.06 | 259.22 | 258.97 | 259.30 | 258.93 | 261.23 | 258.94 | 259.36 | 258.44 |
| 22 | 269.81 | 270.84 | Bedrock | 259.67 | 259.67 | 260.67 | 259.57 | 260.67 | 259.52 | 259.84 | 259.54 | 259.86 | 259.95 |
| 22A | 269.81 | 270.74 | Lower OB | 259.64 | 259.62 | 260.64 | 259.47 | 260.64 | 263.35 | 259.74 | 259.37 | 259.90 | 258.90 |
| 22B | 269.81 | 270.80 | Shallow OB | 259.64 | 259.64 | 260.64 | 259.57 | 260.64 | 259.47 | 259.84 | 259.46 | 259.92 | Dry |
| 23 | 259.44 | 260.68 | Bedrock | 258.64 | 258.58 | 258.73 | 258.52 | 258.74 | 258.49 | 258.75 | 258.45 | 258.77 | 257.93 |
| 23A | 259.44 | 260.68 | Lower OB | 258.60 | 258.56 | 258.65 | 258.48 | 258.66 | 258.47 | 258.68 | 258.48 | 258.71 | 257.91 |
| 23B | 259.44 | 260.65 | Shallow OB | 258.58 | 258.55 | 258.63 | 258.49 | 258.63 | 258.48 | 258.68 | 258.44 | 258.70 | 257.91 |
| 26 | 258.036 | 259.00 | Shallow OB | 258.20 | 258.20 | 258.24 | 258.17 | 258.23 | 258.17 | 258.22 | 258.15 | 258.22 | 257.72 |
| 26-1 | 258.08 | 258.87 | Bedrock | 258.21 | 258.21 | 258.24 | 258.17 | 258.24 | 258.24 | 258.24 | 258.17 | 258.24 | 257.73 |
| 26-2 | 258.22 | 259.01 | Lower OB | 258.21 | 258.20 | 258.22 | 258.16 | 258.22 | 258.17 | 258.22 | 258.15 | 258.24 | 257.72 |
| 27-II | 257.34 | 258.32 | Lower OB | Flowing | Flowing | Flowing | Flowing | Flowing | Flowing | Flowing | 258.32 | 258.32 | 257.97 |
| 27-III | 257.40 | 258.44 | Shallow OB | 257.35 | 257.38 | 257.40 | 257.33 | 257.39 | 257.35 | 257.44 | 257.34 | 257.40 | 256.92 |
| 28-I | 258.30 | 259.41 | Bedrock | 258.51 | 258.51 | 258.53 | 258.44 | 258.54 | 258.47 | 258.51 | 258.52 | 258.55 | 257.98 |
| 28-II | 258.44 | 259.47 | Lower OB | 258.40 | 258.41 | 258.39 | 258.34 | 258.41 | 258.37 | 258.41 | 258.29 | 258.42 | 257.91 |
| 28-III | 258.32 | 259.48 | Shallow OB | 258.38 | 258.39 | 258.39 | 258.32 | 258.40 | 258.36 | 258.39 | 258.33 | 258.41 | 257.90 |
| WP1-18 | 259.77 | 260.62 | Shallow OB | 259.96 | 259.97 | 259.99 | 259.84 | 260.01 | 259.79 | 260.03 | 259.94 | 260.02 | 259.00 |
| WP2-18 | 259.54 | 260.64 | Shallow OB | 259.92 | 259.90 | 259.96 | 259.90 | 259.97 | 259.89 | 259.98 | 259.90 | 259.97 | Dry |
| WP3-18 | 259.43 | 260.34 | Shallow OB | 259.51 | 259.51 | 259.53 | 259.47 | 259.54 | 258.36 | 259.53 | 259.47 | 259.58 | 258.49 |
| WP4-18 | 259.43 | 260.05 | Shallow OB | 259.33 | 259.33 | 259.36 | 259.24 | 259.38 | 259.24 | 259.36 | 259.20 | 259.38 | 258.38 |
| WP5-18 | 259.16 | 260.18 | Shallow OB | 259.24 | 259.25 | 259.26 | 259.21 | 259.26 | 259.23 | 259.21 | 259.18 | 259.27 | Dry |
| WP6-13 | 257.84 | 258.61 | Shallow OB | 257.37 | 257.41 | 257.46 | 257.33 | 256.89 | 257.40 | 257.52 | 257.38 | 257.48 | 257.22 |

Notes:
new survey completed in 2019, many reference elevations shifted from previous years
OB - Overburden

# APPENDIX D

## Laboratory Certificates of Analysis

# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.:** -

**REPORT No: 25-010942 - Rev. 0**

**Report To:**
City of Kawartha Lakes
PO Box 9000
322 Kent Street West
Lindsay, ON K9V 4T7

**Attention: Kayla Pantaleo**

**CADUCEON Environmental Laboratories**
2378 Holly Lane
Ottawa, ON K1V 7P1

DATE RECEIVED: 2025-Apr-25
DATE REPORTED: 2025-May-08
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| PFOS/PFOA (Subcontracted) | 4 | EXOVA_EUROFINS | SISLAM | 2025-May-02 | | Subcontracted |

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

**Subcontracted Analyses**

| | | Client I.D. | WP-1 (30m) | WP-2 (30m) | WP-3 (30m) | WP-5 (30m) |
|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010942-1 | 25-010942-2 | 25-010942-3 | 25-010942-4 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - |
| PFOS/PFOA | - | - | See attached Report | See attached Report | See attached Report | See attached Report |

**Michelle Dubien**
**Data Specialist**

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

# Certificate of Analysis

eurofins | Environment Testing

| | | | |
|---|---|---|---|
| Client: | Caduceon Environmental (Ottawa)<br>2378 Holly Lane<br>Ottawa, ON<br>K1V 7P1 | Report Number: | 3015928 |
| | | Date Submitted: | 2025-04-30 |
| | | Date Reported: | 2025-05-06 |
| | | Project: | P250430-EF |
| Attention: | Mr. Steve Garrett | COC #: | 919938 |
| PO#: | | | |
| Invoice to: | Caduceon Enterprises Inc. (Kingston) | | |



**Dear Steve Garrett:**

**Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).**

Report Comments:

APPROVAL: _____

Patrick Jacques, B.Sc., C.Chem, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by NH ELAP/TNI (NELAP), to the 2016 TNI Standard for tests which appear on the primary accreditation list (Laboratory No 2248). The accreditation list is available at https://www4.des.state.nh.us/CertifiedLabs/Certified-Method.aspx.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited for specific tests by the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs du Québec according to the accreditation program under the ISO/IEC 17025:2005 standard as appearing on the scope of accreditation. The scope is available at https://www.ceaeq.gouv.qc.ca/documents/publications/listes.htm.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances. All soil results are reported on a dry weight basis unless otherwise stated.

# Certificate of Analysis

eurofins | Environment Testing

Client: Caduceon Environmental (Ottawa)
2378 Holly Lane
Ottawa, ON
K1V 7P1
Attention: Mr. Steve Garrett
PO#:
Invoice to: Caduceon Enterprises Inc. (Kingston)

Report Number: 3015928
Date Submitted: 2025-04-30
Date Reported: 2025-05-06
Project: P250430-EF
COC #: 919938

| | | | | Lab I.D. | 1764680 | 1764681 | 1764682 | 1764683 |
|---|---|---|---|---|---|---|---|---|
| | | | | Sample Matrix | Water | Water | Water | Water |
| | | | | Sample Type | | | | |
| | | | | Sampling Date | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| | | | | Sample I.D. | 25-010942-1 | 25-010942-2 | 25-010942-3 | 25-010942-4 |
| **Group** | **Analyte** | **MRL** | **Units** | **Guideline** | | | | |
| PFAS | 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS) | 2.0 | ng/L | | <2.0 | <2.0 | <2.0 | <2.0 |
| | 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS) | 2.0 | ng/L | | <2.0 | <2.0 | <2.0 | <2.0 |
| | 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS) | 2.0 | ng/L | | <2.0 | <2.0 | <2.0 | <2.0 |
| | 3-Perfluoroheptyl propanoic acid(7:3FTCA) | 2.0 | ng/L | | <2.0 | <2.0 | <2.0 | <2.0 |
| | 3-Perfluoropentyl propanoic acid (5:3 FTCA) | 2.0 | ng/L | | <2.0 | <2.0 | <2.0 | <2.0 |
| | 3-Perfluoropropyl propanoic acid(3:3FTCA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | 4,8-Dioxa-3H-perfluorononanoic acid(ADONA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Hexafluoropropylene oxide dimer acid(HFPO-DA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | N-ethyl perfluorooctanesulfonamide(NEtFOSA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | N-ethyl perfluorooctanesulfonamidoacetic acid | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | N-ethyl perfluorooctanesulfonamidoethanol(NEtFOSE) | 3.0 | ng/L | | <3.0 | <3.0 | <3.0 | <3.0 |
| | N-methyl perfluorooctanesulfonamide(NMeFOSA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | N-methyl perfluorooctanesulfonamidoacetic acid | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | N-methyl perfluorooctanesulfonamidoethanol(NMeFOSE) | 3.0 | ng/L | | <3.0 | <3.0 | <3.0 | <3.0 |
| | Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluoro(2-ethoxyethane)sulfonic acid(PFEESA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluoro-3-methoxypropanoic acid(PFMPA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluoro-4-methoxybutanoic acid(PFMBA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluorobutanesulfonic acid (PFBS) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 8.9 |
| | Perfluorobutanoic acid (PFBA) | 3.0 | ng/L | | 4.0 | 4.1 | 4.0 | 33.5 |
| | Perfluorodecanesulfonic acid (PFDS) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluorodecanoic acid (PFDA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluorododecanesulfonic acid(PFDoS) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluorododecanoic acid (PFDoA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluoroheptanesulfonic acid(PFHpS) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |

**Guideline = PFAS - EIS Limits Only (Water)**

*** = Guideline Exceedence**

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, EIS = Extracted Internal Standards

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# Certificate of Analysis

eurofins | Environment Testing

Client: Caduceon Environmental (Ottawa)
2378 Holly Lane
Ottawa, ON
K1V 7P1
Attention: Mr. Steve Garrett
PO#:
Invoice to: Caduceon Enterprises Inc. (Kingston)

Report Number: 3015928
Date Submitted: 2025-04-30
Date Reported: 2025-05-06
Project: P250430-EF
COC #: 919938

| | | | | Lab I.D. | 1764680 | 1764681 | 1764682 | 1764683 |
|---|---|---|---|---|---|---|---|---|
| | | | | Sample Matrix | Water | Water | Water | Water |
| | | | | Sample Type | | | | |
| | | | | Sampling Date | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| | | | | Sample I.D. | 25-010942-1 | 25-010942-2 | 25-010942-3 | 25-010942-4 |
| **Group** | **Analyte** | **MRL** | **Units** | **Guideline** | | | | |
| PFAS | Perfluoroheptanoic acid (PFHpA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 33.0 |
| | Perfluorohexanesulfonic acid (PFHxS) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 8.6 |
| | Perfluorohexanoic acid (PFHxA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 31.2 |
| | Perfluorononanesulfonic acid(PFNS) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluorononanoic acid (PFNA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 1.8 |
| | Perfluorooctanesulfonamide (PFOSA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 1.5 |
| | Perfluorooctanesulfonic acid (PFOS) | 1.0 | ng/L | | <1.0 | <1.0 | 1.6 | 44.8 |
| | Perfluorooctanoic acid (PFOA) | 1.0 | ng/L | | <1.0 | <1.0 | 2.1 | 164 |
| | Perfluoropentanesulfonic acid (PFPeS) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 3.1 |
| | Perfluoropentanoic acid (PFPeA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | 31.3 |
| | Perfluorotetradecanoic acid(PFTeDA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluorotridecanoic acid (PFTrDA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| | Perfluoroundecanoic acid (PFUnA) | 1.0 | ng/L | | <1.0 | <1.0 | <1.0 | <1.0 |
| PFAS (EIS) | 13C2-4:2FTS | 0 | % | 40-200 | 99 | 95 | 98 | 81 |
| | 13C2-6:2FTS | 0 | % | 40-200 | 125 | 124 | 133 | 119 |
| | 13C2-8:2FTS | 0 | % | 40-300 | 121 | 122 | 124 | 135 |
| | 13C2-PFDoA | 0 | % | 10-130 | 66 | 77 | 66 | 75 |
| | 13C2-PFTeDA | 0 | % | 10-130 | 67 | 70 | 63 | 76 |
| | 13C3-HFPO-DA | 0 | % | 40-130 | 93 | 100 | 106 | 97 |
| | 13C3-PFBS | 0 | % | 40-135 | 84 | 83 | 88 | 74 |
| | 13C3-PFHxS | 0 | % | 40-130 | 92 | 93 | 97 | 90 |
| | 13C4-PFBA | 0 | % | 5-130 | 90 | 85 | 92 | 89 |
| | 13C4-PFHpA | 0 | % | 40-130 | 120 | 117 | 127 | 122 |
| | 13C5-PFHxA | 0 | % | 40-130 | 97 | 97 | 106 | 97 |
| | 13C5-PFPeA | 0 | % | 40-130 | 75 | 75 | 80 | 70 |
| | 13C6-PFDA | 0 | % | 40-130 | 76 | 81 | 77 | 76 |
| | 13C7-PFUnA | 0 | % | 30-130 | 68 | 76 | 76 | 78 |

**Guideline = PFAS - EIS Limits Only (Water)**

*** = Guideline Exceedence**

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, EIS = Extracted Internal Standards

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# Certificate of Analysis

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Client: Caduceon Environmental (Ottawa)
2378 Holly Lane
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K1V 7P1
Attention: Mr. Steve Garrett
PO#:
Invoice to: Caduceon Enterprises Inc. (Kingston)

Report Number: 3015928
Date Submitted: 2025-04-30
Date Reported: 2025-05-06
Project: P250430-EF
COC #: 919938

| | | | | Lab I.D. | 1764680 | 1764681 | 1764682 | 1764683 |
|---|---|---|---|---|---|---|---|---|
| | | | | Sample Matrix | Water | Water | Water | Water |
| | | | | Sample Type | | | | |
| | | | | Sampling Date | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| | | | | Sample I.D. | 25-010942-1 | 25-010942-2 | 25-010942-3 | 25-010942-4 |
| **Group** | **Analyte** | **MRL** | **Units** | **Guideline** | | | | |
| PFAS (EIS) | 13C8-PFOA | 0 | % | 40-130 | 96 | 92 | 98 | 94 |
| | 13C8-PFOS | 0 | % | 40-130 | 98 | 99 | 99 | 89 |
| | 13C8-PFOSA | 0 | % | 40-130 | 89 | 90 | 93 | 85 |
| | 13C9-PFNA | 0 | % | 40-130 | 98 | 93 | 101 | 99 |
| | D3-NMeFOSA | 0 | % | 10-130 | 78 | 73 | 78 | 71 |
| | D3-NMeFOSAA | 0 | % | 40-170 | 191* | 180* | 186* | 183* |
| | D5-NEtFOSA | 0 | % | 10-130 | 78 | 71 | 75 | 71 |
| | D5-NEtFOSAA | 0 | % | 25-135 | 167* | 167* | 174* | 160* |
| | D7-NMeFOSE | 0 | % | 10-130 | 75 | 70 | 90 | 63 |
| | D9-NEtFOSE | 0 | % | 10-130 | 78 | 73 | 80 | 70 |

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Date Submitted: 2025-04-30
Date Reported: 2025-05-06
Project: P250430-EF
COC #: 919938

## *QC Summary*

| Analyte | Blank | QC % Rec | QC Limits |
|---|---|---|---|
| **Run No** 475050 **Analysis/Extraction Date** 2025-05-02 **Analyst** SD **Method** E3457/533/1633 MOD | | | |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | <1.0 ng/L | 102 | 55-160 |
| 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS) | <2.0 ng/L | 105 | 60-150 |
| 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS) | <2.0 ng/L | 104 | 70-145 |
| 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS) | <2.0 ng/L | 108 | 65-155 |
| 3-Perfluoroheptyl propanoic acid(7:3FTCA) | <2.0 ng/L | 123 | 50-145 |
| 3-Perfluoropentyl propanoic acid (5:3 FTCA) | <2.0 ng/L | 117 | 70-135 |
| 3-Perfluoropropyl propanoic acid(3:3FTCA) | <1.0 ng/L | 89 | 65-130 |
| 4,8-Dioxa-3H-perfluorononanoic acid(ADONA) | <1.0 ng/L | 116 | 65-145 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | <1.0 ng/L | 104 | 70-155 |
| Hexafluoropropylene oxide dimer acid(HFPO-DA) | <1.0 ng/L | 114 | 70-140 |
| N-ethyl perfluorooctanesulfonamide(NEtFOSA) | <1.0 ng/L | 99 | 65-145 |
| N-ethyl perfluorooctanesulfonamidoacetic acid | <1.0 ng/L | 103 | 70-145 |
| N-ethyl perfluorooctanesulfonamidoethanol(NEtFOSE) | <3.0 ng/L | 110 | 70-135 |
| N-methyl perfluorooctanesulfonamide(NMeFOSA) | <1.0 ng/L | 96 | 60-150 |
| N-methyl perfluorooctanesulfonamidoacetic acid | <1.0 ng/L | 102 | 50-140 |
| N-methyl perfluorooctanesulfonamidoethanol(NMeFOSE | <3.0 ng/L | 109 | 70-145 |

**Guideline = PFAS - EIS Limits Only (Water)**

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Report Number: 3015928
Date Submitted: 2025-04-30
Date Reported: 2025-05-06
Project: P250430-EF
COC #: 919938

## *QC Summary*

| Analyte | Blank | QC % Rec | QC Limits |
|---|---|---|---|
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | <1.0 ng/L | 101 | 50-150 |
| Perfluoro(2-ethoxyethane)sulfonic acid(PFEESA) | <1.0 ng/L | 107 | 70-140 |
| Perfluoro-3-methoxypropanoic acid(PFMPA) | <1.0 ng/L | 103 | 55-140 |
| Perfluoro-4-methoxybutanoic acid(PFMBA) | <1.0 ng/L | 109 | 60-150 |
| Perfluorobutanesulfonic acid (PFBS) | <1.0 ng/L | 104 | 60-145 |
| Perfluorobutanoic acid (PFBA) | <3.0 ng/L | 104 | 70-140 |
| Perfluorodecanesulfonic acid (PFDS) | <1.0 ng/L | 102 | 60-145 |
| Perfluorodecanoic acid (PFDA) | <1.0 ng/L | 106 | 70-140 |
| Perfluorododecanesulfonic acid(PFDoS) | <1.0 ng/L | 96 | 50-145 |
| Perfluorododecanoic acid (PFDoA) | <1.0 ng/L | 108 | 70-140 |
| Perfluoroheptanesulfonic acid(PFHpS) | <1.0 ng/L | 114 | 70-150 |
| Perfluoroheptanoic acid (PFHpA) | <1.0 ng/L | 108 | 70-150 |
| Perfluorohexanesulfonic acid (PFHxS) | <1.0 ng/L | 113 | 65-145 |
| Perfluorohexanoic acid (PFHxA) | <1.0 ng/L | 113 | 70-145 |
| Perfluorononanesulfonic acid(PFNS) | <1.0 ng/L | 100 | 65-145 |
| Perfluorononanoic acid (PFNA) | <1.0 ng/L | 111 | 70-150 |
| Perfluorooctanesulfonamide (PFOSA) | <1.0 ng/L | 111 | 70-145 |
| Perfluorooctanesulfonic acid (PFOS) | <1.0 ng/L | 99 | 55-150 |

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Report Number: 3015928
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Date Reported: 2025-05-06
Project: P250430-EF
COC #: 919938

## *QC Summary*

| Analyte | Blank | QC % Rec | QC Limits |
|---|---|---|---|
| Perfluorooctanoic acid (PFOA) | <1.0 ng/L | 109 | 70-150 |
| Perfluoropentanesulfonic acid (PFPeS) | <1.0 ng/L | 107 | 65-140 |
| Perfluoropentanoic acid (PFPeA) | <1.0 ng/L | 106 | 65-135 |
| Perfluorotetradecanoic acid(PFTeDA) | <1.0 ng/L | 93 | 60-140 |
| Perfluorotridecanoic acid (PFTrDA) | <1.0 ng/L | 105 | 65-140 |
| Perfluoroundecanoic acid (PFUnA) | <1.0 ng/L | 118 | 70-145 |

**Guideline = PFAS - EIS Limits Only (Water)**

*** = Guideline Exceedence**

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, EIS = Extracted Internal Standards

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# Certificate of Analysis

eurofins | Environment Testing

| | | | |
|---|---|---|---|
| Client: | Caduceon Environmental (Ottawa)<br>2378 Holly Lane<br>Ottawa, ON<br>K1V 7P1 | Report Number: | 3015928 |
| Attention: | Mr. Steve Garrett | Date Submitted: | 2025-04-30 |
| PO#: | | Date Reported: | 2025-05-06 |
| Invoice to: | Caduceon Enterprises Inc. (Kingston) | Project: | P250430-EF |
| | | COC #: | 919938 |

## *Sample Comment Summary*

| | | |
|---|---|---|
| Sample ID: 1764680 | 25-010942-1 | EIS with a High Bias: NMeFOSAA, NEtFOSAA. |
| Sample ID: 1764681 | 25-010942-2 | EIS with a High Bias: NMeFOSAA, NEtFOSAA. |
| Sample ID: 1764682 | 25-010942-3 | EIS with a High Bias: NMeFOSAA, NEtFOSAA. |
| Sample ID: 1764683 | 25-010942-4 | EIS with a High Bias: NMeFOSAA, NEtFOSAA. |

**Guideline = PFAS - EIS Limits Only (Water)**

*** = Guideline Exceedence**

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, EIS = Extracted Internal Standards

Results relate only to the parameters tested on the samples submitted.
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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.:** -

**REPORT No: 25-010962 - Rev. 0**

**Report To:**
City of Kawartha Lakes
PO Box 9000
322 Kent Street West
Lindsay, ON K9V 4T7

**CADUCEON Environmental Laboratories**
2378 Holly Lane
Ottawa, ON K1V 7P1

**Attention: Katelyn Brown**

DATE RECEIVED: 2025-Apr-25
DATE REPORTED: 2025-May-23
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Anions (Liquid) | 16 | OTTAWA | LMACGREGOR | 2025-Apr-29 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 16 | KINGSTON | JWOLFE2 | 2025-May-05 | BOD-001 | SM 5210B |
| COD (Liquid) | 25 | KINGSTON | MWILSON | 2025-May-12 | COD-001 | SM 5220D |
| Colour (Liquid) | 16 | OTTAWA | STAILLON | 2025-Apr-28 | A-COL-01 | SM 2120C |
| Cond/pH/Alk Auto (Liquid) | 16 | OTTAWA | SBOUDREAU | 2025-Apr-30 | COND-02/PH-02/ALK-02 | SM 2510B/4500H/2320B |
| Cyanide WAD (Liquid) | 16 | KINGSTON | EHINCH | 2025-Apr-29 | CN-001 | SM 4500-CN-E |
| DOC (Liquid) | 16 | OTTAWA | SLOZO | 2025-May-15 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 16 | OTTAWA | ASCHNEIDER | | CP-028 | MECP E3196 |
| Chromium VI (Liquid) | 25 | OTTAWA | STAILLON | 2025-May-02 | D-CRVI-01 | MECP E3056 |
| ICP/MS Total (Liquid) | 25 | OTTAWA | AOZKAYMAK | 2025-Apr-30 | D-ICPMS-01 | EPA 6020 |
| ICP/OES Total (Liquid) | 25 | OTTAWA | GFENTON | 2025-May-01 | D-ICP-01 | SM 3120B |
| ICP/OES (Liquid) | 16 | OTTAWA | GFENTON | 2025-May-01 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 25 | OTTAWA | TBENNETT | 2025-May-02 | D-HG-02 | SM 3112B |
| Ammonia (Liquid) | 25 | KINGSTON | VHAMMOND | 2025-May-08 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 16 | KINGSTON | EHINCH | 2025-May-06 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 25 | KINGSTON | YLIEN | 2025-May-08 | TPTKN-001 | MECP E3516.2 |
| TSS (Liquid) | 16 | KINGSTON | MCLOSS | 2025-May-05 | TSS-001 | SM 2540D |
| Turbidity (Liquid) | 16 | OTTAWA | MMIRELLA | 2025-Apr-28 | A-TURB-01 | SM 2130B |
| VOC-Volatiles Full (Water) | 7 | RICHMOND_HILL | FLENA | 2025-May-06 | C-VOC-02 | EPA 8260 |

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

**Michelle Dubien**
**Data Specialist**

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

| | | Client I.D. | SW2 | SW3 | SW4 | SW12 (10m) | SW12 (10m) - Filtered |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-1 | 25-010962-2 | 25-010962-3 | 25-010962-4 | 25-010962-5 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 134 | 154 | 129 | 304 | |
| Conductivity @25°C | uS/cm | 1 | 294 | 338 | 279 | 620 | |
| pH @25°C | pH units | - | 8.01 | 8.13 | 8.04 | 8.14 | |
| Colour | TCU | 2 | 34 | 44 | 37 | 53 | |
| Turbidity | NTU | 0.1 | 0.4 | 0.6 | 0.5 | 127 | |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |
| Chloride | mg/L | 0.5 | 10.1 | 12.6 | 9.4 | 17.6 | |
| Nitrate (N) | mg/L | 0.05 | 0.13 | <0.05 | <0.05 | 0.64 | |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | |
| Sulphate | mg/L | 1 | 6 | 5 | 4 | 3 | |
| BOD5 | mg/L | 3 | <3 | <3 | <3 | 4 | |
| Total Suspended Solids | mg/L | 3 | 4 | <3 | <3 | 68 | |
| Phosphorus (Total) | mg/L | 0.01 | 0.02 | 0.02 | 0.02 | 0.56 | 0.04 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.6 | 0.5 | 0.5 | 5.8 | 1.4 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.07 | 0.07 | 0.09 | 1.05 | 0.72 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | |
| Dissolved Organic Carbon | mg/L | 0.8 | 9.4 | 11.8 | 5.8 | 8.8 | |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | |
| Phenolics | mg/L | 0.001 | <0.001 | <0.001 | 0.001 | 0.002 | |
| COD | mg/L | 5 | 25 | 26 | 32 | 108 | 63 |
| Aluminum | mg/L | 0.01 | 0.02 | 0.02 | 0.02 | | 0.04 |

**Michelle Dubien**
**Data Specialist**

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| | | **Client I.D.** | SW2 | SW3 | SW4 | SW12 (10m) | SW12 (10m) - Filtered |
|---|---|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-010962-1 | 25-010962-2 | 25-010962-3 | 25-010962-4 | 25-010962-5 |
| | | **Date Collected** | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 149 | 166 | 141 | 328 | 315 |
| Aluminum (Total) | mg/L | 0.01 | 0.02 | 0.03 | 0.03 | 0.39 | 0.04 |
| Barium (Total) | mg/L | 0.001 | 0.020 | 0.023 | 0.030 | 0.049 | 0.039 |
| Boron (Total) | mg/L | 0.005 | 0.008 | 0.006 | 0.006 | 0.101 | 0.100 |
| Calcium (Total) | mg/L | 0.02 | 52.4 | 59.2 | 50.0 | 117 | 112 |
| Iron (Total) | mg/L | 0.005 | 0.036 | 0.079 | 0.073 | 2.19 | 0.325 |
| Magnesium (Total) | mg/L | 0.02 | 4.39 | 4.31 | 3.90 | 8.46 | 8.46 |
| Manganese (Total) | mg/L | 0.001 | 0.013 | 0.010 | 0.008 | 0.127 | 0.099 |
| Phosphorus (Total) | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | 0.2 | <0.1 |
| Potassium (Total) | mg/L | 0.1 | 1.2 | 1.4 | 1.2 | 8.8 | 8.4 |
| Sodium (Total) | mg/L | 0.2 | 4.6 | 6.6 | 5.2 | 18.4 | 18.2 |
| Strontium (Total) | mg/L | 0.001 | 0.125 | 0.140 | 0.114 | 0.296 | 0.291 |
| Tin (Total) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium (Total) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | 0.021 | <0.005 |
| Zinc (Total) | mg/L | 0.005 | 0.020 | 0.017 | 0.010 | 0.016 | 0.008 |
| Antimony (Total) | mg/L | 0.0001 | 0.0002 | 0.0005 | 0.0004 | 0.0004 | 0.0006 |
| Arsenic (Total) | mg/L | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0005 | 0.0003 |
| Beryllium (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | 0.000023 | <0.000015 |
| Chromium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt (Total) | mg/L | 0.0001 | <0.0001 | 0.0002 | 0.0002 | 0.0010 | 0.0007 |

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**Data Specialist**

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| | | Client I.D. | SW2 | SW3 | SW4 | SW12 (10m) | SW12 (10m) - Filtered |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-1 | 25-010962-2 | 25-010962-3 | 25-010962-4 | 25-010962-5 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Copper (Total) | mg/L | 0.0001 | 0.0002 | 0.0003 | 0.0006 | 0.0017 | 0.0006 |
| Lead (Total) | mg/L | 0.00002 | <0.00002 | <0.00002 | 0.00003 | 0.00113 | 0.00003 |
| Molybdenum (Total) | mg/L | 0.0001 | <0.0001 | 0.0001 | <0.0001 | 0.0001 | 0.0001 |
| Nickel (Total) | mg/L | 0.0002 | 0.0006 | 0.0006 | 0.0005 | 0.0017 | 0.0019 |
| Selenium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium (Total) | mg/L | 0.00005 | 0.00011 | 0.00022 | 0.00009 | 0.00010 | 0.00008 |
| Vanadium (Total) | mg/L | 0.0001 | <0.0001 | 0.0001 | <0.0001 | 0.0007 | 0.0001 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 3.09 | 3.53 | 2.93 | 6.68 | |
| Cation Sum | meq/L | - | 3.22 | 3.64 | 3.08 | 7.70 | |
| % Difference | % | - | 1.99 | 1.60 | 2.47 | 7.13 | |
| Ion Ratio | - | - | 0.961 | 0.969 | 0.952 | 0.867 | |
| Sodium Adsorption Ratio | - | - | 0.165 | 0.225 | 0.189 | 0.442 | |
| TDS (Ion Sum Calc) | mg/L | 1 | 160 | 181 | 151 | 361 | |
| TDS(calc.)/EC(actual) | - | - | 0.543 | 0.536 | 0.542 | 0.582 | |
| Conductivity Calc | µmho/cm | - | 308 | 347 | 293 | 660 | |
| Conductivity Calc / Conductivity | - | - | 1.05 | 1.03 | 1.05 | 1.06 | |
| Langelier Index(25°C) | - | - | 0.453 | 0.676 | 0.459 | 1.24 | |

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**Data Specialist**

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| | | Client I.D. | SW2 | SW3 | SW4 | SW12 (10m) | SW12 (10m) - Filtered |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-1 | 25-010962-2 | 25-010962-3 | 25-010962-4 | 25-010962-5 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Saturation pH (25°C) | - | - | 7.56 | 7.45 | 7.58 | 6.90 | |
| pH (Client Data) | pH units | - | 7.15 | 7.00 | 7.07 | 7.25 | |
| Temperature (Client Data) | °C | - | 10.9 | 9.90 | 11.0 | 7.10 | |

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| | | Client I.D. | SW12 (30m) | SW12 (30m) - Filtered | SW13 (10m) | SW13 (10m) - Filtered | SW13 (30m) |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-6 | 25-010962-7 | 25-010962-8 | 25-010962-9 | 25-010962-10 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 198 | | 263 | | 124 |
| Conductivity @25°C | uS/cm | 1 | 412 | | 550 | | 259 |
| pH @25°C | pH units | - | 8.12 | | 8.11 | | 7.91 |
| Colour | TCU | 2 | 66 | | 56 | | 71 |
| Turbidity | NTU | 0.1 | 9.8 | | 13.3 | | 1.8 |
| Fluoride | mg/L | 0.1 | <0.1 | | <0.1 | | <0.1 |
| Chloride | mg/L | 0.5 | 12.1 | | 15.6 | | 7.5 |
| Nitrate (N) | mg/L | 0.05 | 0.30 | | 0.61 | | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | | 0.08 | | <0.05 |
| Sulphate | mg/L | 1 | 4 | | 4 | | 3 |
| BOD5 | mg/L | 3 | <3 | | 9 | | <3 |
| Total Suspended Solids | mg/L | 3 | 20 | | 31 | | 9 |
| Phosphorus (Total) | mg/L | 0.01 | 0.06 | 0.02 | 0.18 | 0.03 | 0.03 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.9 | 0.7 | 2.7 | 1.8 | 0.5 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.13 | 0.13 | 1.36 | 1.26 | <0.05 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 | | <0.01 | | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | 7.5 | | 8.1 | | 7.2 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | | <0.005 | | <0.005 |
| Phenolics | mg/L | 0.001 | 0.001 | | 0.002 | | 0.001 |
| COD | mg/L | 5 | 48 | 44 | 74 | 45 | 38 |
| Aluminum | mg/L | 0.01 | | 0.03 | | 0.03 | |

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| | | Client I.D. | SW12 (30m) | SW12 (30m) - Filtered | SW13 (10m) | SW13 (10m) - Filtered | SW13 (30m) |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-6 | 25-010962-7 | 25-010962-8 | 25-010962-9 | 25-010962-10 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 217 | 199 | 276 | 268 | 133 |
| Aluminum (Total) | mg/L | 0.01 | 0.17 | 0.04 | 0.06 | 0.03 | 0.05 |
| Barium (Total) | mg/L | 0.001 | 0.031 | 0.025 | 0.043 | 0.040 | 0.017 |
| Boron (Total) | mg/L | 0.005 | 0.057 | 0.055 | 0.094 | 0.090 | 0.008 |
| Calcium (Total) | mg/L | 0.02 | 78.1 | 71.6 | 98.5 | 95.7 | 48.1 |
| Iron (Total) | mg/L | 0.005 | 1.14 | 0.168 | 2.68 | 0.431 | 0.300 |
| Magnesium (Total) | mg/L | 0.02 | 5.24 | 4.89 | 7.14 | 6.90 | 3.11 |
| Manganese (Total) | mg/L | 0.001 | 0.087 | 0.026 | 0.082 | 0.057 | 0.050 |
| Phosphorus (Total) | mg/L | 0.1 | 0.1 | <0.1 | 0.1 | <0.1 | 0.1 |
| Potassium (Total) | mg/L | 0.1 | 5.0 | 4.7 | 8.5 | 8.2 | 2.0 |
| Sodium (Total) | mg/L | 0.2 | 10.1 | 9.5 | 17.0 | 16.5 | 4.2 |
| Strontium (Total) | mg/L | 0.001 | 0.178 | 0.165 | 0.242 | 0.233 | 0.103 |
| Tin (Total) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium (Total) | mg/L | 0.005 | 0.008 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc (Total) | mg/L | 0.005 | 0.016 | 0.010 | 0.012 | 0.008 | 0.008 |
| Antimony (Total) | mg/L | 0.0001 | 0.0004 | 0.0006 | 0.0006 | 0.0005 | 0.0004 |
| Arsenic (Total) | mg/L | 0.0001 | 0.0004 | 0.0003 | 0.0003 | 0.0005 | 0.0003 |
| Beryllium (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt (Total) | mg/L | 0.0001 | 0.0005 | 0.0004 | 0.0005 | 0.0006 | 0.0002 |

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| | | Client I.D. | SW12 (30m) | SW12 (30m) - Filtered | SW13 (10m) | SW13 (10m) - Filtered | SW13 (30m) |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-6 | 25-010962-7 | 25-010962-8 | 25-010962-9 | 25-010962-10 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Copper (Total) | mg/L | 0.0001 | 0.0007 | 0.0004 | 0.0005 | 0.0007 | 0.0005 |
| Lead (Total) | mg/L | 0.00002 | 0.00059 | 0.00005 | 0.00002 | 0.00021 | 0.00036 |
| Molybdenum (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Nickel (Total) | mg/L | 0.0002 | 0.0008 | 0.0006 | 0.0010 | 0.0016 | 0.0006 |
| Selenium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium (Total) | mg/L | 0.00005 | 0.00005 | <0.00005 | 0.00007 | 0.00007 | <0.00005 |
| Vanadium (Total) | mg/L | 0.0001 | 0.0004 | 0.0001 | <0.0001 | 0.0003 | 0.0002 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 4.40 | | 5.84 | | 2.75 |
| Cation Sum | meq/L | - | 4.96 | | 6.61 | | 2.91 |
| % Difference | % | - | 5.99 | | 6.22 | | 2.83 |
| Ion Ratio | - | - | 0.887 | | 0.883 | | 0.945 |
| Sodium Adsorption Ratio | - | - | 0.298 | | 0.445 | | 0.157 |
| TDS (Ion Sum Calc) | mg/L | 1 | 236 | | 315 | | 142 |
| TDS(calc.)/EC(actual) | - | - | 0.572 | | 0.572 | | 0.550 |
| Conductivity Calc | µmho/cm | - | 444 | | 575 | | 275 |
| Conductivity Calc / Conductivity | - | - | 1.08 | | 1.05 | | 1.06 |
| Langelier Index(25°C) | - | - | 0.877 | | 1.08 | | 0.294 |

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**Data Specialist**

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Client I.D. | SW12 (30m) | SW12 (30m) - Filtered | SW13 (10m) | SW13 (10m) - Filtered | SW13 (30m) |
| | | Sample I.D. | 25-010962-6 | 25-010962-7 | 25-010962-8 | 25-010962-9 | 25-010962-10 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| Parameter | Units | R.L. | - | - | - | - | - |
| Saturation pH (25°C) | - | - | 7.24 | | 7.03 | | 7.62 |
| pH (Client Data) | pH units | - | 7.75 | | 6.98 | | 7.02 |
| Temperature (Client Data) | °C | - | 6.90 | | 6.40 | | 7.00 |

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| | | **Client I.D.** | SW13 (30m) - Filtered | SW14 | SW14 - Filtered | SW15 (10m) | SW15 (10m) - Filtered |
|---|---|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-010962-11 | 25-010962-12 | 25-010962-13 | 25-010962-14 | 25-010962-15 |
| | | **Date Collected** | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 115 | | 472 | |
| Conductivity @25°C | uS/cm | 1 | | 243 | | 904 | |
| pH @25°C | pH units | - | | 7.99 | | 8.06 | |
| Colour | TCU | 2 | | 114 | | 68 | |
| Turbidity | NTU | 0.1 | | 9.8 | | 43.4 | |
| Fluoride | mg/L | 0.1 | | <0.1 | | <0.1 | |
| Chloride | mg/L | 0.5 | | 7.1 | | 20.9 | |
| Nitrate (N) | mg/L | 0.05 | | <0.05 | | 0.05 | |
| Nitrite (N) | mg/L | 0.05 | | <0.05 | | <0.05 | |
| Sulphate | mg/L | 1 | | 3 | | 1 | |
| BOD5 | mg/L | 3 | | 5 | | 14 | |
| Total Suspended Solids | mg/L | 3 | | 220 | | 1470 | |
| Phosphorus (Total) | mg/L | 0.01 | 0.12 | 0.10 | 0.02 | 0.17 | 0.06 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 1.3 | 1.4 | 0.5 | 4.4 | 3.7 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | <0.05 | 0.13 | 0.05 | 2.97 | 2.99 |
| Ammonia (N)-unionized | mg/L | 0.01 | | <0.01 | | <0.01 | |
| Dissolved Organic Carbon | mg/L | 0.8 | | 8.2 | | 12.1 | |
| Cyanide (WAD) | mg/L | 0.005 | | <0.005 | | <0.005 | |
| Phenolics | mg/L | 0.001 | | <0.001 | | <0.001 | |
| COD | mg/L | 5 | 71 | 79 | 35 | 74 | 67 |
| Aluminum | mg/L | 0.01 | 0.02 | | 0.02 | | 0.05 |

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| | | Client I.D. | SW13 (30m) - Filtered | SW14 | SW14 - Filtered | SW15 (10m) | SW15 (10m) - Filtered |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-11 | 25-010962-12 | 25-010962-13 | 25-010962-14 | 25-010962-15 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 141 | 125 | 130 | 492 | 432 |
| Aluminum (Total) | mg/L | 0.01 | 0.03 | 0.06 | 0.02 | 1.21 | 0.06 |
| Barium (Total) | mg/L | 0.001 | 0.016 | 0.014 | 0.013 | 0.080 | 0.052 |
| Boron (Total) | mg/L | 0.005 | 0.012 | 0.006 | 0.006 | 0.206 | 0.209 |
| Calcium (Total) | mg/L | 0.02 | 50.9 | 45.0 | 46.8 | 170 | 146 |
| Iron (Total) | mg/L | 0.005 | 0.092 | 0.361 | 0.112 | 6.08 | 0.513 |
| Magnesium (Total) | mg/L | 0.02 | 3.25 | 2.98 | 3.12 | 16.2 | 16.0 |
| Manganese (Total) | mg/L | 0.001 | 0.010 | 0.085 | 0.012 | 0.827 | 0.577 |
| Phosphorus (Total) | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | 0.8 | <0.1 |
| Potassium (Total) | mg/L | 0.1 | 2.1 | 1.9 | 2.0 | 11.7 | 12.3 |
| Sodium (Total) | mg/L | 0.2 | 4.4 | 3.9 | 4.0 | 20.8 | 21.9 |
| Strontium (Total) | mg/L | 0.001 | 0.107 | 0.096 | 0.099 | 0.485 | 0.456 |
| Tin (Total) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium (Total) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | 0.056 | <0.005 |
| Zinc (Total) | mg/L | 0.005 | 0.007 | 0.008 | <0.005 | 0.055 | 0.010 |
| Antimony (Total) | mg/L | 0.0001 | 0.0003 | 0.0003 | 0.0005 | 0.0004 | 0.0006 |
| Arsenic (Total) | mg/L | 0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0025 | 0.0011 |
| Beryllium (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | <0.000015 | 0.000019 | <0.000015 | 0.000133 | <0.000015 |
| Chromium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | 0.002 | <0.001 |
| Cobalt (Total) | mg/L | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0026 | 0.0015 |

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| | | **Client I.D.** | SW13 (30m) - Filtered | SW14 | SW14 - Filtered | SW15 (10m) | SW15 (10m) - Filtered |
|---|---|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-010962-11 | 25-010962-12 | 25-010962-13 | 25-010962-14 | 25-010962-15 |
| | | **Date Collected** | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Copper (Total) | mg/L | 0.0001 | 0.0003 | 0.0004 | 0.0003 | 0.0037 | 0.0006 |
| Lead (Total) | mg/L | 0.00002 | 0.00003 | 0.00030 | 0.00004 | 0.00456 | 0.00011 |
| Molybdenum (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0002 |
| Nickel (Total) | mg/L | 0.0002 | 0.0005 | 0.0005 | 0.0005 | 0.0035 | 0.0019 |
| Selenium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium (Total) | mg/L | 0.00005 | <0.00005 | 0.00006 | <0.00005 | 0.00012 | 0.00008 |
| Vanadium (Total) | mg/L | 0.0001 | 0.0001 | 0.0002 | <0.0001 | 0.0023 | 0.0003 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | | 2.56 | | 10.1 | |
| Cation Sum | meq/L | - | | 2.73 | | 11.4 | |
| % Difference | % | - | | 3.19 | | 6.26 | |
| Ion Ratio | - | - | | 0.938 | | 0.882 | |
| Sodium Adsorption Ratio | - | - | | 0.151 | | 0.408 | |
| TDS (Ion Sum Calc) | mg/L | 1 | | 133 | | 531 | |
| TDS(calc.)/EC(actual) | - | - | | 0.549 | | 0.588 | |
| Conductivity Calc | µmho/cm | - | | 258 | | 934 | |
| Conductivity Calc / Conductivity | - | - | | 1.06 | | 1.03 | |
| Langelier Index(25°C) | - | - | | 0.322 | | 1.50 | |

**Michelle Dubien**
**Data Specialist**

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Client I.D. | SW13 (30m) - Filtered | SW14 | SW14 - Filtered | SW15 (10m) | SW15 (10m) - Filtered |
| | | Sample I.D. | 25-010962-11 | 25-010962-12 | 25-010962-13 | 25-010962-14 | 25-010962-15 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Saturation pH (25°C) | - | - | | 7.67 | | 6.56 | |
| pH (Client Data) | pH units | - | | 7.34 | | 6.85 | |
| Temperature (Client Data) | °C | - | | 7.00 | | 8.00 | |

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| | | Client I.D. | SW15 (30m) | SW15 (30m) - Filtered | SW16 | SW16 - Filtered | SW17 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-16 | 25-010962-17 | 25-010962-18 | 25-010962-19 | 25-010962-20 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 282 | | 219 | | 130 |
| Conductivity @25°C | uS/cm | 1 | 568 | | 462 | | 272 |
| pH @25°C | pH units | - | 8.11 | | 8.15 | | 7.95 |
| Colour | TCU | 2 | 54 | | 23 | | 82 |
| Turbidity | NTU | 0.1 | 104 | | 0.7 | | 27.3 |
| Fluoride | mg/L | 0.1 | <0.1 | | <0.1 | | <0.1 |
| Chloride | mg/L | 0.5 | 15.7 | | 11.4 | | 8.0 |
| Nitrate (N) | mg/L | 0.05 | 0.39 | | 1.18 | | 0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | | <0.05 | | <0.05 |
| Sulphate | mg/L | 1 | 1 | | 10 | | 3 |
| BOD5 | mg/L | 3 | 7 | | <3 | | <3 |
| Total Suspended Solids | mg/L | 3 | 140 | | 6 | | 18 |
| Phosphorus (Total) | mg/L | 0.01 | 0.49 | 0.03 | 0.02 | 0.02 | 0.06 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 7.8 | 1.4 | 0.5 | 0.5 | 1.0 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.66 | 0.61 | 0.08 | 0.08 | 0.28 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 | | <0.01 | | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | 9.0 | | 7.3 | | 14.3 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | | <0.005 | | <0.005 |
| Phenolics | mg/L | 0.001 | <0.001 | | <0.001 | | <0.001 |
| COD | mg/L | 5 | 287 | 47 | 24 | 24 | 56 |
| Aluminum | mg/L | 0.01 | | 0.03 | | 0.03 | |

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| | | Client I.D. | SW15 (30m) | SW15 (30m) - Filtered | SW16 | SW16 - Filtered | SW17 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-16 | 25-010962-17 | 25-010962-18 | 25-010962-19 | 25-010962-20 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 300 | 252 | 252 | 254 | 138 |
| Aluminum (Total) | mg/L | 0.01 | 0.44 | 0.03 | 0.05 | 0.03 | 0.06 |
| Barium (Total) | mg/L | 0.001 | 0.054 | 0.029 | 0.031 | 0.031 | 0.015 |
| Boron (Total) | mg/L | 0.005 | 0.092 | 0.078 | 0.008 | 0.010 | 0.006 |
| Calcium (Total) | mg/L | 0.02 | 107 | 89.1 | 90.9 | 91.7 | 49.9 |
| Iron (Total) | mg/L | 0.005 | 2.29 | 0.112 | 0.047 | 0.032 | 0.167 |
| Magnesium (Total) | mg/L | 0.02 | 7.92 | 7.08 | 6.05 | 6.06 | 3.17 |
| Manganese (Total) | mg/L | 0.001 | 0.464 | 0.021 | 0.010 | 0.007 | 0.018 |
| Phosphorus (Total) | mg/L | 0.1 | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium (Total) | mg/L | 0.1 | 11.1 | 10.1 | 1.3 | 1.4 | 2.0 |
| Sodium (Total) | mg/L | 0.2 | 16.1 | 15.2 | 4.6 | 4.7 | 4.1 |
| Strontium (Total) | mg/L | 0.001 | 0.286 | 0.245 | 0.215 | 0.218 | 0.106 |
| Tin (Total) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium (Total) | mg/L | 0.005 | 0.019 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc (Total) | mg/L | 0.005 | 0.041 | 0.008 | <0.005 | <0.005 | 0.007 |
| Antimony (Total) | mg/L | 0.0001 | 0.0004 | 0.0006 | 0.0004 | 0.0005 | 0.0004 |
| Arsenic (Total) | mg/L | 0.0001 | 0.0009 | 0.0004 | 0.0001 | 0.0001 | 0.0003 |
| Beryllium (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | 0.000126 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 |
| Cobalt (Total) | mg/L | 0.0001 | 0.0012 | 0.0005 | 0.0002 | 0.0002 | 0.0002 |

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| | | Client I.D. | SW15 (30m) | SW15 (30m) - Filtered | SW16 | SW16 - Filtered | SW17 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-16 | 25-010962-17 | 25-010962-18 | 25-010962-19 | 25-010962-20 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Copper (Total) | mg/L | 0.0001 | 0.0021 | 0.0004 | 0.0006 | 0.0006 | 0.0004 |
| Lead (Total) | mg/L | 0.00002 | 0.00390 | 0.00007 | 0.00003 | <0.00002 | 0.00014 |
| Molybdenum (Total) | mg/L | 0.0001 | 0.0002 | 0.0002 | 0.0001 | <0.0001 | <0.0001 |
| Nickel (Total) | mg/L | 0.0002 | 0.0020 | 0.0010 | 0.0007 | 0.0008 | 0.0006 |
| Selenium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium (Total) | mg/L | 0.00005 | 0.00008 | 0.00005 | 0.00056 | 0.00057 | <0.00005 |
| Vanadium (Total) | mg/L | 0.0001 | 0.0010 | 0.0001 | 0.0003 | 0.0002 | 0.0002 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 6.14 | | 4.99 | | 2.89 |
| Cation Sum | meq/L | - | 7.12 | | 5.28 | | 2.99 |
| % Difference | % | - | 7.35 | | 2.82 | | 1.73 |
| Ion Ratio | - | - | 0.863 | | 0.945 | | 0.966 |
| Sodium Adsorption Ratio | - | - | 0.405 | | 0.126 | | 0.152 |
| TDS (Ion Sum Calc) | mg/L | 1 | 333 | | 261 | | 149 |
| TDS(calc.)/EC(actual) | - | - | 0.587 | | 0.565 | | 0.546 |
| Conductivity Calc | µmho/cm | - | 611 | | 486 | | 286 |
| Conductivity Calc / Conductivity | - | - | 1.08 | | 1.05 | | 1.05 |
| Langelier Index(25°C) | - | - | 1.15 | | 1.02 | | 0.371 |

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| | | Client I.D. | SW15 (30m) | SW15 (30m) - Filtered | SW16 | SW16 - Filtered | SW17 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-16 | 25-010962-17 | 25-010962-18 | 25-010962-19 | 25-010962-20 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Saturation pH (25°C) | - | - | 6.96 | | 7.13 | | 7.58 |
| pH (Client Data) | pH units | - | 7.03 | | 7.58 | | 6.44 |
| Temperature (Client Data) | °C | - | 8.90 | | 11.3 | | 8.20 |

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| | | Client I.D. | SW17 - Filtered | WP-2 (10m) | WP-2 (30m) | WP-3 (10m) | WP-3 (30m) |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-21 | 25-010962-22 | 25-010962-23 | 25-010962-24 | 25-010962-25 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 237 | 116 | 122 | 341 |
| Conductivity @25°C | uS/cm | 1 | | 499 | 242 | 248 | 705 |
| pH @25°C | pH units | - | | 8.08 | 7.89 | 8.02 | 8.17 |
| Colour | TCU | 2 | | 64 | 74 | 75 | 54 |
| Turbidity | NTU | 0.1 | | 47.0 | 13.4 | 2.0 | 97.6 |
| Fluoride | mg/L | 0.1 | | <0.1 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | | 23.1 | 7.3 | 6.8 | 14.5 |
| Nitrate (N) | mg/L | 0.05 | | 0.94 | 0.05 | <0.05 | 0.46 |
| Nitrite (N) | mg/L | 0.05 | | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | | 2 | 2 | 2 | 6 |
| BOD5 | mg/L | 3 | | 9 | <3 | <3 | 16 |
| Total Suspended Solids | mg/L | 3 | | 106 | 64 | 6 | 480 |
| Phosphorus (Total) | mg/L | 0.01 | 0.02 | 0.04 | 0.05 | 0.04 | 0.19 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.6 | 1.5 | 0.9 | 0.6 | 2.8 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.12 | 0.61 | 0.08 | 0.12 | 1.15 |
| Ammonia (N)-unionized | mg/L | 0.01 | | <0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | | 37.0 | 14.7 | 14.6 | 20.3 |
| Cyanide (WAD) | mg/L | 0.005 | | <0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | | 0.003 | 0.001 | 0.002 | 0.002 |
| COD | mg/L | 5 | 40 | 46 | 58 | 42 | 82 |
| Aluminum | mg/L | 0.01 | 0.03 | 0.04 | 0.02 | 0.01 | 0.04 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Client I.D. | SW17 - Filtered | WP-2 (10m) | WP-2 (30m) | WP-3 (10m) | WP-3 (30m) |
| | | Sample I.D. | 25-010962-21 | 25-010962-22 | 25-010962-23 | 25-010962-24 | 25-010962-25 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| Parameter | Units | R.L. | - | - | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 148 | 240 | 126 | 131 | 327 |
| Aluminum (Total) | mg/L | 0.01 | 0.03 | 0.07 | 0.10 | 0.03 | 0.13 |
| Barium (Total) | mg/L | 0.001 | 0.016 | 0.039 | 0.016 | 0.016 | 0.053 |
| Boron (Total) | mg/L | 0.005 | 0.007 | 0.134 | 0.007 | 0.009 | 0.129 |
| Calcium (Total) | mg/L | 0.02 | 53.8 | 85.8 | 45.6 | 47.2 | 115 |
| Iron (Total) | mg/L | 0.005 | 0.103 | 0.656 | 0.516 | 0.232 | 1.75 |
| Magnesium (Total) | mg/L | 0.02 | 3.40 | 6.24 | 3.00 | 3.10 | 9.50 |
| Manganese (Total) | mg/L | 0.001 | 0.012 | 0.050 | 0.066 | 0.015 | 0.138 |
| Phosphorus (Total) | mg/L | 0.1 | <0.1 | <0.1 | 0.1 | <0.1 | 0.2 |
| Potassium (Total) | mg/L | 0.1 | 2.1 | 7.8 | 1.8 | 1.9 | 11.7 |
| Sodium (Total) | mg/L | 0.2 | 4.5 | 12.8 | 3.6 | 4.1 | 23.5 |
| Strontium (Total) | mg/L | 0.001 | 0.115 | 0.205 | 0.098 | 0.102 | 0.309 |
| Tin (Total) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium (Total) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 |
| Zinc (Total) | mg/L | 0.005 | 0.008 | <0.005 | 0.013 | <0.005 | 0.014 |
| Antimony (Total) | mg/L | 0.0001 | 0.0003 | 0.0004 | 0.0005 | 0.0003 | 0.0004 |
| Arsenic (Total) | mg/L | 0.0001 | 0.0003 | 0.0004 | 0.0003 | 0.0002 | 0.0005 |
| Beryllium (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | <0.000015 | <0.000015 | 0.000036 | <0.000015 | 0.000018 |
| Chromium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt (Total) | mg/L | 0.0001 | 0.0001 | 0.0006 | 0.0003 | 0.0002 | 0.0009 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Client I.D. | SW17 - Filtered | WP-2 (10m) | WP-2 (30m) | WP-3 (10m) | WP-3 (30m) |
| | | Sample I.D. | 25-010962-21 | 25-010962-22 | 25-010962-23 | 25-010962-24 | 25-010962-25 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| Parameter | Units | R.L. | - | - | - | - | - |
| Copper (Total) | mg/L | 0.0001 | 0.0004 | 0.0007 | 0.0008 | 0.0003 | 0.0009 |
| Lead (Total) | mg/L | 0.00002 | 0.00004 | 0.00012 | 0.00129 | 0.00044 | 0.00072 |
| Molybdenum (Total) | mg/L | 0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0002 |
| Nickel (Total) | mg/L | 0.0002 | 0.0005 | 0.0018 | 0.0007 | 0.0007 | 0.0017 |
| Selenium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium (Total) | mg/L | 0.00005 | <0.00005 | 0.00008 | <0.00005 | <0.00005 | 0.00009 |
| Vanadium (Total) | mg/L | 0.0001 | 0.0002 | 0.0003 | 0.0003 | 0.0001 | 0.0003 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | | 5.48 | 2.58 | 2.67 | 7.38 |
| Cation Sum | meq/L | - | | 5.59 | 2.76 | 2.86 | 7.96 |
| % Difference | % | - | | 0.970 | 3.40 | 3.27 | 3.78 |
| Ion Ratio | - | - | | 0.981 | 0.934 | 0.937 | 0.927 |
| Sodium Adsorption Ratio | - | - | | 0.359 | 0.141 | 0.156 | 0.565 |
| TDS (Ion Sum Calc) | mg/L | 1 | | 284 | 134 | 139 | 389 |
| TDS(calc.)/EC(actual) | - | - | | 0.570 | 0.553 | 0.560 | 0.552 |
| Conductivity Calc | µmho/cm | - | | 526 | 260 | 269 | 695 |
| Conductivity Calc / Conductivity | - | - | | 1.05 | 1.07 | 1.08 | 0.986 |
| Langelier Index(25°C) | - | - | | 0.945 | 0.232 | 0.387 | 1.31 |

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**Data Specialist**

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Client I.D. | SW17 - Filtered | WP-2 (10m) | WP-2 (30m) | WP-3 (10m) | WP-3 (30m) |
| | | Sample I.D. | 25-010962-21 | 25-010962-22 | 25-010962-23 | 25-010962-24 | 25-010962-25 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| Parameter | Units | R.L. | - | - | - | - | - |
| Saturation pH (25°C) | - | - | | 7.14 | 7.66 | 7.63 | 6.86 |
| pH (Client Data) | pH units | - | | 7.82 | 7.39 | 7.28 | 7.28 |
| Temperature (Client Data) | °C | - | | 6.80 | 7.20 | 6.80 | 6.40 |

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| | | Client I.D. | SW2 | SW3 | SW4 | SW12 (10m) | SW13 (10m) |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-1 | 25-010962-2 | 25-010962-3 | 25-010962-4 | 25-010962-8 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 | | |
| Benzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | | |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | | |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | | |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | | |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | | |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | | |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |

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**Data Specialist**

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| | | Client I.D. | SW2 | SW3 | SW4 | SW12 (10m) | SW13 (10m) |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010962-1 | 25-010962-2 | 25-010962-3 | 25-010962-4 | 25-010962-8 |
| | | Date Collected | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 | 2025-04-22 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | | |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 | | |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 | | |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 | | |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 | | |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | | |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 | | |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | | |

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| | | | | |
|---|---|---|---|---|
| | | Client I.D. | SW14 | SW15 (10m) |
| | | Sample I.D. | 25-010962-12 | 25-010962-14 |
| | | Date Collected | 2025-04-22 | 2025-04-22 |
| Parameter | Units | R.L. | - | - |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 |

Samples 25-010962 -9, and -22 filtered from unpreserved for metals analysis due to sediment in the metals bottles.

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Data Specialist

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.:** -

**REPORT No: 25-010945 - Rev. 0**

**Report To:**
City of Kawartha Lakes
PO Box 9000
322 Kent Street West
Lindsay, ON K9V 4T7

**CADUCEON Environmental Laboratories**
2378 Holly Lane
Ottawa, ON K1V 7P1

**Attention: Kayla Pantaleo**

DATE RECEIVED: 2025-Apr-24
DATE REPORTED: 2025-May-29
SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Anions (Liquid) | 30 | OTTAWA | PCURIEL | 2025-May-01 | A-IC-01 | SM 4110B |
| COD (Liquid) | 30 | KINGSTON | MWILSON | 2025-May-08 | COD-001 | SM 5220D |
| Cond/pH/Alk Auto (Liquid) | 30 | OTTAWA | SBOUDREAU | 2025-Apr-30 | COND-02/PH-02/ALK-02 | SM 2510B/4500H/2320B |
| DOC (Liquid) | 30 | OTTAWA | SLOZO | 2025-May-22 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 30 | OTTAWA | ASCHNEIDER | | CP-028 | MECP E3196 |
| Chromium VI (Liquid) | 30 | OTTAWA | STAILLON | 2025-May-02 | D-CRVI-01 | MECP E3056 |
| ICP/MS (Liquid) | 30 | OTTAWA | AOZKAYMAK | 2025-May-01 | D-ICPMS-01 | EPA 200.8 |
| ICP/OES (Liquid) | 30 | OTTAWA | GFENTON | 2025-Apr-30 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 30 | OTTAWA | TBENNETT | 2025-May-01 | D-HG-02 | SM 3112B |
| Ammonia (Liquid) | 30 | KINGSTON | VHAMMOND | 2025-May-07 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 30 | KINGSTON | EHINCH | 2025-May-02 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 30 | KINGSTON | YLIEN | 2025-May-07 | TPTKN-001 | MECP E3516.2 |
| VOC-Volatiles Full (Water) | 7 | RICHMOND_HILL | JEVANS | 2025-Apr-30 | C-VOC-02 | EPA 8260 |

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

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| | | Client I.D. | MW2 | MW3 | MW3A | MW5 | MW6 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-1 | 25-010945-2 | 25-010945-3 | 25-010945-4 | 25-010945-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 769 | 1300 | 242 | 895 | 1400 |
| Conductivity @25°C | uS/cm | 1 | 1730 | 2890 | 516 | 1830 | 3620 |
| pH @25°C | pH units | - | 7.37 | 7.27 | 7.59 | 7.36 | 7.30 |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.7 |
| Chloride | mg/L | 0.5 | 106 | 188 | 6.1 | 58.7 | 226 |
| Nitrate (N) | mg/L | 0.05 | 0.10 | <0.05 | 0.33 | 0.05 | <0.40 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | 0.06 | <0.05 | <0.40 |
| Sulphate | mg/L | 1 | <1 | <1 | 14 | 15 | <2 |
| Phosphorus (Total) | mg/L | 0.01 | 0.04 | 0.25 | 0.19 | 0.25 | 61.8 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 53.9 | 127 | 2.1 | 31.0 | 161 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 37.8 | 100 | 1.88 | 34.3 | 126 |
| Dissolved Organic Carbon | mg/L | 0.8 | 13.5 | 38.7 | 8.1 | 61.9 | 56.4 |
| Phenolics | mg/L | 0.001 | 0.005 | 0.004 | 0.001 | 0.032 | 0.006 |
| COD | mg/L | 5 | 85 | 194 | 20 | 273 | 790 |
| Hardness (as CaCO3) | mg/L | 0.02 | 595 | 789 | 234 | 631 | 1020 |
| Aluminum | mg/L | 0.01 | 0.09 | 0.12 | 0.03 | 0.08 | 0.11 |
| Barium | mg/L | 0.001 | 0.959 | 0.678 | 0.020 | 0.603 | 0.140 |
| Boron | mg/L | 0.005 | 0.545 | 0.616 | 0.090 | 0.873 | 1.65 |
| Calcium | mg/L | 0.02 | 206 | 262 | 87.3 | 222 | 325 |
| Iron | mg/L | 0.005 | 69.0 | 35.0 | 0.829 | 2.85 | 0.156 |
| Magnesium | mg/L | 0.02 | 19.7 | 32.5 | 3.79 | 18.6 | 50.8 |

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| | | Client I.D. | MW2 | MW3 | MW3A | MW5 | MW6 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-1 | 25-010945-2 | 25-010945-3 | 25-010945-4 | 25-010945-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.935 | 0.372 | 0.127 | 1.95 | 1.41 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 54.0 | 128 | 4.9 | 51.5 | 95.1 |
| Sodium | mg/L | 0.2 | 64.1 | 136 | 8.3 | 67.2 | 203 |
| Strontium | mg/L | 0.001 | 0.664 | 0.895 | 0.232 | 0.568 | 1.41 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | 0.006 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.010 |
| Antimony | mg/L | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0007 | 0.0007 |
| Arsenic | mg/L | 0.0001 | 0.0059 | 0.0007 | 0.0002 | 0.0068 | 0.0024 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000030 |
| Chromium | mg/L | 0.001 | 0.002 | 0.004 | <0.001 | 0.003 | 0.002 |
| Cobalt | mg/L | 0.0001 | 0.0171 | 0.0039 | 0.0004 | 0.0258 | 0.0065 |
| Copper | mg/L | 0.0001 | 0.0002 | 0.0001 | 0.0019 | 0.0002 | 0.0026 |
| Lead | mg/L | 0.00002 | 0.00004 | 0.00005 | <0.00002 | <0.00002 | 0.00014 |
| Molybdenum | mg/L | 0.0001 | 0.0006 | 0.0002 | 0.0002 | 0.0007 | 0.0045 |
| Nickel | mg/L | 0.0002 | 0.0100 | 0.0046 | 0.0009 | 0.0183 | 0.0270 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |

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**Data Specialist**

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| | | Client I.D. | MW2 | MW3 | MW3A | MW5 | MW6 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-1 | 25-010945-2 | 25-010945-3 | 25-010945-4 | 25-010945-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Uranium | mg/L | 0.00005 | 0.00031 | <0.00005 | 0.00032 | 0.00034 | 0.00392 |
| Vanadium | mg/L | 0.0001 | 0.0041 | 0.0078 | 0.0003 | 0.0004 | 0.0020 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 18.4 | 31.4 | 5.31 | 19.9 | 34.4 |
| Cation Sum | meq/L | - | 19.8 | 26.9 | 5.21 | 17.1 | 31.8 |
| % Difference | % | - | 3.67 | 7.72 | 0.979 | 7.66 | 3.99 |
| Ion Ratio | - | - | 0.929 | 1.17 | 1.02 | 1.17 | 1.08 |
| Sodium Adsorption Ratio | - | - | 1.14 | 2.11 | 0.236 | 1.16 | 2.77 |
| TDS (Ion Sum Calc) | mg/L | 1 | 982 | 1570 | 272 | 977 | 1740 |
| TDS(calc.)/EC(actual) | - | - | 0.569 | 0.542 | 0.527 | 0.535 | 0.482 |
| Conductivity Calc | µmho/cm | - | 1470 | 2310 | 489 | 1540 | 2660 |
| Conductivity Calc / Conductivity | - | - | 0.848 | 0.799 | 0.948 | 0.844 | 0.734 |
| Langelier Index(25°C) | - | - | 1.07 | 1.29 | 0.472 | 1.16 | 1.45 |
| Saturation pH (25°C) | - | - | 6.30 | 5.98 | 7.12 | 6.20 | 5.85 |
| pH (Client Data) | pH units | - | 6.25 | 6.58 | 6.86 | 6.57 | 7.63 |
| Temperature (Client Data) | °C | - | 12.2 | 10.2 | 10.4 | 13.3 | 8.70 |

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| | | Client I.D. | MW7 | MW10 | MW11A | MW12 | MW13 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-6 | 25-010945-7 | 25-010945-8 | 25-010945-9 | 25-010945-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 2500 | 1800 | 272 | 212 | 178 |
| Conductivity @25°C | uS/cm | 1 | 6900 | 3950 | 831 | 434 | 384 |
| pH @25°C | pH units | - | 7.46 | 7.53 | 7.65 | 7.81 | 7.71 |
| Fluoride | mg/L | 0.1 | <0.7 | <0.7 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 799 | 268 | 96.7 | 3.0 | 5.9 |
| Nitrate (N) | mg/L | 0.05 | <0.40 | <0.40 | <0.05 | 0.49 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.40 | <0.40 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 11 | <2 | 3 | 7 | 6 |
| Phosphorus (Total) | mg/L | 0.01 | 0.94 | 0.37 | 0.11 | 0.04 | 0.06 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 518 | 248 | 1.1 | 0.6 | 0.5 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 532 | 185 | 0.44 | <0.05 | 0.23 |
| Dissolved Organic Carbon | mg/L | 0.8 | 78.4 | 80.1 | 8.7 | 3.2 | 2.3 |
| Phenolics | mg/L | 0.001 | 0.015 | 0.006 | 0.003 | 0.002 | 0.001 |
| COD | mg/L | 5 | 627 | 261 | 34 | 5 | 6 |
| Hardness (as CaCO3) | mg/L | 0.02 | 725 | 873 | 342 | 217 | 183 |
| Aluminum | mg/L | 0.01 | 0.08 | 0.17 | 0.06 | 0.03 | 0.03 |
| Barium | mg/L | 0.001 | 0.541 | 0.823 | 0.038 | 0.062 | 0.046 |
| Boron | mg/L | 0.005 | 3.93 | 1.97 | 0.021 | 0.016 | 0.013 |
| Calcium | mg/L | 0.02 | 163 | 262 | 128 | 77.2 | 65.5 |
| Iron | mg/L | 0.005 | 25.2 | 15.2 | 2.78 | <0.005 | 0.686 |
| Magnesium | mg/L | 0.02 | 77.4 | 53.2 | 5.65 | 5.79 | 4.59 |

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| | | Client I.D. | MW7 | MW10 | MW11A | MW12 | MW13 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-6 | 25-010945-7 | 25-010945-8 | 25-010945-9 | 25-010945-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.127 | 0.935 | 0.194 | 0.001 | 0.037 |
| Phosphorus | mg/L | 0.1 | 0.9 | 0.4 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 267 | 178 | 1.8 | 1.2 | 1.9 |
| Sodium | mg/L | 0.2 | 517 | 242 | 28.0 | 2.8 | 3.6 |
| Strontium | mg/L | 0.001 | 0.931 | 1.08 | 0.440 | 0.150 | 0.139 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | 0.015 | 0.009 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | 0.016 | <0.005 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | 0.0007 | 0.0003 | <0.0001 | 0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | 0.0031 | 0.0010 | 0.0001 | <0.0001 | 0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | 0.009 | 0.004 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0137 | 0.0059 | <0.0001 | <0.0001 | <0.0001 |
| Copper | mg/L | 0.0001 | 0.0002 | 0.0002 | 0.0004 | 0.0012 | 0.0003 |
| Lead | mg/L | 0.00002 | 0.00039 | <0.00004 | 0.00004 | 0.00004 | 0.00004 |
| Molybdenum | mg/L | 0.0001 | 0.0007 | 0.0002 | <0.0001 | 0.0002 | 0.0001 |
| Nickel | mg/L | 0.0002 | 0.0219 | 0.0089 | <0.0002 | 0.0002 | <0.0002 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |

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| | | Client I.D. | MW7 | MW10 | MW11A | MW12 | MW13 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-6 | 25-010945-7 | 25-010945-8 | 25-010945-9 | 25-010945-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Uranium | mg/L | 0.00005 | <0.00005 | <0.00005 | 0.00009 | 0.00043 | 0.00037 |
| Vanadium | mg/L | 0.0001 | 0.0051 | 0.0064 | 0.0018 | 0.0001 | <0.0001 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 72.7 | 43.5 | 8.22 | 4.50 | 3.85 |
| Cation Sum | meq/L | - | 45.2 | 33.4 | 8.26 | 4.49 | 3.89 |
| % Difference | % | - | 23.3 (10) | 13.1 | 0.211 | 0.196 | 0.556 |
| Ion Ratio | - | - | 1.61 | 1.30 | 0.996 | 1.00 | 0.989 |
| Sodium Adsorption Ratio | - | - | 8.35 | 3.57 | 0.660 | 0.0839 | 0.116 |
| TDS (Ion Sum Calc) | mg/L | 1 | 3360 | 2100 | 429 | 226 | 195 |
| TDS(calc.)/EC(actual) | - | - | 0.487 | 0.531 | 0.516 | 0.522 | 0.508 |
| Conductivity Calc | µmho/cm | - | 4630 | 3000 | 802 | 420 | 366 |
| Conductivity Calc / Conductivity | - | - | 0.671 | 0.759 | 0.965 | 0.969 | 0.953 |
| Langelier Index(25°C) | - | - | 1.54 | 1.68 | 0.727 | 0.592 | 0.354 |
| Saturation pH (25°C) | - | - | 5.92 | 5.85 | 6.92 | 7.22 | 7.36 |
| pH (Client Data) | pH units | - | 7.74 | 6.55 | 8.41 | 8.34 | 7.35 |
| Temperature (Client Data) | °C | - | 13.2 | 11.1 | 7.70 | 8.90 | 7.10 |

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| | | Client I.D. | MW14 | MW15 | MW15A | MW15B | MW16 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-11 | 25-010945-12 | 25-010945-13 | 25-010945-14 | 25-010945-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 206 | 185 | 452 | 424 | 213 |
| Conductivity @25°C | uS/cm | 1 | 441 | 338 | 1050 | 994 | 420 |
| pH @25°C | pH units | - | 7.71 | 7.70 | 7.69 | 7.66 | 7.82 |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 11.9 | 0.9 | 74.9 | 71.3 | 2.1 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 0.40 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 8 | <1 | <1 | <1 | 4 |
| Phosphorus (Total) | mg/L | 0.01 | 2.42 | 0.10 | 0.12 | 0.02 | 1.11 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 1.2 | 0.8 | 2.6 | 2.9 | 3.2 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.81 | 0.52 | 1.66 | 1.79 | 1.16 |
| Dissolved Organic Carbon | mg/L | 0.8 | 4.6 | 3.1 | 8.8 | 7.6 | 2.5 |
| Phenolics | mg/L | 0.001 | 0.001 | <0.001 | 0.002 | 0.002 | <0.001 |
| COD | mg/L | 5 | 116 | 12 | 47 | 19 | 98 |
| Hardness (as CaCO3) | mg/L | 0.02 | 203 | 165 | 471 | 450 | 227 |
| Aluminum | mg/L | 0.01 | 0.06 | 0.02 | 0.05 | 0.04 | 0.03 |
| Barium | mg/L | 0.001 | 0.016 | 0.006 | 0.351 | 0.162 | 0.062 |
| Boron | mg/L | 0.005 | <0.005 | 0.006 | 0.091 | 0.106 | 0.024 |
| Calcium | mg/L | 0.02 | 78.2 | 62.7 | 157 | 139 | 81.3 |
| Iron | mg/L | 0.005 | <0.005 | <0.005 | 6.87 | 2.06 | <0.005 |
| Magnesium | mg/L | 0.02 | 1.91 | 1.94 | 19.1 | 25.0 | 5.73 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW14 | MW15 | MW15A | MW15B | MW16 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-11 | 25-010945-12 | 25-010945-13 | 25-010945-14 | 25-010945-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.002 | <0.001 | 0.152 | 0.058 | 0.001 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 0.2 | <0.1 | 3.7 | 4.0 | 1.1 |
| Sodium | mg/L | 0.2 | 6.5 | 3.2 | 32.8 | 27.8 | 3.3 |
| Strontium | mg/L | 0.001 | 0.169 | 0.136 | 1.14 | 1.31 | 0.163 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | 0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0002 | 0.0002 |
| Copper | mg/L | 0.0001 | 0.0007 | 0.0013 | <0.0001 | <0.0001 | 0.0019 |
| Lead | mg/L | 0.00002 | 0.00011 | <0.00002 | 0.00004 | 0.00004 | 0.00004 |
| Molybdenum | mg/L | 0.0001 | 0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0003 |
| Nickel | mg/L | 0.0002 | 0.0004 | <0.0002 | 0.0012 | 0.0008 | 0.0003 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |

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**Data Specialist**

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| | | Client I.D. | MW14 | MW15 | MW15A | MW15B | MW16 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-11 | 25-010945-12 | 25-010945-13 | 25-010945-14 | 25-010945-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Uranium | mg/L | 0.00005 | 0.00018 | 0.00008 | <0.00005 | <0.00005 | 0.00044 |
| Vanadium | mg/L | 0.0001 | 0.0003 | 0.0002 | 0.0005 | 0.0002 | 0.0002 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 4.62 | 3.73 | 11.2 | 10.5 | 4.41 |
| Cation Sum | meq/L | - | 4.35 | 3.43 | 11.3 | 10.5 | 4.71 |
| % Difference | % | - | 2.99 | 4.14 | 0.782 | 0.200 | 3.23 |
| Ion Ratio | - | - | 1.06 | 1.09 | 0.984 | 1.00 | 0.937 |
| Sodium Adsorption Ratio | - | - | 0.200 | 0.109 | 0.658 | 0.571 | 0.0957 |
| TDS (Ion Sum Calc) | mg/L | 1 | 231 | 180 | 566 | 524 | 226 |
| TDS(calc.)/EC(actual) | - | - | 0.523 | 0.533 | 0.538 | 0.527 | 0.539 |
| Conductivity Calc | µmho/cm | - | 426 | 334 | 1000 | 950 | 426 |
| Conductivity Calc / Conductivity | - | - | 0.966 | 0.987 | 0.954 | 0.956 | 1.01 |
| Langelier Index(25°C) | - | - | 0.485 | 0.351 | 1.07 | 0.969 | 0.625 |
| Saturation pH (25°C) | - | - | 7.23 | 7.35 | 6.62 | 6.69 | 7.19 |
| pH (Client Data) | pH units | - | 7.27 | 8.38 | 7.65 | 8.00 | 8.55 |
| Temperature (Client Data) | °C | - | 5.70 | 8.70 | 9.70 | 8.40 | 13.4 |

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| | | Client I.D. | MW18 | MW18A | MW18B | MW19 | MW22 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-16 | 25-010945-17 | 25-010945-18 | 25-010945-19 | 25-010945-20 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 268 | 466 | 550 | 504 | 290 |
| Conductivity @25°C | uS/cm | 1 | 611 | 1150 | 1280 | 1090 | 746 |
| pH @25°C | pH units | - | 7.77 | 7.73 | 7.46 | 7.78 | 7.67 |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 5.5 | 100 | 92.7 | 48.9 | 61.9 |
| Nitrate (N) | mg/L | 0.05 | 2.67 | <0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 27 | <1 | <1 | 17 | 1 |
| Phosphorus (Total) | mg/L | 0.01 | 0.31 | 0.04 | 0.08 | 0.11 | 0.07 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 1.5 | 2.3 | 3.0 | 0.5 | 1.1 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.06 | 1.54 | 2.21 | <0.05 | 0.71 |
| Dissolved Organic Carbon | mg/L | 0.8 | 11.1 | 8.8 | 11.0 | 7.7 | 8.2 |
| Phenolics | mg/L | 0.001 | <0.001 | 0.002 | 0.002 | <0.001 | <0.001 |
| COD | mg/L | 5 | 51 | 36 | 48 | 25 | 28 |
| Hardness (as CaCO3) | mg/L | 0.02 | 258 | 492 | 550 | 535 | 294 |
| Aluminum | mg/L | 0.01 | 0.13 | 0.05 | 0.07 | 0.05 | 0.03 |
| Barium | mg/L | 0.001 | 0.070 | 0.271 | 0.332 | 0.233 | 0.096 |
| Boron | mg/L | 0.005 | 0.026 | 0.332 | 0.267 | 0.120 | 0.135 |
| Calcium | mg/L | 0.02 | 93.0 | 141 | 195 | 177 | 82.3 |
| Iron | mg/L | 0.005 | 0.119 | 5.18 | 15.3 | 0.518 | <0.005 |
| Magnesium | mg/L | 0.02 | 6.34 | 34.1 | 15.4 | 22.6 | 21.6 |

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| | | Client I.D. | MW18 | MW18A | MW18B | MW19 | MW22 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-16 | 25-010945-17 | 25-010945-18 | 25-010945-19 | 25-010945-20 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.019 | 0.166 | 0.611 | 0.176 | 0.038 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 34.5 | 8.2 | 6.1 | 4.5 | 5.0 |
| Sodium | mg/L | 0.2 | 7.0 | 48.6 | 54.8 | 21.4 | 24.2 |
| Strontium | mg/L | 0.001 | 0.129 | 1.88 | 0.567 | 0.404 | 1.72 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | 0.0005 |
| Arsenic | mg/L | 0.0001 | 0.0003 | <0.0001 | 0.0003 | 0.0003 | 0.0004 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | 0.001 | 0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0005 | 0.0003 | 0.0005 | 0.0013 | 0.0002 |
| Copper | mg/L | 0.0001 | 0.0092 | <0.0001 | <0.0001 | 0.0032 | <0.0001 |
| Lead | mg/L | 0.00002 | 0.00017 | 0.00003 | 0.00005 | 0.00004 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | 0.0013 | <0.0001 | <0.0001 | 0.0003 | 0.0008 |
| Nickel | mg/L | 0.0002 | 0.0008 | 0.0019 | 0.0023 | 0.0050 | 0.0006 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |

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**Data Specialist**

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| | | Client I.D. | MW18 | MW18A | MW18B | MW19 | MW22 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-16 | 25-010945-17 | 25-010945-18 | 25-010945-19 | 25-010945-20 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Uranium | mg/L | 0.00005 | 0.00055 | <0.00005 | 0.00024 | 0.00291 | <0.00005 |
| Vanadium | mg/L | 0.0001 | 0.0008 | 0.0006 | 0.0015 | <0.0001 | 0.0002 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 6.26 | 12.1 | 13.6 | 11.8 | 7.57 |
| Cation Sum | meq/L | - | 6.36 | 12.5 | 14.4 | 11.8 | 7.10 |
| % Difference | % | - | 0.800 | 1.37 | 2.71 | 0.157 | 3.22 |
| Ion Ratio | - | - | 0.984 | 0.973 | 0.947 | 1.00 | 1.07 |
| Sodium Adsorption Ratio | - | - | 0.191 | 0.952 | 1.02 | 0.402 | 0.613 |
| TDS (Ion Sum Calc) | mg/L | 1 | 346 | 617 | 710 | 594 | 370 |
| TDS(calc.)/EC(actual) | - | - | 0.566 | 0.535 | 0.553 | 0.546 | 0.496 |
| Conductivity Calc | µmho/cm | - | 602 | 1110 | 1210 | 1040 | 694 |
| Conductivity Calc / Conductivity | - | - | 0.985 | 0.959 | 0.942 | 0.959 | 0.930 |
| Langelier Index(25°C) | - | - | 0.714 | 1.08 | 1.01 | 1.26 | 0.596 |
| Saturation pH (25°C) | - | - | 7.06 | 6.65 | 6.45 | 6.52 | 7.07 |
| pH (Client Data) | pH units | - | 8.38 | 7.92 | 7.78 | 6.85 | 8.14 |
| Temperature (Client Data) | °C | - | 10.8 | 10.4 | 9.90 | 11.5 | 11.7 |

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| | | Client I.D. | MW22A | MW22B | MW23 | MW23A | MW23B |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-21 | 25-010945-22 | 25-010945-23 | 25-010945-24 | 25-010945-25 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 326 | 2470 | 440 | 254 | 149 |
| Conductivity @25°C | uS/cm | 1 | 1420 | 5630 | 1040 | 503 | 290 |
| pH @25°C | pH units | - | 7.75 | 7.23 | 7.72 | 7.70 | 7.50 |
| Fluoride | mg/L | 0.1 | 0.4 | 3.3 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 239 | 493 | 72.5 | 9.0 | <0.5 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <0.40 | <0.05 | 0.13 | 0.06 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.40 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 30 | 11 | <1 | 6 | <1 |
| Phosphorus (Total) | mg/L | 0.01 | 0.05 | 2.62 | 0.02 | 0.03 | 0.19 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 1.0 | 382 | 1.3 | 0.3 | 0.4 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.58 | 258 | 0.55 | 0.10 | <0.05 |
| Dissolved Organic Carbon | mg/L | 0.8 | 5.0 | 135 | 9.9 | 3.4 | 2.7 |
| Phenolics | mg/L | 0.001 | <0.001 | 0.018 | 0.002 | <0.001 | <0.001 |
| COD | mg/L | 5 | 32 | 489 | 26 | 5 | 19 |
| Hardness (as CaCO3) | mg/L | 0.02 | 529 | 1290 | 470 | 268 | 140 |
| Aluminum | mg/L | 0.01 | 0.07 | 0.12 | 0.06 | 0.03 | 0.02 |
| Barium | mg/L | 0.001 | 0.137 | 0.118 | 0.186 | 0.080 | 0.005 |
| Boron | mg/L | 0.005 | 0.038 | 3.20 | 0.114 | 0.030 | 0.007 |
| Calcium | mg/L | 0.02 | 193 | 404 | 161 | 95.8 | 54.0 |
| Iron | mg/L | 0.005 | 4.91 | 0.676 | 7.14 | 0.613 | <0.005 |
| Magnesium | mg/L | 0.02 | 11.0 | 69.3 | 16.3 | 6.92 | 1.32 |

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| | | Client I.D. | MW22A | MW22B | MW23 | MW23A | MW23B |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-21 | 25-010945-22 | 25-010945-23 | 25-010945-24 | 25-010945-25 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.185 | 8.83 | 0.151 | 0.024 | <0.001 |
| Phosphorus | mg/L | 0.1 | <0.1 | 0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 2.3 | 194 | 3.3 | 1.2 | 0.2 |
| Sodium | mg/L | 0.2 | 69.6 | 368 | 32.7 | 8.3 | 0.9 |
| Strontium | mg/L | 0.001 | 0.642 | 1.30 | 0.909 | 0.270 | 0.104 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | 0.006 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | 0.0007 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | <0.0003 | 0.0029 | <0.0001 | <0.0001 | <0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000030 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | 0.019 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | <0.0001 | 0.0080 | 0.0004 | 0.0001 | <0.0001 |
| Copper | mg/L | 0.0001 | <0.0002 | 0.0003 | <0.0001 | 0.0005 | 0.0004 |
| Lead | mg/L | 0.00002 | <0.00009 | 0.00006 | 0.00004 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | <0.0002 | 0.0005 | <0.0001 | 0.0001 | 0.0001 |
| Nickel | mg/L | 0.0002 | <0.0002 | 0.0264 | 0.0010 | 0.0004 | <0.0002 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |

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**Data Specialist**

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| | | Client I.D. | MW22A | MW22B | MW23 | MW23A | MW23B |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-21 | 25-010945-22 | 25-010945-23 | 25-010945-24 | 25-010945-25 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Uranium | mg/L | 0.00005 | 0.00016 | 0.00027 | <0.00005 | 0.00038 | 0.00008 |
| Vanadium | mg/L | 0.0001 | 0.0018 | 0.0089 | 0.0007 | 0.0002 | 0.0001 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 13.9 | 63.6 | 10.8 | 5.45 | 3.00 |
| Cation Sum | meq/L | - | 13.9 | 47.2 | 11.3 | 5.79 | 2.85 |
| % Difference | % | - | 0.115 | 14.9 | 2.10 | 2.95 | 2.60 |
| Ion Ratio | - | - | 0.998 | 1.35 | 0.959 | 0.943 | 1.05 |
| Sodium Adsorption Ratio | - | - | 1.32 | 4.45 | 0.657 | 0.221 | 0.0324 |
| TDS (Ion Sum Calc) | mg/L | 1 | 746 | 3030 | 558 | 281 | 147 |
| TDS(calc.)/EC(actual) | - | - | 0.524 | 0.539 | 0.538 | 0.558 | 0.507 |
| Conductivity Calc | µmho/cm | - | 1350 | 4090 | 991 | 520 | 277 |
| Conductivity Calc / Conductivity | - | - | 0.952 | 0.726 | 0.956 | 1.03 | 0.954 |
| Langelier Index(25°C) | - | - | 1.07 | 1.70 | 1.10 | 0.644 | 0.0117 |
| Saturation pH (25°C) | - | - | 6.68 | 5.53 | 6.62 | 7.06 | 7.49 |
| pH (Client Data) | pH units | - | 7.92 | 7.44 | 6.70 | 6.92 | 7.12 |
| Temperature (Client Data) | °C | - | 11.8 | 12.0 | 8.30 | 8.60 | 8.80 |

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| | | Client I.D. | Dup | Dup-1 | Dup-2 | Dup-3 | Dup-4 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-26 | 25-010945-27 | 25-010945-28 | 25-010945-29 | 25-010945-30 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 495 | 299 | 218 | 219 | 882 |
| Conductivity @25°C | uS/cm | 1 | 1080 | 755 | 430 | 439 | 1810 |
| pH @25°C | pH units | - | 7.67 | 7.79 | 8.02 | 7.79 | 7.32 |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 47.7 | 62.1 | 2.6 | 3.2 | 58.0 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <0.05 | 0.35 | 0.47 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 17 | 1 | 3 | 7 | 14 |
| Phosphorus (Total) | mg/L | 0.01 | 0.11 | 0.06 | 1.00 | 0.04 | 0.26 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.5 | 1.1 | 0.8 | 0.3 | 29.5 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.07 | 0.72 | 0.08 | <0.05 | 30.2 |
| Dissolved Organic Carbon | mg/L | 0.8 | 7.6 | 8.4 | 2.4 | 3.3 | 58.5 |
| Phenolics | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.087 |
| COD | mg/L | 5 | 24 | 25 | 96 | <5 | 252 |
| Hardness (as CaCO3) | mg/L | 0.02 | 538 | 301 | 230 | 217 | 645 |
| Aluminum | mg/L | 0.01 | 0.06 | 0.11 | 0.05 | 0.03 | 0.07 |
| Barium | mg/L | 0.001 | 0.234 | 0.106 | 0.063 | 0.062 | 0.595 |
| Boron | mg/L | 0.005 | 0.123 | 0.100 | 0.023 | 0.015 | 0.892 |
| Calcium | mg/L | 0.02 | 178 | 88.2 | 82.3 | 77.3 | 227 |
| Iron | mg/L | 0.005 | 0.519 | 1.63 | <0.005 | <0.005 | 3.08 |
| Magnesium | mg/L | 0.02 | 23.0 | 19.7 | 5.77 | 5.72 | 19.0 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | Dup | Dup-1 | Dup-2 | Dup-3 | Dup-4 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-26 | 25-010945-27 | 25-010945-28 | 25-010945-29 | 25-010945-30 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.177 | 0.038 | 0.004 | 0.002 | 2.02 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 4.5 | 4.1 | 1.1 | 1.2 | 52.6 |
| Sodium | mg/L | 0.2 | 21.8 | 24.0 | 3.3 | 2.8 | 68.6 |
| Strontium | mg/L | 0.001 | 0.412 | 1.57 | 0.164 | 0.151 | 0.579 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | 0.0007 | <0.0001 | <0.0001 | 0.0007 |
| Arsenic | mg/L | 0.0001 | 0.0003 | 0.0005 | <0.0001 | <0.0001 | 0.0070 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.003 |
| Cobalt | mg/L | 0.0001 | 0.0014 | 0.0002 | 0.0002 | <0.0001 | 0.0301 |
| Copper | mg/L | 0.0001 | 0.0033 | <0.0001 | 0.0019 | 0.0012 | 0.0001 |
| Lead | mg/L | 0.00002 | 0.00005 | <0.00002 | 0.00007 | 0.00004 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | 0.0003 | 0.0009 | 0.0003 | 0.0002 | 0.0008 |
| Nickel | mg/L | 0.0002 | 0.0053 | 0.0007 | 0.0004 | <0.0002 | 0.0191 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |

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**Data Specialist**

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| | | Client I.D. | Dup | Dup-1 | Dup-2 | Dup-3 | Dup-4 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-26 | 25-010945-27 | 25-010945-28 | 25-010945-29 | 25-010945-30 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Uranium | mg/L | 0.00005 | 0.00284 | <0.00005 | 0.00044 | 0.00043 | 0.00032 |
| Vanadium | mg/L | 0.0001 | <0.0001 | 0.0002 | 0.0003 | 0.0001 | 0.0004 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 11.6 | 7.75 | 4.52 | 4.65 | 19.6 |
| Cation Sum | meq/L | - | 11.9 | 7.29 | 4.76 | 4.48 | 17.5 |
| % Difference | % | - | 1.13 | 3.07 | 2.58 | 1.76 | 5.74 |
| Ion Ratio | - | - | 0.978 | 1.06 | 0.950 | 1.04 | 1.12 |
| Sodium Adsorption Ratio | - | - | 0.409 | 0.601 | 0.0956 | 0.0834 | 1.18 |
| TDS (Ion Sum Calc) | mg/L | 1 | 589 | 380 | 231 | 231 | 975 |
| TDS(calc.)/EC(actual) | - | - | 0.547 | 0.504 | 0.536 | 0.526 | 0.538 |
| Conductivity Calc | µmho/cm | - | 1040 | 706 | 433 | 426 | 1550 |
| Conductivity Calc / Conductivity | - | - | 0.965 | 0.935 | 1.01 | 0.970 | 0.855 |
| Langelier Index(25°C) | - | - | 1.14 | 0.759 | 0.841 | 0.585 | 1.12 |
| Saturation pH (25°C) | - | - | 6.53 | 7.03 | 7.18 | 7.20 | 6.20 |
| pH (Client Data) | pH units | - | 6.85 | 8.14 | 8.55 | 8.34 | 6.57 |
| Temperature (Client Data) | °C | - | 11.5 | 11.7 | 13.4 | 8.90 | 13.3 |

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| | | Client I.D. | MW7 | MW12 | MW14 | MW15 | MW15A |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-6 | 25-010945-9 | 25-010945-11 | 25-010945-12 | 25-010945-13 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Acetone | µg/L | 30 | 43 | <30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | 3.6 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | 18.4 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | 0.6 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | 1.7 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | MW7 | MW12 | MW14 | MW15 | MW15A |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010945-6 | 25-010945-9 | 25-010945-11 | 25-010945-12 | 25-010945-13 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <1.1 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | 17 | <1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | 2.0 | <0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | MW15B | MW16 |
|---|---|---|---|---|
| | | Sample I.D. | 25-010945-14 | 25-010945-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 |
| Parameter | Units | R.L. | - | - |
| Acetone | µg/L | 30 | <30 | <30 |
| Benzene | µg/L | 0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 |

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| | | | | |
|---|---|---|---|---|
| | | Client I.D. | MW15B | MW16 |
| | | Sample I.D. | 25-010945-14 | 25-010945-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 |
| Parameter | Units | R.L. | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 |

**Comments:**

10. % Difference outside 15% acceptance criteria due to sample matrix

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Samples 25-010945 -4, -5, -6, -20, -22, -30 filtered from unpreserved for metals analysis due to particulate in the metals bottles.
TKN and ammonia are within acceptable analytical limits
Elevated RLs due to sample matrix interferences

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.:** -

**REPORT No: 25-010955 - Rev. 0**

**Report To:**
City of Kawartha Lakes
PO Box 9000
322 Kent Street West
Lindsay, ON K9V 4T7

**CADUCEON Environmental Laboratories**
2378 Holly Lane
Ottawa, ON K1V 7P1

**Attention: Kayla Pantaleo**

DATE RECEIVED: 2025-Apr-24
DATE REPORTED: 2025-May-23
SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Anions (Liquid) | 15 | OTTAWA | PCURIEL | 2025-Apr-29 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 15 | KINGSTON | JWOLFE2 | 2025-May-02 | BOD-001 | SM 5210B |
| COD (Liquid) | 15 | KINGSTON | MWILSON | 2025-May-08 | COD-001 | SM 5220D |
| Colour (Liquid) | 15 | OTTAWA | STAILLON | 2025-Apr-28 | A-COL-01 | SM 2120C |
| Cond/pH/Alk Auto (Liquid) | 15 | OTTAWA | SBOUDREAU | 2025-May-01 | COND-02/PH-02/ALK-02 | SM 2510B/4500H/2320B |
| Cyanide WAD (Liquid) | 15 | KINGSTON | EHINCH | 2025-Apr-29 | CN-001 | SM 4500-CN-E |
| DOC (Liquid) | 15 | OTTAWA | SLOZO | 2025-May-15 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 15 | OTTAWA | ASCHNEIDER | | CP-028 | MECP E3196 |
| Chromium VI (Liquid) | 15 | OTTAWA | STAILLON | 2025-May-02 | D-CRVI-01 | MECP E3056 |
| ICP/MS (Liquid) | 15 | OTTAWA | AOZKAYMAK | 2025-May-01 | D-ICPMS-01 | EPA 200.8 |
| ICP/OES (Liquid) | 15 | OTTAWA | GFENTON | 2025-Apr-30 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 15 | OTTAWA | TBENNETT | 2025-May-02 | D-HG-02 | SM 3112B |
| Ammonia & o-Phosphate (Liquid) | 15 | KINGSTON | VHAMMOND | 2025-May-07 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 15 | KINGSTON | EHINCH | 2025-May-05 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 15 | KINGSTON | YLIEN | 2025-May-07 | TPTKN-001 | MECP E3516.2 |
| TSS (Liquid) | 15 | KINGSTON | MCLOSS | 2025-Apr-30 | TSS-001 | SM 2540D |
| Turbidity (Liquid) | 15 | OTTAWA | MMIRELLA | 2025-Apr-28 | A-TURB-01 | SM 2130B |
| VOC-Volatiles Full (Water) | 15 | RICHMOND_HILL | FLENA | 2025-Apr-30 | C-VOC-02 | EPA 8260 |

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW27-II | MW27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-1 | 25-010955-2 | 25-010955-3 | 25-010955-4 | 25-010955-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 308 | 329 | 376 | 216 | 195 |
| Conductivity @25°C | uS/cm | 1 | 738 | 793 | 870 | 476 | 489 |
| pH @25°C | pH units | - | 7.66 | 7.86 | 7.71 | 7.86 | 7.81 |
| Colour | TCU | 2 | 4 | 4 | 5 | <2 | <2 |
| Turbidity | NTU | 0.1 | 3530 | 12.3 | 40.7 | 1050 | 2080 |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | 0.2 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 28.1 | 8.0 | 54.2 | 9.5 | 23.4 |
| Nitrate (N) | mg/L | 0.05 | 1.75 | 0.05 | <0.05 | 0.78 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 31 | 6 | 1 | 13 | 20 |
| BOD5 | mg/L | 3 | 3 | <3 | <3 | <3 | <3 |
| Total Suspended Solids | mg/L | 3 | 165000 | 13 | 11 | 380000 | 3700 |
| Phosphorus (Total) | mg/L | 0.01 | 30.6 | <0.01 | 0.02 | 0.96 | 1.98 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 2.3 | 0.4 | 0.6 | 0.5 | 2.9 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | <0.05 | 0.23 | 0.27 | 0.07 | 0.11 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | 3.9 | 4.9 | 6.8 | 1.9 | 1.8 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.001 |
| COD | mg/L | 5 | 775 | 9 | 13 | 41 | 164 |
| Hardness (as CaCO3) | mg/L | 0.02 | 332 | 348 | 394 | 215 | 228 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW27-II | MW27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-1 | 25-010955-2 | 25-010955-3 | 25-010955-4 | 25-010955-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Aluminum | mg/L | 0.01 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 |
| Barium | mg/L | 0.001 | 0.167 | 0.192 | 0.192 | 0.059 | 0.134 |
| Boron | mg/L | 0.005 | 0.053 | 0.059 | 0.049 | 0.013 | 0.011 |
| Calcium | mg/L | 0.02 | 114 | 118 | 137 | 74.4 | 77.4 |
| Iron | mg/L | 0.005 | 0.678 | 1.32 | 3.77 | <0.005 | 0.142 |
| Magnesium | mg/L | 0.02 | 11.4 | 12.8 | 12.4 | 7.07 | 8.26 |
| Manganese | mg/L | 0.001 | 0.036 | 0.055 | 0.092 | 0.004 | 0.024 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 2.7 | 2.7 | 2.5 | 1.5 | 1.6 |
| Sodium | mg/L | 0.2 | 18.0 | 21.4 | 23.1 | 10.3 | 3.9 |
| Strontium | mg/L | 0.001 | 0.394 | 0.515 | 0.581 | 0.174 | 0.183 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | <0.0001 | 0.0001 | 0.0013 | 0.0001 | <0.0001 |
| Copper | mg/L | 0.0001 | <0.0001 | <0.0001 | 0.0006 | 0.0004 | 0.0001 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW27-II | MW27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-1 | 25-010955-2 | 25-010955-3 | 25-010955-4 | 25-010955-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Lead | mg/L | 0.00002 | 0.00004 | 0.00003 | <0.00002 | 0.00004 | 0.00004 |
| Molybdenum | mg/L | 0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0003 | 0.0005 |
| Nickel | mg/L | 0.0002 | 0.0004 | 0.0004 | 0.0157 | 0.0005 | <0.0002 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | 0.00032 | 0.00009 | 0.00005 | 0.00198 | <0.00005 |
| Vanadium | mg/L | 0.0001 | 0.0002 | 0.0004 | 0.0006 | 0.0003 | <0.0001 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 7.72 | 6.91 | 9.08 | 4.91 | 4.97 |
| Cation Sum | meq/L | - | 7.53 | 8.04 | 9.15 | 4.79 | 4.76 |
| % Difference | % | - | 1.22 | 7.52 | 0.393 | 1.28 | 2.13 |
| Ion Ratio | - | - | 1.02 | 0.860 | 0.992 | 1.03 | 1.04 |
| Sodium Adsorption Ratio | - | - | 0.429 | 0.498 | 0.507 | 0.305 | 0.111 |
| TDS (Ion Sum Calc) | mg/L | 1 | 399 | 368 | 460 | 249 | 252 |
| TDS(calc.)/EC(actual) | - | - | 0.540 | 0.464 | 0.529 | 0.523 | 0.515 |
| Conductivity Calc | µmho/cm | - | 707 | 673 | 830 | 456 | 471 |
| Conductivity Calc / Conductivity | - | - | 0.958 | 0.849 | 0.954 | 0.958 | 0.964 |
| Langelier Index(25°C) | - | - | 0.753 | 0.998 | 0.960 | 0.634 | 0.556 |
| Saturation pH (25°C) | - | - | 6.91 | 6.86 | 6.75 | 7.23 | 7.25 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW27-II | MW27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-1 | 25-010955-2 | 25-010955-3 | 25-010955-4 | 25-010955-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| pH (Client Data) | pH units | - | 6.84 | 7.02 | 7.27 | 7.95 | 7.27 |
| Temperature (Client Data) | °C | - | 7.00 | 7.00 | 7.40 | 8.70 | 7.40 |

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP2-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-6 | 25-010955-7 | 25-010955-8 | 25-010955-9 | 25-010955-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 217 | 235 | 250 | 236 | 460 |
| Conductivity @25°C | uS/cm | 1 | 547 | 567 | 653 | 520 | 928 |
| pH @25°C | pH units | - | 7.81 | 7.85 | 7.82 | 7.28 | 7.48 |
| Colour | TCU | 2 | <2 | 3 | <2 | 45 | 26 |
| Turbidity | NTU | 0.1 | 9.0 | 1370 | 252 | 133 | 963 |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 32.4 | 28.2 | 34.9 | 19.8 | 24.7 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 0.07 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 15 | 15 | 34 | <1 | 2 |
| BOD5 | mg/L | 3 | <3 | <3 | <3 | <3 | 8 |
| Total Suspended Solids | mg/L | 3 | 36 | 402000 | 21800 | 870 | 1760 |
| Phosphorus (Total) | mg/L | 0.01 | 0.03 | 6.43 | 0.66 | 0.60 | 1.49 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.2 | 1.2 | 0.3 | 5.4 | 16.9 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.08 | 0.09 | 0.06 | 1.14 | 6.03 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | 1.9 | 2.5 | 2.3 | 16.3 | 124 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | <0.001 | 0.001 | 0.001 | 0.007 | 0.001 |
| COD | mg/L | 5 | <5 | 124 | 22 | 324 | 582 |
| Hardness (as CaCO3) | mg/L | 0.02 | 235 | 246 | 286 | 224 | 368 |

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP2-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-6 | 25-010955-7 | 25-010955-8 | 25-010955-9 | 25-010955-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Aluminum | mg/L | 0.01 | 0.02 | 0.03 | 0.03 | 0.06 | 0.06 |
| Barium | mg/L | 0.001 | 0.115 | 0.100 | 0.118 | 0.030 | 0.062 |
| Boron | mg/L | 0.005 | 0.021 | 0.016 | 0.048 | 0.007 | 0.092 |
| Calcium | mg/L | 0.02 | 78.8 | 85.7 | 99.9 | 81.1 | 129 |
| Iron | mg/L | 0.005 | 0.381 | 0.012 | 0.333 | 0.831 | 22.7 |
| Magnesium | mg/L | 0.02 | 9.18 | 7.65 | 8.77 | 5.27 | 10.7 |
| Manganese | mg/L | 0.001 | 0.020 | 0.036 | 0.054 | 0.592 | 0.482 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | 0.3 | 0.2 |
| Potassium | mg/L | 0.1 | 2.1 | 2.1 | 2.2 | 2.0 | 10.7 |
| Sodium | mg/L | 0.2 | 13.8 | 13.2 | 13.1 | 7.5 | 41.6 |
| Strontium | mg/L | 0.001 | 0.247 | 0.224 | 0.205 | 0.183 | 0.354 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | 0.134 | 0.351 |
| Antimony | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | <0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0006 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0001 | 0.0012 |
| Copper | mg/L | 0.0001 | 0.0002 | <0.0001 | 0.0003 | <0.0001 | 0.0001 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP2-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-6 | 25-010955-7 | 25-010955-8 | 25-010955-9 | 25-010955-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Lead | mg/L | 0.00002 | <0.00002 | <0.00002 | 0.00003 | 0.00005 | 0.00012 |
| Molybdenum | mg/L | 0.0001 | 0.0002 | 0.0003 | 0.0004 | <0.0001 | 0.0002 |
| Nickel | mg/L | 0.0002 | <0.0002 | <0.0002 | 0.0002 | <0.0002 | 0.0016 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | 0.00016 | 0.00028 | 0.00034 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0007 | 0.0003 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 5.56 | 5.81 | 6.69 | 5.28 | 9.93 |
| Cation Sum | meq/L | - | 5.36 | 5.54 | 6.36 | 4.93 | 10.7 |
| % Difference | % | - | 1.82 | 2.40 | 2.55 | 3.45 | 3.64 |
| Ion Ratio | - | - | 1.04 | 1.05 | 1.05 | 1.07 | 0.930 |
| Sodium Adsorption Ratio | - | - | 0.391 | 0.366 | 0.338 | 0.218 | 0.944 |
| TDS (Ion Sum Calc) | mg/L | 1 | 282 | 293 | 343 | 259 | 518 |
| TDS(calc.)/EC(actual) | - | - | 0.515 | 0.517 | 0.526 | 0.498 | 0.559 |
| Conductivity Calc | µmho/cm | - | 525 | 541 | 623 | 478 | 849 |
| Conductivity Calc / Conductivity | - | - | 0.960 | 0.954 | 0.953 | 0.919 | 0.915 |
| Langelier Index(25°C) | - | - | 0.601 | 0.712 | 0.764 | 0.128 | 0.792 |
| Saturation pH (25°C) | - | - | 7.21 | 7.14 | 7.06 | 7.15 | 6.69 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP2-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-6 | 25-010955-7 | 25-010955-8 | 25-010955-9 | 25-010955-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| pH (Client Data) | pH units | - | 8.35 | 8.41 | 8.24 | 6.39 | 6.72 |
| Temperature (Client Data) | °C | - | 6.90 | 7.10 | 6.70 | 7.60 | 8.50 |

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| | | Client I.D. | WP3-10 | WP4-10 | WP5-10 | WP6-13 | WP613-F |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-11 | 25-010955-12 | 25-010955-13 | 25-010955-14 | 25-010955-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 375 | 892 | 259 | 341 | 331 |
| Conductivity @25°C | uS/cm | 1 | 788 | 2040 | 534 | 714 | 717 |
| pH @25°C | pH units | - | 7.81 | 7.68 | 7.78 | 8.04 | 8.01 |
| Colour | TCU | 2 | 50 | 112 | 28 | 9 | 8 |
| Turbidity | NTU | 0.1 | 261 | 641 | 331 | 2440 | 12.0 |
| Fluoride | mg/L | 0.1 | <0.1 | <0.7 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 26.0 | 121 | 10.9 | 30.8 | 30.6 |
| Nitrate (N) | mg/L | 0.05 | 0.06 | <0.40 | 0.12 | 0.07 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.40 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | <1 | 6 | <1 | 5 | 5 |
| BOD5 | mg/L | 3 | 3 | 8 | 5 | <3 | <3 |
| Total Suspended Solids | mg/L | 3 | 390 | 4500 | 640 | 7200 | 6 |
| Phosphorus (Total) | mg/L | 0.01 | 1.22 | 1.60 | 0.19 | 6.48 | 0.03 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 8.8 | 58.6 | 2.8 | 2.6 | 0.5 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 2.94 | 43.7 | 0.71 | 0.38 | 0.16 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | 11.3 | 38.1 | 12.4 | 6.4 | 7.9 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | 0.002 | 0.013 | 0.002 | <0.001 | 0.001 |
| COD | mg/L | 5 | 316 | 383 | 132 | 168 | 16 |
| Hardness (as CaCO3) | mg/L | 0.02 | 310 | 561 | 164 | 321 | 345 |

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**Data Specialist**

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| | | Client I.D. | WP3-10 | WP4-10 | WP5-10 | WP6-13 | WP613-F |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-11 | 25-010955-12 | 25-010955-13 | 25-010955-14 | 25-010955-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Aluminum | mg/L | 0.01 | 0.06 | 0.18 | 0.02 | 0.04 | 0.08 |
| Barium | mg/L | 0.001 | 0.048 | 0.440 | 0.034 | 0.214 | 0.190 |
| Boron | mg/L | 0.005 | 0.057 | 0.597 | 0.066 | 0.018 | 0.019 |
| Calcium | mg/L | 0.02 | 109 | 176 | 54.6 | 112 | 120 |
| Iron | mg/L | 0.005 | 2.80 | 1.95 | 21.1 | <0.005 | 2.35 |
| Magnesium | mg/L | 0.02 | 9.32 | 29.7 | 6.76 | 10.1 | 11.1 |
| Manganese | mg/L | 0.001 | 0.245 | 0.265 | 0.832 | 0.074 | 0.107 |
| Phosphorus | mg/L | 0.1 | 0.8 | 0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 9.8 | 64.7 | 15.6 | 1.8 | 1.9 |
| Sodium | mg/L | 0.2 | 25.2 | 81.3 | 23.7 | 7.9 | 8.7 |
| Strontium | mg/L | 0.001 | 0.308 | 0.494 | 0.172 | 0.427 | 0.466 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | 0.006 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | 0.687 | 0.268 | 1.14 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | 0.0004 | 0.0005 | <0.0001 | 0.0005 | <0.0001 |
| Arsenic | mg/L | 0.0001 | 0.0003 | 0.0007 | 0.0003 | 0.0001 | <0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0005 | 0.0027 | 0.0005 | 0.0004 | 0.0002 |
| Copper | mg/L | 0.0001 | <0.0001 | <0.0001 | 0.0001 | 0.0013 | 0.0004 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | WP3-10 | WP4-10 | WP5-10 | WP6-13 | WP613-F |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-11 | 25-010955-12 | 25-010955-13 | 25-010955-14 | 25-010955-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Lead | mg/L | 0.00002 | 0.00010 | <0.00002 | <0.00002 | <0.00002 | 0.00010 |
| Molybdenum | mg/L | 0.0001 | 0.0002 | 0.0003 | 0.0006 | <0.0001 | <0.0001 |
| Nickel | mg/L | 0.0002 | 0.0010 | 0.0047 | 0.0009 | 0.0010 | 0.0005 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | 0.00011 | 0.00007 | 0.00010 | 0.00014 | <0.00005 |
| Vanadium | mg/L | 0.0001 | 0.0004 | 0.0067 | <0.0001 | 0.0005 | 0.0008 |
| Chromium (VI) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum | meq/L | - | 8.25 | 21.4 | 5.51 | 7.78 | 7.58 |
| Cation Sum | meq/L | - | 7.73 | 16.5 | 5.92 | 6.81 | 7.45 |
| % Difference | % | - | 3.22 | 12.7 | 3.57 | 6.63 | 0.879 |
| Ion Ratio | - | - | 1.07 | 1.29 | 0.931 | 1.14 | 1.02 |
| Sodium Adsorption Ratio | - | - | 0.623 | 1.49 | 0.805 | 0.193 | 0.204 |
| TDS (Ion Sum Calc) | mg/L | 1 | 408 | 1020 | 290 | 372 | 378 |
| TDS(calc.)/EC(actual) | - | - | 0.518 | 0.498 | 0.543 | 0.521 | 0.527 |
| Conductivity Calc | µmho/cm | - | 717 | 1620 | 466 | 671 | 687 |
| Conductivity Calc / Conductivity | - | - | 0.909 | 0.794 | 0.873 | 0.939 | 0.958 |
| Langelier Index(25°C) | - | - | 0.958 | 1.36 | 0.488 | 1.17 | 1.16 |
| Saturation pH (25°C) | - | - | 6.85 | 6.32 | 7.29 | 6.87 | 6.85 |

**Michelle Dubien**
**Data Specialist**

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| | | **Client I.D.** | WP3-10 | WP4-10 | WP5-10 | WP6-13 | WP613-F |
|---|---|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-010955-11 | 25-010955-12 | 25-010955-13 | 25-010955-14 | 25-010955-15 |
| | | **Date Collected** | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| pH (Client Data) | pH units | - | 6.99 | 6.66 | 7.09 | 7.27 | 7.27 |
| Temperature (Client Data) | °C | - | 8.70 | 6.70 | 8.80 | 10.5 | 10.5 |

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW27-II | MW27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-1 | 25-010955-2 | 25-010955-3 | 25-010955-4 | 25-010955-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | 1.5 | 3.7 | 3.9 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW27-II | MW27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-1 | 25-010955-2 | 25-010955-3 | 25-010955-4 | 25-010955-5 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | 0.2 | 0.3 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP2-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-6 | 25-010955-7 | 25-010955-8 | 25-010955-9 | 25-010955-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP2-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-6 | 25-010955-7 | 25-010955-8 | 25-010955-9 | 25-010955-10 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | WP3-10 | WP4-10 | WP5-10 | WP6-13 | WP613-F |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-11 | 25-010955-12 | 25-010955-13 | 25-010955-14 | 25-010955-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | <0.5 | 0.6 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | WP3-10 | WP4-10 | WP5-10 | WP6-13 | WP613-F |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-010955-11 | 25-010955-12 | 25-010955-13 | 25-010955-14 | 25-010955-15 |
| | | Date Collected | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 | 2025-04-23 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

Sample 25-010955-14 filtered from unpreserved for metals analysis due to sediment in the metals bottle.
Elevated RLs due to sample matrix interferences

**Michelle Dubien**
**Data Specialist**

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.:** -

**REPORT No: 25-030019 - Rev. 0**

**Report To:**
City of Kawartha Lakes
PO Box 9000
322 Kent Street West
Lindsay, ON K9V 4T7

**CADUCEON Environmental Laboratories**
112 Commerce Park Dr Unit L
Barrie, ON L4N 8W8

**Attention: Kayla Pantaleo**

DATE RECEIVED: 2025-Oct-01
DATE REPORTED: 2025-Oct-14
SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: Fenelon Landfill
P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Anions (Liquid) | 13 | OTTAWA | PCURIEL | 2025-Oct-04 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 13 | KINGSTON | JWOLFE2 | 2025-Oct-06 | BOD-001 | SM 5210B |
| COD (Liquid) | 13 | KINGSTON | MWILSON | 2025-Oct-08 | COD-001 | SM 5220D |
| Colour (Liquid) | 13 | OTTAWA | AGRAF | 2025-Oct-06 | A-COL-01 | SM 2120C |
| Cond/pH/Alk Auto (Liquid) | 13 | OTTAWA | SBOUDREAU | 2025-Oct-06 | COND-02/PH-02/ALK-02 | SM 2510B/4500H/2320B |
| Cyanide WAD (Liquid) | 13 | KINGSTON | EHINCH | 2025-Oct-03 | CN-001 | SM 4500-CN-E |
| DOC (Liquid) | 13 | OTTAWA | LMACGREGOR | 2025-Oct-07 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 13 | OTTAWA | ASCHNEIDER | | CP-028 | MECP E3196 |
| Chromium VI (Liquid) | 13 | OTTAWA | STAILLON | 2025-Oct-08 | D-CRVI-01 | MECP E3056 |
| ICP/MS (Liquid) | 13 | OTTAWA | GFENTON | 2025-Oct-07 | D-ICPMS-01 | EPA 200.8 |
| ICP/OES (Liquid) | 13 | OTTAWA | SGORMAN | 2025-Oct-07 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 13 | OTTAWA | TBENNETT | 2025-Oct-06 | D-HG-02 | SM 3112B |
| Ammonia (Liquid) | 13 | KINGSTON | DCASSIDY | 2025-Oct-08 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 13 | KINGSTON | EHINCH | 2025-Oct-08 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 13 | KINGSTON | YLIEN | 2025-Oct-08 | TPTKN-001 | MECP E3516.2 |
| TSS (Liquid) | 13 | KINGSTON | DCHAUDHARI | 2025-Oct-06 | TSS-001 | SM 2540D |
| Turbidity (Liquid) | 13 | OTTAWA | ABAILEY | 2025-Oct-03 | A-TURB-01 | SM 2130B |
| VOC-Volatiles Full (Water) | 13 | RICHMOND_HILL | CBURKE | 2025-Oct-08 | C-VOC-02 | EPA 8260 |

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

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**Data Specialist**

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW 27-II | MW 27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-1 | 25-030019-2 | 25-030019-3 | 25-030019-4 | 25-030019-5 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 284 | 324 | 387 | 220 | 188 |
| TDS (Calc. from Cond.) (Calculated) | mg/L | 3 | 351 | 402 | 454 | 244 | 240 |
| Conductivity @25°C | uS/cm | 1 | 676 | 767 | 860 | 471 | 464 |
| pH @25°C | pH units | - | 8.05 | 7.97 | 7.88 | 8.07 | 8.14 |
| Colour | TCU | 2 | <2 | 4 | 6 | <2 | <2 |
| Turbidity | NTU | 0.1 | 592 (17) | 9.6 (17) | 8.9 (17) | 1120 | 6010 |
| Fluoride | mg/L | 0.1 | <0.1 | 0.2 | 0.2 | <0.1 | 0.2 |
| Chloride | mg/L | 0.5 | 37.7 | 48.4 | 51.7 | 8.9 | 20.8 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | 0.63 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 16 | 9 | 1 | 12 | 18 |
| BOD5 | mg/L | 3 | <3 | <3 | <3 | <3 | <3 |
| Total Suspended Solids | mg/L | 3 | 16600 | 13 | 13 | 12300 | 9000 |
| Phosphorus (Total) | mg/L | 0.01 | 0.48 | 0.03 | 0.02 | 1.24 | 0.35 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.4 | 0.4 | 0.5 | 0.8 | 0.3 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.07 | 0.10 | 0.21 | 0.16 | 0.19 |
| Ammonia (N)-unionized (Calculated) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | 3.3 | 4.7 | 6.5 | 2.7 | 2.5 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| COD | mg/L | 5 | 11 | <5 | <5 | 27 | 135 |

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW 27-II | MW 27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-1 | 25-030019-2 | 25-030019-3 | 25-030019-4 | 25-030019-5 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 322 | 363 | 409 | 228 | 236 |
| Aluminum | mg/L | 0.01 | 0.07 | 0.06 | 0.08 | 0.05 | 0.06 |
| Barium | mg/L | 0.001 | 0.157 | 0.193 | 0.194 | 0.061 | 0.137 |
| Boron | mg/L | 0.005 | 0.047 | 0.059 | 0.048 | 0.012 | 0.013 |
| Calcium | mg/L | 0.02 | 111 | 124 | 143 | 79.5 | 80.6 |
| Iron | mg/L | 0.005 | 0.712 | 1.18 | 3.21 | <0.005 | 0.294 |
| Magnesium | mg/L | 0.02 | 10.9 | 13.0 | 12.6 | 7.13 | 8.49 |
| Manganese | mg/L | 0.001 | 0.032 | 0.054 | 0.091 | 0.004 | 0.020 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 2.4 | 2.6 | 2.2 | 1.2 | 1.6 |
| Sodium | mg/L | 0.2 | 15.5 | 20.1 | 21.8 | 9.1 | 3.8 |
| Strontium | mg/L | 0.001 | 0.367 | 0.520 | 0.573 | 0.172 | 0.185 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0001 | 0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0002 | 0.0002 | 0.0015 | 0.0002 | <0.0001 |

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW 27-II | MW 27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-1 | 25-030019-2 | 25-030019-3 | 25-030019-4 | 25-030019-5 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Copper | mg/L | 0.0001 | 0.0002 | 0.0002 | 0.0003 | 0.0005 | 0.0001 |
| Lead | mg/L | 0.00002 | 0.00008 | 0.00003 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | 0.0002 | <0.0001 | <0.0001 | 0.0003 | 0.0004 |
| Nickel | mg/L | 0.0002 | 0.0007 | 0.0009 | 0.0199 | 0.0009 | 0.0004 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | 0.00032 | 0.00010 | 0.00005 | 0.00192 | <0.00005 |
| Vanadium | mg/L | 0.0001 | 0.0002 | 0.0003 | 0.0006 | 0.0003 | <0.0001 |
| Chromium (VI) | mg/L | 0.01 | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 7.06 | 8.02 | 9.23 | 4.95 | 4.73 |
| Cation Sum (Calculated) | meq/L | - | 7.22 | 8.27 | 9.37 | 4.99 | 4.95 |
| % Difference (Calculated) | % | - | 1.12 | 1.53 | 0.714 | 0.354 | 2.21 |
| Ion Ratio (Calculated) | - | - | 0.978 | 0.970 | 0.986 | 0.993 | 0.957 |
| Sodium Adsorption Ratio (Calculated) | - | - | 0.376 | 0.459 | 0.469 | 0.263 | 0.108 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 364 | 412 | 469 | 253 | 247 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.539 | 0.538 | 0.545 | 0.537 | 0.532 |
| Conductivity Calc | µmho/cm | - | 671 | 758 | 845 | 467 | 467 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 0.992 | 0.988 | 0.982 | 0.991 | 1.01 |
| Langelier Index(25°C) (Calculated) | - | - | 1.10 | 1.11 | 1.16 | 0.881 | 0.888 |

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| | | **Client I.D.** | MW26 | MW26-1 | MW26-2 | MW 27-II | MW 27-III |
|---|---|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-030019-1 | 25-030019-2 | 25-030019-3 | 25-030019-4 | 25-030019-5 |
| | | **Date Collected** | 2025-09-30 | 2025-09-30 | 2025-09-30 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Saturation pH (25°C) (Calculated) | - | - | 6.95 | 6.86 | 6.72 | 7.19 | 7.25 |
| pH (Client Data) | pH units | - | 8.09 | 8.31 | 7.82 | 8.13 | 8.35 |
| Temperature (Client Data) | °C | - | 9.9 | 8.5 | 8.6 | 8.2 | 8.9 |

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP3-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-6 | 25-030019-7 | 25-030019-8 | 25-030019-9 | 25-030019-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 222 | 239 | 251 | 210 | 386 |
| TDS (Calc. from Cond.) (Calculated) | mg/L | 3 | 282 | 290 | 331 | 245 | 415 |
| Conductivity @25°C | uS/cm | 1 | 544 | 559 | 637 | 473 | 791 |
| pH @25°C | pH units | - | 8.05 | 8.08 | 8.04 | 7.47 | 8.24 |
| Colour | TCU | 2 | <2 | <2 | <2 | 48 | 50 |
| Turbidity | NTU | 0.1 | 16.4 | 2020 | 531 | 357 (17) | 711 (17) |
| Fluoride | mg/L | 0.1 | 0.2 | 0.2 | <0.1 | 0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 31.0 | 25.9 | 33.0 | 20.4 | 28.0 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 14 | 14 | 32 | <1 | <1 |
| BOD5 | mg/L | 3 | <3 | <3 | <3 | <3 | 8 |
| Total Suspended Solids | mg/L | 3 | 36 | 147000 | 7600 | 800 | 2030 |
| Phosphorus (Total) | mg/L | 0.01 | 0.04 | 0.76 | 1.40 | 0.59 | 1.12 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.3 | 0.2 | 0.4 | 5.6 | 7.7 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.12 | 0.17 | 0.27 | 1.64 | 3.50 |
| Ammonia (N)-unionized (Calculated) | mg/L | 0.01 | <0.01 | <0.01 | <0.01 | 0.13 | 0.21 |
| Dissolved Organic Carbon | mg/L | 0.8 | 2.5 | 2.7 | 2.8 | 15.2 | 20.4 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | 0.007 | 0.002 |
| COD | mg/L | 5 | <5 | 307 | 22 | 313 | 246 |

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP3-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-6 | 25-030019-7 | 25-030019-8 | 25-030019-9 | 25-030019-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 252 | 267 | 307 | 229 | 364 |
| Aluminum | mg/L | 0.01 | 0.05 | 0.06 | 0.06 | 0.07 | 0.08 |
| Barium | mg/L | 0.001 | 0.118 | 0.109 | 0.123 | 0.035 | 0.047 |
| Boron | mg/L | 0.005 | 0.022 | 0.017 | 0.048 | <0.005 | 0.066 |
| Calcium | mg/L | 0.02 | 85.1 | 93.8 | 108 | 83.3 | 129 |
| Iron | mg/L | 0.005 | 0.421 | 0.382 | 0.445 | 0.588 | 1.40 |
| Magnesium | mg/L | 0.02 | 9.55 | 7.92 | 8.98 | 5.09 | 10.1 |
| Manganese | mg/L | 0.001 | 0.020 | 0.039 | 0.053 | 0.438 | 0.198 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | 0.2 | 0.3 |
| Potassium | mg/L | 0.1 | 1.9 | 1.9 | 2.1 | 2.0 | 11.8 |
| Sodium | mg/L | 0.2 | 13.5 | 12.4 | 12.3 | 9.4 | 24.8 |
| Strontium | mg/L | 0.001 | 0.252 | 0.228 | 0.207 | 0.179 | 0.328 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | 0.051 | 0.744 |
| Antimony | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | <0.0001 | 0.0003 | 0.0001 | 0.0002 | 0.0004 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | <0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0007 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP3-10 |
| | | Sample I.D. | 25-030019-6 | 25-030019-7 | 25-030019-8 | 25-030019-9 | 25-030019-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-09-30 | 2025-09-30 |
| Parameter | Units | R.L. | - | - | - | - | - |
| Copper | mg/L | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 |
| Lead | mg/L | 0.00002 | <0.00002 | 0.00004 | 0.00003 | <0.00002 | 0.00014 |
| Molybdenum | mg/L | 0.0001 | 0.0003 | 0.0002 | 0.0004 | <0.0001 | 0.0001 |
| Nickel | mg/L | 0.0002 | 0.0004 | 0.0005 | 0.0007 | 0.0004 | 0.0016 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | 0.00019 | 0.00037 | 0.00035 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0008 | 0.0004 |
| Chromium (VI) | mg/L | 0.01 | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 5.60 | 5.80 | 6.62 | 4.80 | 8.53 |
| Cation Sum (Calculated) | meq/L | - | 5.70 | 5.95 | 6.75 | 5.09 | 8.76 |
| % Difference (Calculated) | % | - | 0.880 | 1.25 | 0.984 | 2.92 | 1.35 |
| Ion Ratio (Calculated) | - | - | 0.983 | 0.975 | 0.981 | 0.943 | 0.973 |
| Sodium Adsorption Ratio (Calculated) | - | - | 0.370 | 0.330 | 0.306 | 0.271 | 0.566 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 288 | 300 | 348 | 248 | 438 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.530 | 0.536 | 0.546 | 0.525 | 0.554 |
| Conductivity Calc | µmho/cm | - | 540 | 557 | 636 | 470 | 782 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 0.993 | 0.996 | 0.998 | 0.993 | 0.988 |
| Langelier Index(25°C) (Calculated) | - | - | 0.883 | 0.987 | 1.02 | 0.281 | 1.48 |

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**Data Specialist**

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| | | **Client I.D.** | MW28-I | MW28-II | MW28-III | WP1-10 | WP3-10 |
|---|---|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-030019-6 | 25-030019-7 | 25-030019-8 | 25-030019-9 | 25-030019-10 |
| | | **Date Collected** | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Saturation pH (25°C) (Calculated) | - | - | 7.17 | 7.09 | 7.02 | 7.19 | 6.76 |
| pH (Client Data) | pH units | - | 7.42 | 6.90 | 6.93 | 8.60 | 8.35 |
| Temperature (Client Data) | °C | - | 8.1 | 8.8 | 9.2 | 12.5 | 15.9 |

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| | | Client I.D. | WP-4-10 | WP6-13 | DUP-1 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-11 | 25-030019-12 | 25-030019-13 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| Parameter | Units | R.L. | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 1270 | 333 | 331 |
| TDS (Calc. from Cond.) (Calculated) | mg/L | 3 | 1620 | 374 | 370 |
| Conductivity @25°C | uS/cm | 1 | 2910 | 718 | 712 |
| pH @25°C | pH units | - | 7.64 | 8.02 | 8.06 |
| Colour | TCU | 2 | 27 | 12 | 12 |
| Turbidity | NTU | 0.1 | 1080 (17) | 1170 (17) | 1140 (17) |
| Fluoride | mg/L | 0.1 | <0.7 | 0.2 | <0.1 |
| Chloride | mg/L | 0.5 | 198 | 29.1 | 28.8 |
| Nitrate (N) | mg/L | 0.05 | <0.40 | <0.05 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.40 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 8 | 4 | 4 |
| BOD5 | mg/L | 3 | 14 | 4 | <3 |
| Total Suspended Solids | mg/L | 3 | 2540 | 4620 | 4280 |
| Phosphorus (Total) | mg/L | 0.01 | 3.20 | 3.37 | 2.31 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 130 | 2.6 | 1.6 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 105 | 0.99 | 0.83 |
| Ammonia (N)-unionized (Calculated) | mg/L | 0.01 | 0.74 | 0.02 | 0.01 |
| Dissolved Organic Carbon | mg/L | 0.8 | 32.3 | 8.8 | 8.1 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | 0.023 | <0.001 | <0.001 |
| COD | mg/L | 5 | 686 | 100 | 88 |

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| | | Client I.D. | WP-4-10 | WP6-13 | DUP-1 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-11 | 25-030019-12 | 25-030019-13 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| Parameter | Units | R.L. | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 812 | 348 | 345 |
| Aluminum | mg/L | 0.01 | 0.16 | 0.06 | 0.08 |
| Barium | mg/L | 0.001 | 0.980 | 0.202 | 0.205 |
| Boron | mg/L | 0.005 | 1.05 | 0.024 | 0.024 |
| Calcium | mg/L | 0.02 | 248 | 121 | 120 |
| Iron | mg/L | 0.005 | 6.50 | 2.09 | 2.15 |
| Magnesium | mg/L | 0.02 | 46.6 | 11.0 | 10.9 |
| Manganese | mg/L | 0.001 | 0.573 | 0.087 | 0.088 |
| Phosphorus | mg/L | 0.1 | 0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 113 | 2.1 | 2.0 |
| Sodium | mg/L | 0.2 | 158 | 8.6 | 8.5 |
| Strontium | mg/L | 0.001 | 0.773 | 0.454 | 0.452 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | 0.007 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | 0.041 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | 0.0002 | <0.0001 | 0.0001 |
| Arsenic | mg/L | 0.0001 | 0.0006 | <0.0001 | <0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | 0.004 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0045 | 0.0003 | 0.0003 |

**Michelle Dubien**
**Data Specialist**

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| | | Client I.D. | WP-4-10 | WP6-13 | DUP-1 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-11 | 25-030019-12 | 25-030019-13 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Copper | mg/L | 0.0001 | 0.0007 | 0.0005 | 0.0004 |
| Lead | mg/L | 0.00002 | <0.00004 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | 0.0001 | <0.0001 | <0.0001 |
| Nickel | mg/L | 0.0002 | 0.0073 | 0.0009 | 0.0009 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.0001 | 0.0083 | 0.0006 | 0.0006 |
| Chromium (VI) | mg/L | 0.01 | <0.01 (25) | <0.01 (25) | <0.01 (25) |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 31.1 | 7.56 | 7.50 |
| Cation Sum (Calculated) | meq/L | - | 26.4 | 7.49 | 7.44 |
| % Difference (Calculated) | % | - | 8.20 | 0.458 | 0.422 |
| Ion Ratio (Calculated) | - | - | 1.18 | 1.01 | 1.01 |
| Sodium Adsorption Ratio (Calculated) | - | - | 2.41 | 0.200 | 0.199 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 1540 | 378 | 375 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.529 | 0.526 | 0.526 |
| Conductivity Calc | µmho/cm | - | 2350 | 687 | 682 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 0.807 | 0.957 | 0.958 |
| Langelier Index(25°C) (Calculated) | - | - | 1.62 | 1.17 | 1.21 |

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| | | **Client I.D.** | WP-4-10 | WP6-13 | DUP-1 |
|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-030019-11 | 25-030019-12 | 25-030019-13 |
| | | **Date Collected** | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Saturation pH (25°C) (Calculated) | - | - | 6.02 | 6.85 | 6.85 |
| pH (Client Data) | pH units | - | 7.48 | 7.80 | 7.80 |
| Temperature (Client Data) | °C | - | 13.1 | 14.6 | 14.6 |

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW 27-II | MW 27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-1 | 25-030019-2 | 25-030019-3 | 25-030019-4 | 25-030019-5 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | 1.5 | 1.9 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | MW26 | MW26-1 | MW26-2 | MW 27-II | MW 27-III |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-1 | 25-030019-2 | 25-030019-3 | 25-030019-4 | 25-030019-5 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP3-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-6 | 25-030019-7 | 25-030019-8 | 25-030019-9 | 25-030019-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | MW28-I | MW28-II | MW28-III | WP1-10 | WP3-10 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-6 | 25-030019-7 | 25-030019-8 | 25-030019-9 | 25-030019-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | WP-4-10 | WP6-13 | DUP-1 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-11 | 25-030019-12 | 25-030019-13 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| Parameter | Units | R.L. | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | 0.7 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | WP-4-10 | WP6-13 | DUP-1 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030019-11 | 25-030019-12 | 25-030019-13 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| Parameter | Units | R.L. | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |

**Comments:**

17. Analyzed past holding time

25. Chromiun (VI) result is based on Total Chromiun

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.:** -

**REPORT No: 25-030018 - Rev. 0**

**Report To:**
City of Kawartha Lakes
PO Box 9000
322 Kent Street West
Lindsay, ON K9V 4T7

**CADUCEON Environmental Laboratories**
112 Commerce Park Dr Unit L
Barrie, ON L4N 8W8

**Attention: Kayla Pantaleo**

DATE RECEIVED: 2025-Oct-01
DATE REPORTED: 2025-Oct-09
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Landfill
P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Anions (Liquid) | 3 | OTTAWA | PCURIEL | 2025-Oct-03 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 3 | KINGSTON | JWOLFE2 | 2025-Oct-03 | BOD-001 | SM 5210B |
| COD (Liquid) | 3 | KINGSTON | MWILSON | 2025-Oct-08 | COD-001 | SM 5220D |
| Colour (Liquid) | 3 | OTTAWA | STAILLON | 2025-Oct-03 | A-COL-01 | SM 2120C |
| Cond/pH/Alk Auto (Liquid) | 3 | OTTAWA | SBOUDREAU | 2025-Oct-03 | COND-02/PH-02/ALK-02 | SM 2510B/4500H/2320B |
| Cyanide WAD (Liquid) | 3 | KINGSTON | EHINCH | 2025-Oct-03 | CN-001 | SM 4500-CN-E |
| DOC (Liquid) | 3 | OTTAWA | LMACGREGOR | 2025-Oct-07 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 3 | OTTAWA | ASCHNEIDER | | CP-028 | MECP E3196 |
| Chromium VI (Liquid) | 3 | OTTAWA | STAILLON | 2025-Oct-09 | D-CRVI-01 | MECP E3056 |
| ICP/MS Total (Liquid) | 3 | OTTAWA | GFENTON | 2025-Oct-08 | D-ICPMS-01 | EPA 6020 |
| ICP/OES Total (Liquid) | 3 | OTTAWA | SGORMAN | 2025-Oct-07 | D-ICP-01 | SM 3120B |
| ICP/OES (Liquid) | 3 | OTTAWA | SGORMAN | 2025-Oct-07 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 3 | OTTAWA | TBENNETT | 2025-Oct-06 | D-HG-02 | SM 3112B |
| Ammonia (Liquid) | 3 | KINGSTON | DCASSIDY | 2025-Oct-08 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 3 | KINGSTON | EHINCH | 2025-Oct-07 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 3 | KINGSTON | YLIEN | 2025-Oct-07 | TPTKN-001 | MECP E3516.2 |
| TSS (Liquid) | 3 | KINGSTON | MWILSON | 2025-Oct-03 | TSS-001 | SM 2540D |
| Turbidity (Liquid) | 3 | OTTAWA | ABAILEY | 2025-Oct-03 | A-TURB-01 | SM 2130B |

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

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**Data Specialist**

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| | | Client I.D. | SW2 | SW3 | SW4 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030018-1 | 25-030018-2 | 25-030018-3 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 199 | 210 | 218 |
| Conductivity @25°C | uS/cm | 1 | 443 | 454 | 471 |
| pH @25°C | pH units | - | 8.03 | 7.99 | 7.89 |
| Colour | TCU | 2 | 5 | 26 | 34 |
| Turbidity | NTU | 0.1 | 0.8 (17) | 2.1 (17) | 3.7 (17) |
| Fluoride | mg/L | 0.1 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 11.2 | 13.5 | 16.0 |
| Nitrate (N) | mg/L | 0.05 | 0.82 | <0.05 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 14 | 7 | 4 |
| BOD5 | mg/L | 3 | <3 | <3 | <3 |
| Total Suspended Solids | mg/L | 3 | 4 | 6 | 5 |
| Phosphorus (Total) | mg/L | 0.01 | 0.02 | 0.03 | 0.04 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.4 | 0.6 | 1.6 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.30 | 0.21 | 1.06 |
| Ammonia (N)-unionized (Calculated) | mg/L | 0.01 | 0.05 | 0.01 | 0.12 |
| Dissolved Organic Carbon | mg/L | 0.8 | 2.1 | 6.5 | 10.1 |
| Cyanide (WAD) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 |
| Phenolics | mg/L | 0.001 | 0.001 | 0.001 | <0.001 |
| COD | mg/L | 5 | <5 | <5 | 14 |
| Aluminum | mg/L | 0.01 | 0.05 | 0.04 | 0.05 |

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**Data Specialist**

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| | | **Client I.D.** | SW2 | SW3 | SW4 |
|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-030018-1 | 25-030018-2 | 25-030018-3 |
| | | **Date Collected** | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Hardness (as CaCO3) | mg/L | 0.02 | 220 | 220 | 223 |
| Aluminum (Total) | mg/L | 0.01 | 0.04 | 0.05 | 0.05 |
| Barium (Total) | mg/L | 0.001 | 0.048 | 0.041 | 0.051 |
| Boron (Total) | mg/L | 0.005 | 0.012 | 0.012 | 0.012 |
| Calcium (Total) | mg/L | 0.02 | 77.9 | 77.1 | 78.4 |
| Iron (Total) | mg/L | 0.005 | 0.011 | 0.113 | 0.236 |
| Magnesium (Total) | mg/L | 0.02 | 6.19 | 6.61 | 6.58 |
| Manganese (Total) | mg/L | 0.001 | 0.015 | 0.051 | 0.101 |
| Phosphorus (Total) | mg/L | 0.1 | <0.1 | <0.1 | <0.1 |
| Potassium (Total) | mg/L | 0.1 | 0.8 | 1.7 | 2.3 |
| Sodium (Total) | mg/L | 0.2 | 5.1 | 6.3 | 7.5 |
| Strontium (Total) | mg/L | 0.001 | 0.171 | 0.209 | 0.217 |
| Tin (Total) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 |
| Titanium (Total) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 |
| Zinc (Total) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 |
| Antimony (Total) | mg/L | 0.0001 | 0.0004 | 0.0009 | 0.0007 |
| Arsenic (Total) | mg/L | 0.0001 | <0.0001 | 0.0002 | 0.0003 |
| Beryllium (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt (Total) | mg/L | 0.0001 | 0.0001 | 0.0001 | 0.0002 |

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| | | **Client I.D.** | SW2 | SW3 | SW4 |
|---|---|---|---|---|---|
| | | **Sample I.D.** | 25-030018-1 | 25-030018-2 | 25-030018-3 |
| | | **Date Collected** | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Copper (Total) | mg/L | 0.0001 | 0.0003 | 0.0001 | 0.0014 |
| Lead (Total) | mg/L | 0.00002 | 0.00006 | 0.00002 | 0.00028 |
| Molybdenum (Total) | mg/L | 0.0001 | 0.0002 | <0.0001 | 0.0001 |
| Nickel (Total) | mg/L | 0.0002 | 0.0005 | 0.0005 | 0.0005 |
| Selenium (Total) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 |
| Silver (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium (Total) | mg/L | 0.00005 | 0.00054 | 0.00022 | 0.00024 |
| Vanadium (Total) | mg/L | 0.0001 | 0.0003 | <0.0001 | <0.0001 |
| Chromium (VI) | mg/L | 0.001 | <0.001 (25) | <0.001 (25) | <0.001 |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 4.63 | 4.72 | 4.89 |
| Cation Sum (Calculated) | meq/L | - | 4.64 | 4.72 | 4.86 |
| % Difference (Calculated) | % | - | 0.0962 | 0.00802 | 0.305 |
| Ion Ratio (Calculated) | - | - | 0.998 | 1.00 | 1.01 |
| Sodium Adsorption Ratio (Calculated) | - | - | 0.149 | 0.185 | 0.218 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 238 | 238 | 246 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.537 | 0.525 | 0.522 |
| Conductivity Calc | µmho/cm | - | 442 | 447 | 460 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 0.999 | 0.984 | 0.978 |
| Langelier Index(25°C) (Calculated) | - | - | 0.787 | 0.766 | 0.690 |

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| | | Client I.D. | SW2 | SW3 | SW4 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030018-1 | 25-030018-2 | 25-030018-3 |
| | | Date Collected | 2025-09-30 | 2025-09-30 | 2025-09-30 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Saturation pH (25°C) (Calculated) | - | - | 7.24 | 7.22 | 7.20 |
| pH (Client Data) | pH units | - | 8.78 | 8.35 | 8.55 |
| Temperature (Client Data) | °C | - | 16.2 | 17.1 | 18.4 |

**Comments:**

17. Analyzed past holding time

25. Chromiun (VI) result is based on Total Chromiun

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.:** -

**REPORT No: 25-030012 - Rev. 0**

**Report To:**
City of Kawartha Lakes
PO Box 9000
322 Kent Street West
Lindsay, ON K9V 4T7

**CADUCEON Environmental Laboratories**
112 Commerce Park Dr Unit L
Barrie, ON L4N 8W8

**Attention: Kayla Pantaleo**

DATE RECEIVED: 2025-Oct-01
DATE REPORTED: 2025-Oct-15
SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: Fenelon Landfill
P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Anions (Liquid) | 18 | OTTAWA | PCURIEL | 2025-Oct-03 | A-IC-01 | SM 4110B |
| COD (Liquid) | 18 | KINGSTON | MWILSON | 2025-Oct-08 | COD-001 | SM 5220D |
| Cond/pH/Alk Auto (Liquid) | 18 | OTTAWA | SBOUDREAU | 2025-Oct-06 | COND-02/PH-02/ALK-02 | SM 2510B/4500H/2320B |
| DOC (Liquid) | 18 | OTTAWA | LMACGREGOR | 2025-Oct-08 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 18 | OTTAWA | ASCHNEIDER | | CP-028 | MECP E3196 |
| Chromium VI (Liquid) | 18 | OTTAWA | STAILLON | 2025-Oct-08 | D-CRVI-01 | MECP E3056 |
| ICP/MS (Liquid) | 18 | OTTAWA | GFENTON | 2025-Oct-06 | D-ICPMS-01 | EPA 200.8 |
| ICP/OES (Liquid) | 18 | OTTAWA | SGORMAN | 2025-Oct-06 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 18 | OTTAWA | TBENNETT | 2025-Oct-06 | D-HG-02 | SM 3112B |
| Ammonia (Liquid) | 18 | KINGSTON | VHAMMOND | 2025-Oct-07 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 18 | KINGSTON | EHINCH | 2025-Oct-07 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 18 | KINGSTON | YLIEN | 2025-Oct-07 | TPTKN-001 | MECP E3516.2 |
| VOC-Volatiles Full (Water) | 3 | RICHMOND_HILL | CBURKE | 2025-Oct-08 | C-VOC-02 | EPA 8260 |

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

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| | | Client I.D. | MW10 | MW11A | MW12 | MW13 | MW15A |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-1 | 25-030012-2 | 25-030012-3 | 25-030012-4 | 25-030012-5 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 1650 | 199 | 224 | 196 | 483 |
| TDS (Calc. from Cond.) (Calculated) | mg/L | 3 | 2190 | 306 | 228 | 201 | 591 |
| Conductivity @25°C | uS/cm | 1 | 3890 | 589 | 441 | 391 | 1100 |
| pH @25°C | pH units | - | 7.45 | 7.92 | 8.01 | 7.96 | 7.66 |
| Fluoride | mg/L | 0.1 | <0.7 | <0.1 | <0.1 | <0.1 | 0.3 |
| Chloride | mg/L | 0.5 | 216 | 62.8 | 1.8 | 3.0 | 78.1 |
| Nitrate (N) | mg/L | 0.05 | <0.40 | <0.05 | 0.12 | <0.05 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.40 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 3 | 4 | 4 | 3 | <1 |
| Phosphorus (Total) | mg/L | 0.01 | 0.36 | 0.15 | 0.04 | 0.04 | 0.12 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 201 | 0.9 | 0.4 | 0.7 | 1.4 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 153 | 0.12 | <0.05 | 0.52 | 0.76 |
| Dissolved Organic Carbon | mg/L | 0.8 | 22.3 | 8.1 | 3.5 | 2.9 | 8.1 |
| Phenolics | mg/L | 0.001 | 0.004 | <0.001 | <0.001 | <0.001 | <0.001 |
| COD | mg/L | 5 | 234 | 33 | <5 | <5 | 20 |
| Hardness (as CaCO3) | mg/L | 0.02 | 886 | 280 | 227 | 187 | 514 |
| Aluminum | mg/L | 0.01 | 0.15 | 0.07 | 0.05 | 0.03 | 0.10 |
| Barium | mg/L | 0.001 | 0.741 | 0.028 | 0.061 | 0.059 | 0.396 |
| Boron | mg/L | 0.005 | 1.60 | 0.010 | 0.008 | 0.027 | 0.094 |
| Calcium | mg/L | 0.02 | 267 | 105 | 81.8 | 67.9 | 174 |
| Iron | mg/L | 0.005 | 13.4 | 1.62 | 0.016 | 0.639 | 7.19 |

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| | | Client I.D. | MW10 | MW11A | MW12 | MW13 | MW15A |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-1 | 25-030012-2 | 25-030012-3 | 25-030012-4 | 25-030012-5 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Magnesium | mg/L | 0.02 | 53.1 | 4.29 | 5.37 | 4.18 | 19.3 |
| Manganese | mg/L | 0.001 | 0.977 | 0.126 | <0.001 | 0.058 | 0.156 |
| Phosphorus | mg/L | 0.1 | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 178 | 1.9 | 0.9 | 3.1 | 4.0 |
| Sodium | mg/L | 0.2 | 218 | 7.7 | 1.9 | 6.2 | 35.1 |
| Strontium | mg/L | 0.001 | 1.15 | 0.314 | 0.143 | 0.139 | 1.15 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | 0.006 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | 0.005 | <0.005 | 0.006 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | 0.0003 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | 0.0008 | 0.0002 | <0.0001 | 0.0002 | <0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000030 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0059 | 0.0002 | 0.0002 | 0.0003 | 0.0005 |
| Copper | mg/L | 0.0001 | 0.0019 | 0.0005 | 0.0011 | 0.0004 | 0.0004 |
| Lead | mg/L | 0.00002 | <0.00009 | <0.00002 | <0.00002 | <0.00002 | <0.00004 |
| Molybdenum | mg/L | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | <0.0001 |
| Nickel | mg/L | 0.0002 | 0.0110 | 0.0009 | 0.0008 | 0.0008 | 0.0029 |
| Selenium | mg/L | 0.001 | 0.003 | 0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

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**Data Specialist**

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| | | Client I.D. | MW10 | MW11A | MW12 | MW13 | MW15A |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-1 | 25-030012-2 | 25-030012-3 | 25-030012-4 | 25-030012-5 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | <0.00005 | 0.00008 | 0.00034 | 0.00020 | <0.00005 |
| Vanadium | mg/L | 0.0001 | 0.0061 | 0.0016 | 0.0001 | 0.0001 | 0.0007 |
| Chromium (VI) | mg/L | 0.01 | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 42.0 | 5.84 | 4.63 | 4.07 | 11.9 |
| Cation Sum (Calculated) | meq/L | - | 43.2 | 6.08 | 4.63 | 4.12 | 12.3 |
| % Difference (Calculated) | % | - | 1.41 | 1.96 | 0.00718 | 0.599 | 1.77 |
| Ion Ratio (Calculated) | - | - | 0.972 | 0.962 | 1.00 | 0.988 | 0.965 |
| Sodium Adsorption Ratio (Calculated) | - | - | 3.19 | 0.201 | 0.0544 | 0.196 | 0.674 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 2240 | 307 | 231 | 206 | 609 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.576 | 0.522 | 0.525 | 0.527 | 0.552 |
| Conductivity Calc | µmho/cm | - | 3610 | 593 | 430 | 382 | 1070 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 0.927 | 1.01 | 0.975 | 0.977 | 0.973 |
| Langelier Index(25°C) (Calculated) | - | - | 1.57 | 0.798 | 0.841 | 0.651 | 1.11 |
| Saturation pH (25°C) (Calculated) | - | - | 5.88 | 7.12 | 7.17 | 7.31 | 6.55 |
| pH (Client Data) | pH units | - | 6.97 | 7.57 | 7.96 | 8.58 | 6.06 |
| Temperature (Client Data) | °C | - | 12.5 | 11.4 | 10.1 | 13.1 | 9.6 |

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| | | Client I.D. | MW15B | MW18 | MW18A | MW18B | MW19 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-6 | 25-030012-7 | 25-030012-8 | 25-030012-9 | 25-030012-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 406 | 243 | 479 | 511 | 431 |
| TDS (Calc. from Cond.) (Calculated) | mg/L | 3 | 510 | 297 | 641 | 644 | 498 |
| Conductivity @25°C | uS/cm | 1 | 958 | 572 | 1190 | 1190 | 938 |
| pH @25°C | pH units | - | 7.73 | 8.04 | 7.71 | 7.62 | 7.74 |
| Fluoride | mg/L | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | <0.1 |
| Chloride | mg/L | 0.5 | 72.6 | 3.3 | 105 | 84.9 | 37.4 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | 0.51 | <0.05 | <0.05 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | <1 | 37 | <1 | <1 | 14 |
| Phosphorus (Total) | mg/L | 0.01 | 0.02 | 0.44 | 0.04 | 0.05 | 0.13 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.8 | 1.3 | 2.3 | 2.7 | 0.5 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.44 | 0.06 | 1.52 | 1.96 | 0.08 |
| Dissolved Organic Carbon | mg/L | 0.8 | 6.6 | 14.4 | 8.3 | 8.8 | 6.7 |
| Phenolics | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| COD | mg/L | 5 | 5 | 62 | 21 | 24 | 10 |
| Hardness (as CaCO3) | mg/L | 0.02 | 452 | 248 | 518 | 528 | 501 |
| Aluminum | mg/L | 0.01 | 0.09 | 0.06 | 0.09 | 0.11 | 0.10 |
| Barium | mg/L | 0.001 | 0.160 | 0.071 | 0.280 | 0.310 | 0.215 |
| Boron | mg/L | 0.005 | 0.114 | 0.021 | 0.315 | 0.198 | 0.106 |
| Calcium | mg/L | 0.02 | 136 | 89.6 | 151 | 188 | 167 |
| Iron | mg/L | 0.005 | 1.50 | 0.019 | 4.70 | 12.4 | 0.633 |

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**Data Specialist**

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| | | Client I.D. | MW15B | MW18 | MW18A | MW18B | MW19 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-6 | 25-030012-7 | 25-030012-8 | 25-030012-9 | 25-030012-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Magnesium | mg/L | 0.02 | 27.3 | 5.90 | 34.1 | 14.0 | 20.3 |
| Manganese | mg/L | 0.001 | 0.045 | 0.003 | 0.167 | 0.555 | 0.163 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 4.3 | 39.2 | 8.4 | 5.9 | 4.2 |
| Sodium | mg/L | 0.2 | 27.5 | 3.0 | 47.5 | 49.5 | 20.0 |
| Strontium | mg/L | 0.001 | 1.41 | 0.103 | 1.86 | 0.503 | 0.350 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | 0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0001 |
| Arsenic | mg/L | 0.0001 | <0.0001 | 0.0004 | 0.0001 | 0.0003 | 0.0003 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0004 | 0.0004 | 0.0006 | 0.0008 | 0.0015 |
| Copper | mg/L | 0.0001 | 0.0003 | 0.0086 | 0.0005 | 0.0005 | 0.0034 |
| Lead | mg/L | 0.00002 | <0.00004 | <0.00002 | <0.00004 | <0.00004 | <0.00004 |
| Molybdenum | mg/L | 0.0001 | <0.0001 | 0.0019 | <0.0001 | <0.0001 | 0.0003 |
| Nickel | mg/L | 0.0002 | 0.0018 | 0.0016 | 0.0035 | 0.0035 | 0.0064 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

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**Data Specialist**

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| | | Client I.D. | MW15B | MW18 | MW18A | MW18B | MW19 |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-6 | 25-030012-7 | 25-030012-8 | 25-030012-9 | 25-030012-10 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | <0.00005 | 0.00042 | <0.00005 | 0.00017 | 0.00237 |
| Vanadium | mg/L | 0.0001 | 0.0002 | 0.0008 | 0.0006 | 0.0015 | <0.0001 |
| Chromium (VI) | mg/L | 0.01 | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) | <0.01 (25) |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 10.2 | 5.78 | 12.6 | 12.6 | 9.96 |
| Cation Sum (Calculated) | meq/L | - | 10.5 | 6.09 | 12.9 | 13.5 | 11.0 |
| % Difference (Calculated) | % | - | 1.30 | 2.65 | 1.41 | 3.44 | 5.10 |
| Ion Ratio (Calculated) | - | - | 0.974 | 0.948 | 0.972 | 0.934 | 0.903 |
| Sodium Adsorption Ratio (Calculated) | - | - | 0.563 | 0.0821 | 0.909 | 0.938 | 0.389 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 514 | 327 | 639 | 663 | 522 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.536 | 0.571 | 0.538 | 0.555 | 0.557 |
| Conductivity Calc | µmho/cm | - | 942 | 573 | 1140 | 1140 | 942 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 0.983 | 1.00 | 0.962 | 0.958 | 1.00 |
| Langelier Index(25°C) (Calculated) | - | - | 1.01 | 0.936 | 1.10 | 1.13 | 1.13 |
| Saturation pH (25°C) (Calculated) | - | - | 6.72 | 7.10 | 6.61 | 6.49 | 6.61 |
| pH (Client Data) | pH units | - | 6.10 | 6.58 | 6.75 | 7.02 | 6.06 |
| Temperature (Client Data) | °C | - | 9.7 | 10.5 | 10.4 | 10.6 | 10.5 |

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| | | Client I.D. | MW22 | MW22A | MW23 | MW23A | MW23B |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-11 | 25-030012-12 | 25-030012-13 | 25-030012-14 | 25-030012-15 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 273 | 1800 | 448 | 251 | 152 |
| TDS (Calc. from Cond.) (Calculated) | mg/L | 3 | 375 | 3340 | 560 | 267 | 152 |
| Conductivity @25°C | uS/cm | 1 | 720 | 5880 | 1050 | 516 | 297 |
| pH @25°C | pH units | - | 7.85 | 7.52 | 7.74 | 7.96 | 8.01 |
| Fluoride | mg/L | 0.1 | 0.1 | <1.8 | <0.1 | <0.1 | <0.1 |
| Chloride | mg/L | 0.5 | 66.4 | 458 | 75.5 | 9.5 | 0.9 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <1.00 | <0.05 | 0.06 | 0.11 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <1.00 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | <1 | 32 | <1 | 6 | 1 |
| Phosphorus (Total) | mg/L | 0.01 | 0.08 | 2.41 | 0.20 | 0.03 | 0.15 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 1.4 | 304 | 1.4 | 0.5 | 0.4 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 1.02 | 244 | 0.73 | 0.17 | 0.10 |
| Dissolved Organic Carbon | mg/L | 0.8 | 7.7 | 17.1 | 8.8 | 2.7 | 2.8 |
| Phenolics | mg/L | 0.001 | <0.001 | 0.011 | 0.002 | <0.001 | <0.001 |
| COD | mg/L | 5 | 17 | 479 | 16 | <5 | <5 |
| Hardness (as CaCO3) | mg/L | 0.02 | 315 | 1160 | 497 | 266 | 156 |
| Aluminum | mg/L | 0.01 | 0.07 | 0.16 | 0.09 | 0.06 | 0.03 |
| Barium | mg/L | 0.001 | 0.104 | 0.165 | 0.195 | 0.075 | 0.007 |
| Boron | mg/L | 0.005 | 0.087 | 3.50 | 0.108 | 0.017 | 0.006 |
| Calcium | mg/L | 0.02 | 93.6 | 346 | 172 | 96.7 | 60.3 |
| Iron | mg/L | 0.005 | 1.91 | 0.623 | 6.29 | 0.131 | 0.008 |

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| | | Client I.D. | MW22 | MW22A | MW23 | MW23A | MW23B |
|---|---|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-11 | 25-030012-12 | 25-030012-13 | 25-030012-14 | 25-030012-15 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| Parameter | Units | R.L. | - | - | - | - | - |
| Magnesium | mg/L | 0.02 | 19.6 | 72.5 | 16.4 | 5.91 | 1.38 |
| Manganese | mg/L | 0.001 | 0.038 | 5.18 | 0.153 | 0.025 | 0.044 |
| Phosphorus | mg/L | 0.1 | <0.1 | 0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 4.2 | 235 | 3.3 | 0.9 | 0.2 |
| Sodium | mg/L | 0.2 | 22.6 | 412 | 32.2 | 5.4 | 0.9 |
| Strontium | mg/L | 0.001 | 1.50 | 1.35 | 0.892 | 0.198 | 0.105 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | <0.005 | 0.014 | <0.005 | <0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | 0.0008 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0001 | 0.0003 | 0.0022 | <0.0001 | <0.0001 | <0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000030 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | 0.013 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0002 | 0.0073 | 0.0006 | 0.0003 | 0.0002 |
| Copper | mg/L | 0.0001 | 0.0003 | 0.0036 | 0.0004 | 0.0008 | 0.0006 |
| Lead | mg/L | 0.00002 | 0.00004 | <0.00009 | <0.00004 | <0.00004 | 0.00002 |
| Molybdenum | mg/L | 0.0001 | <0.0001 | 0.0016 | <0.0001 | <0.0001 | 0.0002 |
| Nickel | mg/L | 0.0002 | 0.0008 | 0.0278 | 0.0025 | 0.0013 | 0.0006 |
| Selenium | mg/L | 0.001 | <0.001 | 0.004 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Client I.D. | MW22 | MW22A | MW23 | MW23A | MW23B |
| | | Sample I.D. | 25-030012-11 | 25-030012-12 | 25-030012-13 | 25-030012-14 | 25-030012-15 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| Parameter | Units | R.L. | - | - | - | - | - |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | <0.00005 | 0.00031 | <0.00005 | 0.00038 | 0.00010 |
| Vanadium | mg/L | 0.0001 | 0.0006 | 0.0032 | 0.0007 | 0.0002 | 0.0003 |
| Chromium (VI) | mg/L | 0.01 | <0.01 (25) | <0.01 | <0.01 (25) | <0.01 (25) | <0.01 (25) |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 7.35 | 49.5 | 11.1 | 5.42 | 3.10 |
| Cation Sum (Calculated) | meq/L | - | 7.51 | 47.4 | 11.8 | 5.58 | 3.17 |
| % Difference (Calculated) | % | - | 1.06 | 2.17 | 3.03 | 1.48 | 1.20 |
| Ion Ratio (Calculated) | - | - | 0.979 | 1.04 | 0.941 | 0.971 | 0.976 |
| Sodium Adsorption Ratio (Calculated) | - | - | 0.555 | 5.26 | 0.628 | 0.143 | 0.0311 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 373 | 2640 | 575 | 276 | 157 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.518 | 0.449 | 0.549 | 0.534 | 0.528 |
| Conductivity Calc | µmho/cm | - | 706 | 3820 | 1030 | 512 | 298 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 0.980 | 0.650 | 0.980 | 0.991 | 1.00 |
| Langelier Index(25°C) (Calculated) | - | - | 0.805 | 1.79 | 1.15 | 0.903 | 0.569 |
| Saturation pH (25°C) (Calculated) | - | - | 7.05 | 5.73 | 6.59 | 7.06 | 7.44 |
| pH (Client Data) | pH units | - | 7.01 | 6.47 | 7.68 | 7.81 | 7.99 |
| Temperature (Client Data) | °C | - | 13.6 | 13.6 | 9.2 | 8.9 | 9.9 |

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| | | Client I.D. | OFFICE | DUP-2 | DUP-3 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-16 | 25-030012-17 | 25-030012-18 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 238 | 454 | 407 |
| TDS (Calc. from Cond.) (Calculated) | mg/L | 3 | 246 | 518 | 510 |
| Conductivity @25°C | uS/cm | 1 | 475 | 972 | 959 |
| pH @25°C | pH units | - | 8.07 | 7.76 | 7.85 |
| Fluoride | mg/L | 0.1 | 0.2 | <0.1 | 0.2 |
| Chloride | mg/L | 0.5 | 13.7 | 39.9 | 72.4 |
| Nitrate (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 1 | 14 | <1 |
| Phosphorus (Total) | mg/L | 0.01 | 0.02 | 0.13 | 0.02 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.7 | 0.5 | 1.9 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.46 | 0.10 | 1.53 |
| Dissolved Organic Carbon | mg/L | 0.8 | 6.4 | 6.7 | 6.0 |
| Phenolics | mg/L | 0.001 | <0.001 | <0.001 | <0.001 |
| COD | mg/L | 5 | <5 | 8 | 9 |
| Hardness (as CaCO3) | mg/L | 0.02 | 229 | 504 | 458 |
| Aluminum | mg/L | 0.01 | 0.03 | 0.10 | 0.08 |
| Barium | mg/L | 0.001 | 0.090 | 0.217 | 0.162 |
| Boron | mg/L | 0.005 | 0.086 | 0.109 | 0.117 |
| Calcium | mg/L | 0.02 | 66.0 | 168 | 138 |
| Iron | mg/L | 0.005 | 4.01 | 0.636 | 1.50 |

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| | | Client I.D. | OFFICE | DUP-2 | DUP-3 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-16 | 25-030012-17 | 25-030012-18 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| Parameter | Units | R.L. | - | - | - |
| Magnesium | mg/L | 0.02 | 15.5 | 20.4 | 27.4 |
| Manganese | mg/L | 0.001 | 0.048 | 0.164 | 0.045 |
| Phosphorus | mg/L | 0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | 0.1 | 3.6 | 4.2 | 4.4 |
| Sodium | mg/L | 0.2 | 10.7 | 20.1 | 27.6 |
| Strontium | mg/L | 0.001 | 1.06 | 0.351 | 1.43 |
| Tin | mg/L | 0.05 | <0.05 | <0.05 | <0.05 |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | mg/L | 0.005 | 0.005 | 0.005 | <0.005 |
| Antimony | mg/L | 0.0001 | <0.0001 | <0.0001 | 0.0001 |
| Arsenic | mg/L | 0.0001 | <0.0001 | 0.0003 | <0.0001 |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0001 | 0.0001 | 0.0016 | 0.0004 |
| Copper | mg/L | 0.0001 | 0.0011 | 0.0035 | 0.0003 |
| Lead | mg/L | 0.00002 | 0.00009 | 0.00005 | <0.00004 |
| Molybdenum | mg/L | 0.0001 | <0.0001 | 0.0003 | <0.0001 |
| Nickel | mg/L | 0.0002 | 0.0009 | 0.0068 | 0.0019 |
| Selenium | mg/L | 0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 |

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| | | Client I.D. | OFFICE | DUP-2 | DUP-3 |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-16 | 25-030012-17 | 25-030012-18 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| **Parameter** | **Units** | **R.L.** | - | - | - |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Uranium | mg/L | 0.00005 | <0.00005 | 0.00221 | <0.00005 |
| Vanadium | mg/L | 0.0001 | 0.0002 | <0.0001 | 0.0002 |
| Chromium (VI) | mg/L | 0.01 | <0.01 (25) | <0.01 (25) | <0.01 (25) |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Anion Sum (Calculated) | meq/L | - | 5.17 | 10.5 | 10.2 |
| Cation Sum (Calculated) | meq/L | - | 5.37 | 11.1 | 10.6 |
| % Difference (Calculated) | % | - | 1.88 | 2.81 | 1.79 |
| Ion Ratio (Calculated) | - | - | 0.963 | 0.945 | 0.965 |
| Sodium Adsorption Ratio (Calculated) | - | - | 0.308 | 0.390 | 0.561 |
| TDS (Ion Sum Calc) (Calculated) | mg/L | 1 | 258 | 540 | 516 |
| TDS(calc.)/EC(actual) (Calculated) | - | - | 0.542 | 0.555 | 0.538 |
| Conductivity Calc | µmho/cm | - | 476 | 964 | 947 |
| Conductivity Calc / Conductivity (Calculated) | - | - | 1.00 | 0.991 | 0.988 |
| Langelier Index(25°C) (Calculated) | - | - | 0.833 | 1.17 | 1.14 |
| Saturation pH (25°C) (Calculated) | - | - | 7.24 | 6.59 | 6.71 |
| pH (Client Data) | pH units | - | 7.30 | 6.06 | 6.10 |
| Temperature (Client Data) | °C | - | 17.5 | 10.5 | 9.7 |

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| | | Client I.D. | MW12 | MW15A | MW15B |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-3 | 25-030012-5 | 25-030012-6 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| Parameter | Units | R.L. | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 |
| Benzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | 1 | <1 | <1 | <1 |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene,1,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene,1,2-cis- | µg/L | 0.5 | <0.5 | 0.6 | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropane,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene,1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |

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| | | Client I.D. | MW12 | MW15A | MW15B |
|---|---|---|---|---|---|
| | | Sample I.D. | 25-030012-3 | 25-030012-5 | 25-030012-6 |
| | | Date Collected | 2025-10-01 | 2025-10-01 | 2025-10-01 |
| Parameter | Units | R.L. | - | - | - |
| Dichloropropene,1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | 20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | <1 | <1 | <1 |
| Xylene, o- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 |

**Comments:**

25. Chromiun (VI) result is based on Total Chromiun

Sample 25-030012-12 filtered from unpreserved for metals analysis due to sediment in the metals bottle.
Elevated RLs due to sample matrix interferences

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**Data Specialist**

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# APPENDIX E

## Chemistry Summary Tables

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW2 27-Apr-16 | MW2 17-Apr-17 | MW2 25-Apr-18 | MW2 11-Apr-19 | MW2 22-Apr-20 | MW2 19-Apr-21 | MW2 20-Apr-22 | MW2 19-Apr-23 | MW2 17-Apr-24 | MW2 23-Apr-25 | MW3 27-Apr-16 | MW3 17-Apr-17 | MW3 25-Apr-18 | MW3 11-Apr-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 456 | **582** | **605** | **608** | **636** | **597** | **625** | **719** | **767** | **769** | **1400** | **1420** | **1260** | **1200** |
| Calcium | mg/L | - | - | - | 149 | 174 | 197 | 196 | 206 | 186 | 171 | 199 | 196 | 206 | 265 | 286 | 254 | 255 |
| Chloride | mg/L | 250 | 134 | 194 | 78.4 | 62.3 | 51.8 | 39.1 | 23.2 | 40.1 | 49.4 | 50.9 | 82.8 | 106 | 181 | 153 | 81.3 | 142 |
| COD | mg/L | - | - | - | 46 | 52 | 60 | 60 | 50 | 64 | 72 | 70 | 93 | 85 | 203 | 202 | 189 | 144 |
| Specific Conductivity | umhos/cm | - | - | - | 1120 | 1280 | 1220 | 1350 | 1340 | 1350 | 1440 | 1477 | 1720 | 1730 | 3000 | 2950 | 2380 | 2700 |
| DOC | mg/L | 5 | - | - | **10** | **15.6** | **16.5** | **18** | **17.5** | **18.3** | **11.7** | **9.9** | **29.6** | **13.5** | **27.3** | **65.9** | **29.1** | **28.9** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | 0.2 | 0.6 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.7 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **31.9** | < 0.005 | **40.7** | | **49.6** | **50.5** | **48.5** | **57.8** | **56.2** | **69** | **41** | **31** | **24.4** | **23.1** |
| Magnesium | mg/L | - | - | - | 9.66 | 10.8 | 12.4 | 14.4 | 17.4 | 15.8 | 19.2 | 20.2 | 20.2 | 19.7 | 36.4 | 30.7 | 31.5 | 31.3 |
| Manganese | mg/L | 0.05 | - | - | **0.695** | **0.832** | **0.727** | **0.798** | **1.01** | **0.975** | **0.812** | **1.04** | **0.705** | **0.935** | **0.738** | **0.626** | **0.43** | **0.425** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.1 | 0.2 | 0.06 | < 0.05 | 0.08 | < 0.05 | < 0.05 | < 0.05 | <0.40 | 0.1 | < 0.1 | 0.1 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.1 | 0.7 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.40 | <0.05 | < 0.1 | **1.6** | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.45 | 7.29 | 7.4 | 7.48 | 7.19 | 7.05 | 7.25 | 7.25 | 7.23 | 7.37 | 7.16 | 7.26 | 7.57 | 7.6 |
| Phenols | mg/L | - | - | - | 0.008 | < 0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | 0.005 | 0.023 | < 0.001 | < 0.001 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | 0.1 | < 0.1 | < 0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 18.3 | 19.3 | 25.2 | 33.3 | 40 | 47.1 | 54.5 | 61.4 | 62.2 | 54 | 126 | 143 | 147 | 137 |
| Sodium | mg/L | 200 | 106 | 119 | 63.4 | 57.8 | 57.8 | 30.4 | 23.9 | 34.5 | 35.2 | 29.6 | 43.9 | 64.1 | 157 | 148 | 99.8 | 138 |
| Sulphate | mg/L | 500 | 251 | 252 | 14 | 6 | 7 | 4 | 12 | 3 | < 1 | 2 | 13 | <1 | < 1 | < 1 | < 1 | < 1 |
| TDS | mg/L | 500 | 374 | 504 | **653** | **714** | **741** | **721** | **743** | **743** | **705** | **909** | **940** | **982** | **1650** | **1730** | **1523** | **1575** |
| Tot Kjel N | mg/L | - | - | - | 12.3 | 25.1 | 23.1 | 31.8 | 33.7 | 45.2 | 48.2 | 48 | 56.6 | 53.9 | 116 | 105 | 101 | 96 |
| Ammonia (NH3-N) | mg/L | - | - | - | 10.2 | 23.8 | 20.4 | 30.2 | 29.3 | 44 | 44.4 | 43.5 | 56.1 | 37.8 | 113 | 87 | 101 | 99.9 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 412 | 479 | **543** | **549** | **587** | **530** | **506** | **581** | **542** | **595** | **812** | **841** | **764** | **766** |
| BOD | mg/L | - | - | - | -- | -- | | | | | | | | | -- | -- | | |
| Cyanide (free) | mg/L | - | - | - | -- | -- | | | | | | | | | -- | -- | | |
| TSS | mg/L | - | - | - | -- | -- | | | | | | | | | -- | -- | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.1 | **0.11** | 0.1 | **0.11** | 0.09 | 0.09 | 0.07 | **0.11** | 0.09 | 0.1 | **0.14** | **0.15** | **0.13** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.005 | 0.0072 | 0.0041 | 0.0052 | 0.0043 | 0.0048 | 0.0055 | 0.0048 | 0.0066 | 0.0059 | 0.0021 | 0.0021 | 0.0009 | 0.0008 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.511 | 0.696 | 0.786 | 0.89 | 0.99 | 0.995 | 0.979 | **1.14** | **1.14** | 0.959 | 0.581 | 0.674 | 0.657 | 0.628 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.183 | 0.25 | 0.336 | 0.357 | 0.367 | 0.481 | 0.421 | 0.448 | 0.557 | 0.545 | 0.442 | 0.404 | 0.461 | 0.438 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.00002 | < 0.000020 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000012 | <0.000015 | <0.000015 | < 0.00002 | < 0.000020 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.0002 | 0.003 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | < 0.001 | <0.01 | <0.01 | < 0.0002 | 0.005 | 0.003 | 0.003 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | < 0.001 | < 0.001 | <0.01 | <0.01 | | | | |
| Cobalt | mg/L | - | - | - | 0.009 | 0.015 | 0.005 | 0.011 | 0.012 | 0.016 | 0.014 | 0.023 | 0.0192 | 0.0171 | 0.009 | 0.009 | 0.016 | 0.008 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0007 | 0.0004 | 0.0005 | 0.0005 | 0.0004 | 0.0012 | 0.0003 | 0.0002 | 0.0007 | 0.0002 | 0.0012 | 0.0023 | 0.0004 | 0.0004 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00002 | < 0.00002 | 0.00003 | 0.00002 | < 0.00004 | 0.00009 | < 0.00004 | < 0.00004 | 0.00004 | 0.00004 | 0.00004 | < 0.00002 | 0.00011 | 0.00003 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0006 | 0.0005 | 0.0004 | 0.0004 | 0.0008 | 0.0005 | 0.0007 | 0.0005 | 0.0006 | 0.0006 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0098 | 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | 0.002 | 0.003 | < 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | <0.001 | <0.001 | < 0.001 | 0.001 | 0.01 | 0.003 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.416 | 0.46 | 0.526 | 0.553 | 0.578 | 0.528 | 0.462 | 0.587 | 0.621 | 0.664 | 0.882 | 0.877 | 0.846 | 0.911 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.003 | 0.0054 | 0.0021 | 0.0024 | 0.0022 | 0.0034 | 0.0039 | 0.004 | 0.0047 | 0.0041 | 0.0108 | 0.0155 | 0.0058 | 0.0063 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | 0.006 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | 9.2 | 12.2 | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | 6.96 | 6.25 | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | 1881 | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW3 22-Apr-20 | MW3 19-Apr-21 | MW3 20-Apr-22 | MW3 19-Apr-23 | MW3 17-Apr-24 | MW3 23-Apr-25 | MW3A 27-Apr-16 | MW3A 17-Apr-17 | MW3A 25-Apr-18 | MW3A 11-Apr-19 | MW3A 22-Apr-20 | MW3A 19-Apr-21 | MW3A 20-Apr-22 | MW3A 19-Apr-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | **1050** | **1020** | **1030** | **1140** | **1170** | **1300** | 411 | 354 | 349 | 399 | 451 | 344 | 332 | 242 |
| Calcium | mg/L | - | - | - | 288 | 310 | 300 | 318 | 263 | 262 | 152 | 107 | 103 | 142 | 113 | 122 | 114 | 90.8 |
| Chloride | mg/L | 250 | 134 | 194 | 134 | 134 | 146 | 155 | 150 | 188 | 29.2 | 30.2 | 12.7 | 46.5 | 36.7 | 27.6 | 18.3 | 10.5 |
| COD | mg/L | - | - | - | 189 | 167 | 138 | 160 | 184 | 194 | 35 | 50 | 23 | 39 | 115 | 48 | 31 | 19 |
| Specific Conductivity | umhos/cm | - | - | - | 2420 | 2430 | 2530 | 2466 | 2680 | 2890 | 906 | 807 | 692 | 999 | 1070 | 865 | 746 | 546 |
| DOC | mg/L | 5 | - | - | **26.1** | **27.2** | **15.3** | 3.8 | **75.6** | **38.7** | **11.3** | **14.5** | **8.4** | **16.7** | **15.5** | **12.8** | **11.6** | **5.2** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.5 | < 0.1 | <0.7 | <0.1 | < 0.1 | 0.4 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **28.2** | **23** | **22.4** | **26.2** | **22.3** | **35** | **13.6** | 0.207 | 0.034 | **6.31** | **9.53** | **3.7** | **4.55** | **1.61** |
| Magnesium | mg/L | - | - | - | 30.8 | 24.1 | 23.9 | 23.6 | 24.5 | 32.5 | 7.5 | 7.54 | 5.96 | 9.96 | 7.64 | 5.54 | 5.97 | 3.44 |
| Manganese | mg/L | 0.05 | - | - | **0.518** | **0.385** | **0.343** | **0.351** | **0.272** | **0.372** | **0.577** | **0.344** | **0.202** | **0.38** | **0.282** | **0.196** | **0.219** | **0.139** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | < 0.3 | < 0.05 | <0.40 | <0.05 | 0.2 | 0.3 | 0.19 | 0.18 | 0.24 | 0.11 | 0.23 | 0.35 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.3 | < 0.05 | 0.5 | <0.05 | < 0.1 | 0.4 | < 0.05 | 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.06 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.33 | 7.16 | 7.42 | 7.47 | 7.38 | 7.27 | 7.45 | 7.65 | 7.73 | 7.72 | 7.56 | 7.43 | 7.53 | 7.75 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | 0.004 | 0.017 | 0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 110 | 107 | 95 | 103 | 117 | 128 | 13.6 | 25.5 | 28.1 | 27.7 | 23.2 | 14.8 | 12.8 | 7.9 |
| Sodium | mg/L | 200 | 106 | 119 | 116 | 110 | 116 | 118 | 117 | 136 | 25.2 | 21.6 | 5 | 15.6 | 15.5 | 9.7 | 13.2 | 5.1 |
| Sulphate | mg/L | 500 | 251 | 252 | < 1 | < 1 | < 5 | < 1 | 12 | <1 | 12 | 12 | 5 | 16 | 18 | 33 | 16 | 24 |
| TDS | mg/L | 500 | 374 | 504 | **1391** | **1395** | **1301** | **1513** | **1490** | **1570** | **512** | 460 | 383 | **523** | **518** | 444 | 379 | 298 |
| Tot Kjel N | mg/L | - | - | - | 78.4 | 78.3 | 72.6 | 74.8 | 120 | 127 | 10.4 | 33.9 | 10.9 | 15 | 30.5 | 17.7 | 10.9 | 8.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 63.2 | 77.8 | 60.5 | 67.7 | 105 | 100 | 8.65 | 30.9 | 10.3 | 15.5 | 25.7 | 19.4 | 8.99 | 7.19 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **847** | **874** | **848** | **891** | **758** | **789** | 410 | 299 | 282 | 396 | 314 | 328 | 310 | 241 |
| BOD | mg/L | - | - | - | | | | | | | -- | -- | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | -- | -- | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | -- | -- | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.14** | **0.14** | **0.14** | **0.11** | **0.14** | **0.12** | 0.04 | 0.06 | 0.05 | 0.08 | 0.07 | 0.08 | 0.06 | 0.02 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0005 | 0.0006 | 0.0005 | 0.0006 | 0.0008 | 0.0007 | 0.0007 | 0.0007 | 0.0002 | 0.0004 | 0.0003 | 0.0002 | 0.0002 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.543 | 0.559 | 0.494 | 0.574 | 0.61 | 0.678 | 0.069 | 0.097 | 0.075 | 0.096 | 0.083 | 0.056 | 0.05 | 0.029 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.264 | 0.284 | 0.196 | 0.278 | 0.517 | 0.616 | 0.128 | 0.15 | 0.151 | 0.152 | 0.132 | 0.11 | 0.111 | 0.066 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000029 | < 0.000029 | < 0.000029 | < 0.000029 | <0.000015 | <0.000015 | < 0.00002 | < 0.000020 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.003 | 0.003 | 0.003 | 0.002 | <0.01 | <0.01 | < 0.0002 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | < 0.001 | < 0.001 | <0.01 | <0.01 | | | | | | | < 0.001 | < 0.001 |
| Cobalt | mg/L | - | - | - | 0.006 | < 0.005 | < 0.005 | 0.006 | 0.0038 | 0.0039 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.007 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0002 | 0.0015 | 0.0004 | 0.0002 | 0.0019 | 0.0001 | 0.0024 | 0.0025 | 0.0012 | 0.0038 | 0.0015 | 0.0041 | 0.0029 | 0.0016 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00009 | 0.00013 | < 0.00009 | < 0.00009 | 0.00007 | 0.00005 | 0.00002 | < 0.00002 | 0.00004 | 0.00002 | 0.00002 | 0.00007 | 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0009 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0053 | 0.0046 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.001 | 0.002 | 0.003 | 0.002 | <0.001 | <0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.919 | 0.998 | 0.935 | 1 | 0.878 | 0.895 | 0.377 | 0.292 | 0.237 | 0.424 | 0.289 | 0.321 | 0.291 | 0.223 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0051 | 0.0052 | 0.0061 | 0.0066 | 0.0071 | 0.0078 | 0.0027 | 0.0039 | 0.0005 | 0.0011 | 0.0011 | 0.0008 | 0.0009 | 0.0005 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | 7.4 | 10.2 | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | 7.06 | 6.58 | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | 2560 | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW3A | MW3A | MW5 | MW5 | MW5 | MW5 | MW5 | MW5 | MW5 | MW5 | MW5 | MW5 (DUP) | MW5 | MW5A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 17-Apr-24 | 23-Apr-25 | 27-Apr-16 | 17-Apr-17 | 25-Apr-18 | 11-Apr-19 | 22-Apr-20 | 19-Apr-21 | 20-Apr-22 | 19-Apr-23 | 17-Apr-24 | 23-Apr-25 | 23-Apr-25 | 27-Apr-16 |
| Total Alkalinity | mg/L | 500 | 363 | 381 | 252 | 242 | **575** | **717** | 396 | **829** | **914** | **844** | **968** | **886** | **707** | **882** | **895** | 282 |
| Calcium | mg/L | - | - | - | 95.5 | 87.3 | 236 | 79.6 | 189 | 273 | 339 | 374 | 314 | 293 | 225 | 227 | 222 | 129 |
| Chloride | mg/L | 250 | 134 | 194 | 10 | 6.1 | **424** | 58.3 | 50 | 91.7 | 72 | 90.5 | 42.8 | 41.5 | 81.2 | 58 | 58.7 | 104 |
| COD | mg/L | - | - | - | 28 | 20 | 34 | 16 | 59 | 160 | 424 | 225 | 173 | 334 | 314 | 252 | 273 | 31 |
| Specific Conductivity | umhos/cm | - | - | - | 553 | 516 | 2370 | 1510 | 1070 | 1840 | 2040 | 1930 | 1980 | 1703 | 1620 | 1810 | 1830 | 890 |
| DOC | mg/L | 5 | - | - | **9.9** | **8.1** | 1.8 | **6.5** | **19** | **75** | **25.8** | **20.5** | **12.3** | **18.9** | **81.1** | **58.5** | **61.9** | **7.5** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | <0.1 | <0.1 | < 0.1 | 0.7 | < 0.1 | **9.3** | **21.8** | < 0.1 | < 0.1 | < 1 | <0.7 | <0.1 | <0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **1.65** | **0.829** | 0.01 | 0.006 | **0.322** | **8.51** | **92.4** | **103** | **109** | **49.5** | **28.1** | **3.08** | **2.85** | 0.04 |
| Magnesium | mg/L | - | - | - | 3.95 | 3.79 | 10.7 | 2.91 | 9.67 | 32.8 | 28.8 | 24.5 | 30.3 | 27.5 | 18.5 | 19 | 18.6 | 8.43 |
| Manganese | mg/L | 0.05 | - | - | **0.135** | **0.127** | 0.003 | < 0.001 | **4.01** | **6.8** | **7.7** | **8.65** | **3.35** | **3.13** | **1.95** | **2.02** | **1.95** | 0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.27 | 0.33 | 2.2 | 3.1 | < 0.05 | < 0.05 | < 0.05 | 0.06 | < 0.05 | < 0.05 | <0.40 | <0.05 | 0.05 | 0.2 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | 0.07 | 0.06 | < 0.1 | 0.6 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.40 | <0.05 | <0.05 | < 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.6 | 7.59 | 7.6 | 7.81 | 7.79 | 7.76 | 7.07 | 6.92 | 7.16 | 7.36 | 7.17 | 7.32 | 7.36 | 8.01 |
| Phenols | mg/L | - | - | - | <0.001 | 0.001 | 0.016 | < 0.001 | < 0.001 | 0.089 | 0.106 | 0.004 | 0.01 | 0.072 | 0.018 | 0.087 | 0.032 | 0.004 |
| Phosphorus | mg/L | - | - | - | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 5.7 | 4.9 | 3.2 | 1.9 | 1.9 | 2.2 | 16.8 | 10.9 | 111 | 59.1 | 44.8 | 52.6 | 51.5 | 3.2 |
| Sodium | mg/L | 200 | 106 | 119 | 5.7 | 8.3 | **304** | **296** | 58.7 | 79.1 | 93.8 | 90.9 | 58.1 | 47.5 | 73.7 | 68.6 | 67.2 | 48.8 |
| Sulphate | mg/L | 500 | 251 | 252 | 17 | 14 | 36 | 16 | 113 | 4 | 4 | 57 | 9 | 2 | 42 | 14 | 15 | 14 |
| TDS | mg/L | 500 | 374 | 504 | 287 | 272 | **1370** | **901** | **665** | **1005** | **1133** | **1166** | **1150** | **1081** | **884** | **975** | **977** | 477 |
| Tot Kjel N | mg/L | - | - | - | 4.1 | 2.1 | 0.5 | 0.5 | 1.9 | 1.9 | 2.5 | 7.1 | 16.4 | 20.6 | 17.4 | 29.5 | 31 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 3.36 | 1.88 | 0.07 | 0.12 | 0.19 | 0.12 | 0.96 | 2.88 | 11.7 | 20.2 | 8.3 | 30.2 | 34.3 | 0.05 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 255 | 234 | **633** | 211 | **512** | **817** | **966** | **1040** | **910** | **845** | **639** | **645** | **631** | 358 |
| BOD | mg/L | - | - | - | | | -- | -- | | | | | | | | | | -- |
| Cyanide (free) | mg/L | - | - | - | | | -- | -- | | | | | | | | | | -- |
| TSS | mg/L | - | - | - | | | -- | -- | | | | | | | | | | -- |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.06 | 0.03 | 0.05 | 0.05 | 0.1 | **0.12** | **0.13** | **0.15** | **0.14** | 0.09 | **0.12** | 0.07 | 0.08 | 0.04 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | <0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0003 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0003 | 0.0007 | 0.0007 | 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0002 | 0.0004 | 0.0004 | 0.0011 | 0.0053 | 0.0144 | 0.0109 | 0.0133 | 0.007 | 0.0086 | 0.007 | 0.0068 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.026 | 0.02 | 0.358 | 0.147 | 0.166 | 0.411 | **1.07** | 0.825 | **2.19** | **1.33** | 0.725 | 0.595 | 0.603 | 0.141 |
| Beryllium | mg/L | - | - | - | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.064 | 0.09 | 0.06 | 0.045 | 0.832 | 0.88 | 0.398 | 1.5 | 1.64 | 0.49 | 0.759 | 0.892 | 0.873 | 0.006 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | <0.000015 | < 0.00002 | < 0.000020 | < 0.000015 | < 0.000015 | < 0.000029 | < 0.000029 | < 0.000015 | < 0.000012 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.01 | <0.01 | < 0.0002 | 0.016 | 0.001 | 0.002 | 0.003 | 0.002 | 0.002 | 0.003 | <0.01 | <0.01 | <0.01 | < 0.0002 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | <0.01 | | | | | | | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | |
| Cobalt | mg/L | - | - | - | 0.0006 | 0.0004 | < 0.005 | < 0.005 | 0.026 | 0.019 | 0.063 | 0.05 | 0.006 | 0.008 | 0.004 | 0.0301 | 0.0258 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0018 | 0.0019 | 0.0049 | 0.0058 | 0.0053 | 0.0027 | 0.0016 | 0.0016 | 0.0012 | 0.0003 | 0.0009 | 0.0001 | 0.0002 | 0.0013 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | <0.00002 | <0.00002 | 0.00002 | < 0.00002 | 0.00006 | 0.00003 | < 0.00009 | 0.00014 | 0.00006 | < 0.00004 | 0.00011 | <0.00002 | <0.00002 | 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0002 | 0.0032 | 0.0017 | 0.0035 | 0.0016 | 0.0009 | 0.0004 | 0.0002 | 0.0001 | 0.0008 | 0.0007 | 0.0001 |
| Nickel | mg/L | - | - | - | 0.0007 | 0.0009 | < 0.01 | < 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | < 0.01 | < 0.01 | 0.0083 | 0.0191 | 0.0183 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | <0.001 | < 0.001 | 0.002 | 0.002 | < 0.001 | 0.001 | < 0.001 | 0.002 | < 0.001 | <0.001 | <0.001 | <0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 |
| Strontium | mg/L | - | - | - | 0.233 | 0.232 | 0.462 | 0.138 | 0.275 | 0.466 | 0.757 | 0.804 | 0.898 | 0.774 | 0.579 | 0.579 | 0.568 | 0.28 |
| Thallium | mg/L | - | - | - | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0004 | 0.0003 | 0.0026 | 0.0042 | 0.0001 | 0.0061 | 0.0067 | 0.0076 | 0.009 | 0.0043 | 0.0026 | 0.0004 | 0.0004 | 0.0012 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | <0.005 | < 0.005 | < 0.005 | 0.007 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.011 | <0.005 | <0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | 6.6 | 10.4 | | | | | | | | | 6.9 | 13.3 | 13.3 | |
| Field pH | pH Unit | - | - | - | 7.74 | 6.86 | | | | | | | | | 6.9 | 6.57 | 6.57 | |
| Field Conductivity | umhos/cm | - | - | - | 523 | | | | | | | | | | 1367 | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW5A 17-Apr-17 | MW5A 12-Apr-19 | MW5A 22-Apr-20 | MW5A 19-Apr-21 | MW5A 20-Apr-22 | MW5A 19-Apr-23 | MW5A 17-Apr-24 | MW6 28-Apr-16 | MW6 17-Apr-17 | MW6 24-Apr-18 | MW6 11-Apr-19 | MW6 23-Apr-20 | MW6 20-Apr-21 | MW6 21-Apr-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 300 | ell Obstruct | ell Obstruct | **808** | **861** | **1070** | **1180** | **2270** | **2390** | **2540** | **2320** | **1610** | **1760** | **1350** |
| Calcium | mg/L | - | - | - | 118 | | | 271 | 255 | 255 | 234 | 418 | 495 | 502 | 443 | 334 | 363 | 362 |
| Chloride | mg/L | 250 | 134 | 194 | 54.5 | | | 178 | 201 | **276** | **274** | **308** | **351** | **374** | **375** | 208 | 228 | 179 |
| COD | mg/L | - | - | - | 27 | | | 332 | 278 | 393 | 301 | 577 | 418 | 441 | 443 | 352 | 432 | 305 |
| Specific Conductivity | umhos/cm | - | - | - | 780 | | | 2060 | 2280 | 2618 | 3060 | 4760 | 5070 | 5280 | 5160 | 3730 | 3880 | 3640 |
| DOC | mg/L | 5 | - | - | **9.1** | | | **22.5** | **71.7** | **11.1** | **109** | **51** | **92.3** | **98.3** | **71** | **75.7** | **28.3** | **18.5** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | 0.3 | | | < 0.1 | < 0.5 | < 0.1 | <0.7 | < 1 | **2.6** | < 1 | < 1 | < 1 | < 0.1 | < 1 |
| Iron | mg/L | 0.3 | - | - | **0.487** | | | **64.4** | **59** | **74.6** | **70.4** | **2.25** | **2.01** | **8.39** | **4.28** | **2.78** | **7.4** | **8.07** |
| Magnesium | mg/L | - | - | - | 7.37 | | | 40.6 | 41.7 | 48 | 49.3 | 62.2 | 67.5 | 77.1 | 62.8 | 57.6 | 60 | 56.4 |
| Manganese | mg/L | 0.05 | - | - | **0.077** | | | **1.08** | **0.971** | **1.1** | **0.932** | **1.08** | **1.4** | **1.46** | **1.15** | **1.04** | **1.21** | **1.3** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.2 | | | 0.11 | < 0.3 | < 0.05 | <0.40 | < 1 | 1.2 | < 0.5 | < 0.5 | 0.65 | < 0.05 | < 0.5 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | 0.3 | | | 0.07 | < 0.3 | < 0.05 | 0.52 | < 1 | **2.2** | < 0.5 | < 0.5 | < 0.5 | 0.06 | < 0.5 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.81 | | | 7.05 | 7.3 | 7.27 | 7.3 | 7.15 | 7.14 | 7.54 | 7.58 | 7.34 | 7.41 | 7.42 |
| Phenols | mg/L | - | - | - | < 0.001 | | | 0.092 | 0.016 | 0.006 | <0.001 | 0.022 | 0.114 | < 0.001 | 0.027 | < 0.002 | 0.002 | < 0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | | | < 0.1 | 0.1 | < 0.1 | <0.1 | 0.3 | 0.1 | 1 | 0.9 | 0.2 | 0.8 | 0.8 |
| Potassium | mg/L | - | - | - | 3 | | | 21.5 | 44.8 | 78.2 | 109 | 137 | 155 | 164 | 165 | 129 | 112 | 110 |
| Sodium | mg/L | 200 | 106 | 119 | 29.8 | | | 183 | 191 | **244** | **222** | **318** | **323** | **407** | **376** | **254** | **241** | **215** |
| Sulphate | mg/L | 500 | 251 | 252 | 14 | | | 10 | < 5 | 6 | 25 | < 10 | < 10 | < 10 | < 10 | < 10 | 2 | < 10 |
| TDS | mg/L | 500 | 374 | 504 | 410 | | | **1199** | **1251** | **1685** | **1710** | **2830** | **3080** | **3317** | **3095** | **2143** | **2266** | **1735** |
| Tot Kjel N | mg/L | - | - | - | 0.5 | | | 7.6 | 34.8 | 53.5 | 92.4 | 219 | 204 | 206 | 205 | 183 | 184 | 169 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.1 | | | 7.7 | 24.9 | 45.6 | 84.5 | 171 | 182 | 199 | 209 | 152 | 159 | 109 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 325 | | | **844** | **809** | **835** | **788** | **1300** | **1510** | **1570** | **1370** | **1070** | **1150** | **1140** |
| BOD | mg/L | - | - | - | -- | | | | | | | -- | -- | | | | | |
| Cyanide (free) | mg/L | - | - | - | -- | | | | | | | -- | -- | | | | | |
| TSS | mg/L | - | - | - | -- | | | | | | | -- | -- | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.06 | | | **0.13** | **0.19** | 0.1 | **0.34** | 0.08 | **0.16** | **0.44** | **0.16** | **0.13** | **0.25** | **0.16** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | | | 0.0007 | 0.0007 | 0.0006 | 0.0004 | 0.0006 | 0.0006 | 0.0006 | 0.0004 | 0.0003 | 0.0006 | 0.0004 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0004 | | | 0.0036 | 0.0041 | 0.0046 | 0.0086 | 0.0037 | 0.006 | 0.0017 | 0.0019 | 0.001 | 0.0011 | 0.0012 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.124 | | | 0.819 | **1.14** | **1.58** | **1.83** | 0.146 | 0.224 | 0.266 | 0.222 | 0.139 | 0.17 | 0.168 |
| Beryllium | mg/L | - | - | - | < 0.002 | | | < 0.002 | < 0.002 | < 0.002 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.02 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.031 | | | 1.64 | 2.39 | 2.97 | 2.5 | 1.23 | 1.42 | 1.48 | 1.57 | 2.04 | 2.02 | 1.96 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000020 | | | < 0.000029 | < 0.000029 | < 0.000029 | 0.000028 | < 0.00002 | < 0.000020 | < 0.000059 | < 0.000015 | < 0.000029 | < 0.000059 | < 0.000029 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.001 | | | 0.008 | 0.008 | 0.007 | <0.01 | < 0.0002 | < 0.001 | 0.004 | 0.005 | 0.002 | < 0.01 | 0.002 |
| Chromium (VI) | mg/L | - | - | - | | | | | < 0.001 | < 0.001 | <0.01 | | | | | | | < 0.001 |
| Cobalt | mg/L | - | - | - | < 0.005 | | | 0.009 | 0.013 | 0.031 | 0.0471 | 0.009 | 0.009 | 0.012 | 0.007 | 0.005 | < 0.05 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0015 | | | 0.0023 | 0.0018 | 0.0003 | 0.0036 | 0.0025 | 0.0035 | 0.0009 | 0.0004 | 0.0004 | 0.0004 | 0.0079 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | | | 0.00014 | 0.00083 | < 0.00009 | 0.00074 | 0.00005 | < 0.00002 | 0.0004 | 0.00004 | < 0.00009 | < 0.0002 | 0.00029 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | | | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0001 | | | 0.0012 | 0.001 | 0.0013 | 0.0019 | 0.0004 | 0.0004 | 0.0007 | 0.0005 | 0.0002 | < 0.0004 | 0.001 |
| Nickel | mg/L | - | - | - | < 0.01 | | | 0.02 | 0.03 | 0.03 | 0.0497 | 0.02 | 0.02 | 0.02 | 0.02 | < 0.01 | < 0.1 | 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.002 | | | < 0.001 | 0.003 | 0.003 | <0.001 | 0.002 | < 0.001 | **0.023** | 0.006 | 0.002 | < 0.002 | 0.004 |
| Silver | mg/L | - | - | - | < 0.00002 | | | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.0002 | < 0.0002 | < 0.0001 | < 0.0002 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.221 | | | 0.99 | 0.825 | 0.948 | 0.893 | 1.52 | 1.62 | 1.87 | 1.65 | 1.27 | 1.4 | 1.39 |
| Thallium | mg/L | - | - | - | < 0.00005 | | | < 0.00005 | 0.007 | < 0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 |
| Vanadium | mg/L | - | - | - | 0.0018 | | | 0.0078 | 0.0109 | 0.0115 | 0.0115 | 0.0113 | 0.0211 | 0.0009 | 0.0005 | 0.0004 | < 0.0007 | 0.0007 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | | | < 0.005 | < 0.005 | < 0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.05 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | 9.1 | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | 10.8 | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | 2264 | | | | | | | |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW6 19-Apr-23 | MW6 17-Apr-24 | MW6 23-Apr-25 | MW6A 28-Apr-16 | MW6A 17-Apr-17 | MW6A 24-Apr-18 | MW6A 11-Apr-19 | MW6A 23-Apr-20 | MW6A 20-Apr-21 | MW6A 21-Apr-22 | MW6A 19-Apr-23 | MW6A 17-Apr-24 | MW7 17-Apr-17 | MW7 25-Apr-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | **1330** | **1690** | **1400** | **2190** | **2230** | **2190** | **2040** | **1430** | **1500** | **1320** | **1260** | 391 | **2840** | **2710** |
| Calcium | mg/L | - | - | - | 360 | 333 | 325 | 395 | 455 | 404 | 376 | 311 | 361 | 308 | 274 | 149 | 206 | 198 |
| Chloride | mg/L | 250 | 134 | 194 | 180 | 182 | 226 | **266** | 26.9 | **279** | **282** | 156 | 158 | 126 | 109 | 4.7 | **594** | **519** |
| COD | mg/L | - | - | - | 326 | 426 | 790 | 339 | 406 | 520 | 395 | 837 | 468 | 259 | 195 | 53 | 5800 | 4120 |
| Specific Conductivity | umhos/cm | - | - | - | 3145 | 3510 | 3620 | 4460 | 4520 | 4310 | 4510 | 3180 | 3310 | 2990 | 2284 | 750 | 7030 | 6610 |
| DOC | mg/L | 5 | - | - | **62.8** | **81.4** | **56.4** | **49** | **87.7** | **24.4** | **26.7** | **59.2** | **69.7** | **16.4** | **9.9** | **13.8** | **130** | **105** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | <0.7 | <0.7 | < 1 | 0.4 | < 1 | < 1 | < 0.1 | < 1 | < 1 | < 0.1 | <0.1 | **6.5** | < 1 |
| Iron | mg/L | 0.3 | - | - | **9.6** | **9.95** | 0.156 | **6.03** | **12.3** | 0.228 | **21.9** | **18.9** | **24.6** | **29.3** | **26.6** | **35.8** | **13.3** | **22.2** |
| Magnesium | mg/L | - | - | - | 56.3 | 51.7 | 50.8 | 61 | 65.2 | 56.3 | 52.6 | 49.4 | 52.1 | 37.4 | 26.3 | 4.55 | 79.4 | 79.6 |
| Manganese | mg/L | 0.05 | - | - | **1.44** | **1.42** | **1.41** | **1.28** | **1.7** | **1.49** | **1.56** | **1.46** | **1.75** | **1.65** | **1.32** | **0.779** | **0.15** | **0.139** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.14 | <0.40 | <0.40 | < 1 | < 0.1 | < 0.5 | < 0.5 | < 0.05 | < 0.5 | < 0.5 | < 0.05 | <0.05 | 2.5 | < 0.5 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | 0.5 | <0.40 | < 1 | 0.2 | < 0.5 | < 0.5 | < 0.05 | < 0.5 | < 0.5 | < 0.05 | 0.05 | **4.5** | < 0.5 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.53 | 7.37 | 7.3 | 7.17 | 7.17 | 7.58 | 7.58 | 7.29 | 7.21 | 7.43 | 7.51 | 7.32 | 7.2 | 7.67 |
| Phenols | mg/L | - | - | - | < 0.001 | <0.001 | 0.006 | 0.034 | < 0.001 | < 0.001 | < 0.002 | < 0.002 | 0.002 | < 0.001 | < 0.001 | <0.001 | 0.032 | 0.014 |
| Phosphorus | mg/L | - | - | - | 0.8 | 0.8 | <0.1 | 0.4 | 0.2 | < 0.1 | <0.1 | 0.1 | < 0.1 | 0.3 | 0.2 | 0.3 | 0.6 | 1 |
| Potassium | mg/L | - | - | - | 100 | 95.9 | 95.1 | 129 | 133 | 124 | 136 | 94 | 89.7 | 67.2 | 44 | 3.4 | 294 | 291 |
| Sodium | mg/L | 200 | 106 | 119 | **205** | 200 | **203** | **286** | **279** | **286** | **298** | 181 | 190 | 127 | 86.1 | 3.8 | **513** | **565** |
| Sulphate | mg/L | 500 | 251 | 252 | < 1 | 14 | <2 | < 10 | < 1 | < 10 | < 10 | 6 | < 10 | < 10 | 3 | 1 | 32 | 13 |
| TDS | mg/L | 500 | 374 | 504 | **1870** | **1970** | **1740** | **2670** | **2500** | **2682** | **2650** | **1811** | **1916** | **1457** | **1425** | 392 | **4150** | **3890** |
| Tot Kjel N | mg/L | - | - | - | 146 | 154 | 161 | 200 | 172 | 186 | 178 | 152 | 157 | 94.7 | 84.8 | 4.4 | 554 | 669 |
| Ammonia (NH3-N) | mg/L | - | - | - | 126 | 150 | 126 | 157 | 150 | 167 | 197 | 120 | 126 | 94.5 | 78.7 | 3.65 | 527 | 448 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **1130** | **1040** | **1020** | **1240** | **1410** | **1240** | **1160** | **981** | **1120** | **924** | **792** | 391 | **841** | **822** |
| BOD | mg/L | - | - | - | | | | -- | -- | | | | | | | | -- | |
| Cyanide (free) | mg/L | - | - | - | | | | -- | -- | | | 156 | | | | | -- | |
| TSS | mg/L | - | - | - | | | | -- | -- | | | | | | | | -- | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.11** | **0.14** | **0.11** | 0.08 | **0.15** | **0.13** | **0.15** | **0.13** | **0.31** | **0.15** | 0.09 | **0.14** | 0.1 | **0.28** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0003 | 0.0003 | 0.0007 | 0.0005 | 0.0005 | 0.0003 | 0.0004 | 0.0003 | 0.0006 | 0.0003 | 0.0002 | 0.0002 | 0.001 | 0.001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0009 | 0.0012 | 0.0024 | 0.0023 | 0.0058 | < 0.0005 | 0.0023 | 0.0011 | 0.0014 | 0.0007 | 0.0006 | 0.0011 | 0.0139 | 0.0027 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.166 | 0.165 | 0.14 | 0.169 | 0.235 | 0.183 | 0.24 | 0.167 | 0.19 | 0.175 | 0.147 | 0.098 | 0.658 | 0.64 |
| Beryllium | mg/L | - | - | - | < 0.002 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.02 | < 0.002 | < 0.002 | <0.0001 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 1.83 | 1.66 | 1.65 | 1.52 | 1.65 | 1.53 | 1.74 | 1.8 | 1.79 | 1.24 | 0.77 | 0.089 | 4.35 | 4.3 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000029 | <0.000015 | <0.000030 | < 0.00002 | < 0.000020 | < 0.000059 | < 0.000015 | < 0.000029 | < 0.000029 | < 0.000029 | < 0.000029 | 0.00002 | < 0.000020 | < 0.000059 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.002 | <0.01 | <0.01 | < 0.0002 | 0.002 | 0.003 | 0.003 | 0.002 | < 0.01 | 0.001 | < 0.001 | <0.01 | < 0.001 | 0.011 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | <0.01 | <0.01 | | | | | | | < 0.001 | < 0.001 | <0.01 | | |
| Cobalt | mg/L | - | - | - | 0.012 | 0.0052 | 0.0065 | 0.008 | 0.008 | 0.014 | 0.009 | < 0.005 | < 0.05 | < 0.005 | 0.008 | 0.0009 | 0.022 | 0.02 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0003 | 0.0013 | 0.0026 | 0.0023 | 0.0035 | 0.0011 | 0.0006 | 0.0011 | 0.002 | 0.0005 | 0.0004 | 0.0019 | 0.0059 | 0.0006 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00009 | 0.00006 | 0.00014 | 0.00003 | < 0.00002 | < 0.0002 | 0.00004 | < 0.00009 | 0.00033 | 0.00014 | < 0.00009 | 0.00076 | < 0.00002 | 0.00078 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0002 | 0.0002 | 0.0045 | 0.0002 | 0.0007 | 0.0006 | 0.0004 | 0.0061 | 0.0008 | < 0.0002 | < 0.0002 | 0.0002 | 0.001 | 0.0008 |
| Nickel | mg/L | - | - | - | < 0.01 | 0.0108 | 0.027 | 0.01 | 0.01 | 0.02 | 0.01 | < 0.01 | < 0.1 | < 0.01 | < 0.01 | 0.0032 | 0.02 | 0.03 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.003 | <0.001 | <0.001 | 0.002 | < 0.001 | 0.007 | 0.006 | 0.002 | 0.002 | 0.003 | 0.002 | <0.001 | < 0.001 | **0.024** |
| Silver | mg/L | - | - | - | < 0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.0002 | < 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | 0.00003 | < 0.0002 |
| Strontium | mg/L | - | - | - | 1.46 | 1.39 | 1.41 | 1.57 | 1.65 | 1.51 | 1.63 | 1.29 | 1.46 | 1.16 | 0.895 | 0.27 | 1.2 | 1.13 |
| Thallium | mg/L | - | - | - | < 0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.00005 | <0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0006 | 0.0006 | 0.002 | 0.0098 | 0.0137 | 0.0003 | 0.0006 | 0.0004 | 0.0009 | 0.0004 | 0.0005 | 0.0009 | 0.028 | 0.0054 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | <0.005 | 0.01 | < 0.005 | 0.005 | 0.056 | 0.005 | < 0.005 | < 0.05 | <0.005 | < 0.005 | 0.016 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | 7.4 | 8.7 | | | | | | | | | 6.5 | | |
| Field pH | pH Unit | - | - | - | | 6.6 | 7.63 | | | | | | | | | 7.26 | | |
| Field Conductivity | umhos/cm | - | - | - | | 2462 | | | | | | | | | | 808 | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW7 11-Apr-19 | MW7 23-Apr-20 | MW7 19-Apr-21 | MW7 21-Apr-22 | MW7 19-Apr-23 | MW7 17-Apr-24 | MW7 23-Apr-25 | MW10 27-Apr-16 | MW10 03-Oct-16 | MW10 17-Apr-17 | MW10 24-Oct-17 | MW10 25-Apr-18 | MW10 15-Oct-18 | MW10 11-Apr-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | **2570** | **2290** | **2410** | **2240** | **2510** | **2160** | **2500** | **1710** | **1750** | **1810** | **1930** | **1960** | **1760** | **1770** |
| Calcium | mg/L | - | - | - | 178 | 175 | 166 | 169 | 165 | 157 | 163 | 251 | 296 | 275 | 314 | 271 | 287 | 312 |
| Chloride | mg/L | 250 | 134 | 194 | **651** | **687** | **678** | **629** | **629** | **672** | **799** | 209 | 203 | 214 | 235 | 26.1 | 246 | **251** |
| COD | mg/L | - | - | - | 1140 | 1070 | 890 | 757 | 641 | 634 | 627 | 235 | 216 | 237 | 294 | 313 | 269 | 280 |
| Specific Conductivity | umhos/cm | - | - | - | 6950 | 6650 | 6790 | 6850 | 6089 | 6670 | 6900 | 3690 | 3740 | 3920 | 4170 | 4180 | 3780 | 4130 |
| DOC | mg/L | 5 | - | - | **120** | **94** | **23.8** | **68.6** | **25.3** | **175** | **78.4** | **73** | **27.1** | **85.4** | **27.5** | **93.7** | **88.5** | **27.7** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 3 | < 1 | < 0.1 | < 3 | < 1 | <0.7 | <0.7 | 0.1 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 1 | < 1 |
| Iron | mg/L | 0.3 | - | - | **15.8** | **0.833** | **22.8** | **23.6** | **0.577** | **0.53** | **25.2** | **11.9** | **15.6** | **17** | **18.8** | 0.274 | **6.01** | **16** |
| Magnesium | mg/L | - | - | - | 78.9 | 79.8 | 80.6 | 76.3 | 78 | 74.5 | 77.4 | 45.6 | 40.4 | 47.5 | 57.9 | 53.3 | 47.3 | 47.4 |
| Manganese | mg/L | 0.05 | - | - | **0.108** | **0.117** | **0.12** | **0.117** | **0.118** | **0.114** | **0.127** | **0.671** | **0.752** | **0.779** | **1.02** | **0.818** | **0.885** | **0.872** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 1 | 0.72 | < 0.05 | < 1 | < 0.5 | <0.40 | <0.40 | < 0.1 | 0.4 | 0.1 | < 0.05 | < 0.05 | 0.58 | < 0.5 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 1 | < 0.5 | 0.08 | < 1 | < 0.5 | <0.40 | <0.40 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.5 | < 0.5 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.58 | 7.49 | 7.14 | 7.54 | 7.6 | 7.43 | 7.46 | 7.27 | 7.13 | 7.34 | 6.97 | 7.51 | 7.41 | 7.52 |
| Phenols | mg/L | - | - | - | 0.015 | 0.009 | 0.01 | 0.008 | < 0.01 | 0.015 | 0.015 | 0.018 | 0.028 | 0.028 | 0.023 | 0.006 | 0.018 | < 0.002 |
| Phosphorus | mg/L | - | - | - | 0.7 | < 0.1 | 0.8 | 0.8 | < 0.1 | <0.1 | 0.9 | 0.4 | 0.4 | 0.4 | 0.4 | < 0.1 | 0.1 | 0.4 |
| Potassium | mg/L | - | - | - | 306 | 283 | 285 | 275 | 269 | 256 | 267 | 172 | 171 | 192 | 189 | 171 | 174 | 193 |
| Sodium | mg/L | 200 | 106 | 119 | **541** | **510** | **542** | **495** | **497** | **484** | **517** | 195 | 192 | **219** | **241** | **235** | **209** | **221** |
| Sulphate | mg/L | 500 | 251 | 252 | 28 | 19 | 7 | < 30 | < 10 | 35 | 11 | 1 | < 1 | < 1 | 3 | < 1 | < 10 | < 10 |
| TDS | mg/L | 500 | 374 | 504 | **3865** | **3659** | **3818** | **2987** | **3694** | **3800** | **3360** | **2150** | **2180** | **2270** | **2462** | **2211** | **2284** | **2408** |
| Tot Kjel N | mg/L | - | - | - | 471 | 497 | 526 | 455 | 534 | 495 | 518 | 203 | 178 | 205 | 209 | 216 | 205 | 195 |
| Ammonia (NH3-N) | mg/L | - | - | - | 408 | 413 | 477 | 423 | 427 | 545 | 532 | 182 | 160 | 181 | 188 | 216 | 201 | 234 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **769** | **765** | **746** | **736** | **686** | **706** | **725** | **814** | **906** | **883** | **1020** | **897** | **912** | **975** |
| BOD | mg/L | - | - | - | | | | | | | | -- | -- | -- | -- | | | |
| Cyanide (free) | mg/L | - | - | - | | 687 | | | | | | -- | -- | -- | -- | | | |
| TSS | mg/L | - | - | - | | | | | | | | 0.582 | 0.583 | -- | -- | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.1 | 0.09 | 0.1 | 0.09 | 0.08 | 0.08 | 0.08 | **0.12** | **0.15** | **0.17** | **0.18** | 0.1 | 0.1 | **0.14** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0008 | 0.001 | 0.001 | 0.0013 | 0.0008 | 0.0012 | 0.0007 | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0005 | 0.0003 | 0.0004 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.004 | 0.002 | 0.003 | 0.003 | 0.0029 | 0.0032 | 0.0031 | 0.0029 | 0.0014 | 0.0032 | 0.002 | 0.0011 | 0.001 | 0.0013 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.562 | 0.466 | 0.51 | 0.519 | 0.273 | 0.263 | 0.541 | 0.557 | 0.678 | 0.747 | 0.852 | 0.587 | 0.786 | 0.94 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.02 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 4.34 | 4.16 | 4.09 | 3.75 | 3.77 | 3.94 | 3.93 | 1.45 | 1.09 | 1.85 | 2.17 | 2.07 | 1.31 | 1.46 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000059 | < 0.000059 | < 0.000059 | < 0.000059 | 0.000095 | <0.000015 | < 0.00002 | 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.011 | 0.008 | 0.01 | 0.01 | 0.006 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | 0.002 | 0.003 | 0.003 | 0.002 | 0.003 |
| Chromium (VI) | mg/L | - | - | - | | | | < 0.001 | < 0.001 | <0.01 | <0.01 | | | | | | | |
| Cobalt | mg/L | - | - | - | 0.015 | 0.015 | < 0.05 | 0.016 | 0.019 | 0.0096 | 0.0137 | 0.015 | 0.005 | 0.005 | 0.005 | 0.01 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0005 | < 0.0003 | 0.0014 | 0.0008 | < 0.0003 | 0.0073 | 0.0002 | 0.0013 | 0.0012 | 0.0022 | 0.0008 | 0.0003 | 0.0002 | 0.003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00037 | < 0.0002 | 0.00031 | 0.00041 | 0.00019 | 0.00144 | 0.00039 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00006 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.001 | 0.0008 | 0.0007 | 0.0007 | 0.0006 | 0.0005 | 0.0007 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 |
| Nickel | mg/L | - | - | - | 0.02 | 0.02 | < 0.1 | 0.02 | 0.04 | 0.0242 | 0.0219 | < 0.01 | < 0.01 | < 0.01 | 0.01 | 0.01 | 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.009 | 0.004 | 0.004 | 0.008 | 0.005 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | **0.02** | 0.002 | 0.005 |
| Silver | mg/L | - | - | - | <0.0001 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | 0.0002 | < 0.0001 |
| Strontium | mg/L | - | - | - | 1.1 | 1.02 | 0.99 | 0.948 | 0.914 | 0.919 | 0.931 | 1.08 | 1.07 | 1 | 1.24 | 1.09 | 1.15 | 1.22 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | 0.014 | < 0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0059 | 0.0011 | 0.0053 | 0.005 | 0.005 | 0.0079 | 0.0051 | 0.0137 | 0.0117 | 0.0187 | 0.0096 | 0.0055 | 0.0043 | 0.0062 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.05 | 0.016 | < 0.005 | 0.008 | 0.016 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.006 | 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | 11.1 | 13.2 | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | 6.98 | 7.74 | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | 3999 | | | | | | | | |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW10 21-Oct-19 | MW10 23-Apr-20 | MW10 19-Oct-20 | MW10 19-Apr-21 | MW10 27-Oct-21 | MW10 21-Apr-22 | MW10 26-Oct-22 | MW10 19-Apr-23 | MW10 11-Oct-23 | MW10 17-Apr-24 | MW10 07-Oct-24 | MW10 23-Apr-25 | MW10 01-Oct-25 | MW11A 28-Apr-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | **1600** | **1390** | **1730** | **1420** | **1660** | **1690** | DRY | **1470** | **1390** | **1580** | **1800** | **1800** | **1650** | 326 |
| Calcium | mg/L | - | - | - | 267 | 263 | 315 | 263 | 322 | 321 | | 300 | 236 | 269 | 292 | 262 | 267 | 145 |
| Chloride | mg/L | 250 | 134 | 194 | 243 | **272** | **299** | 232 | **257** | **271** | | 226 | 248 | 226 | 249 | **268** | 216 | 149 |
| COD | mg/L | - | - | - | 270 | 266 | 290 | 244 | 248 | 256 | | 223 | 224 | 241 | 276 | 261 | 234 | 45 |
| Specific Conductivity | umhos/cm | - | - | - | 3950 | 3820 | 4210 | 3650 | 3800 | 4060 | | 3393 | 3630 | 3840 | 4130 | 3950 | 3890 | 1070 |
| DOC | mg/L | 5 | - | - | **93.1** | **76.1** | **19.3** | **32** | **76.7** | **69** | | **10.8** | **25.7** | **102** | **91.4** | **80.1** | **22.3** | **5.1** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 1 | < 1 | < 1 | < 0.1 | < 1 | < 1 | | < 0.5 | <0.1 | <0.7 | <0.7 | <0.7 | <0.7 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **18.1** | 0.262 | **16.3** | **15.8** | **13.3** | **9.86** | | **9.13** | **7.83** | **13** | **12.3** | **15.2** | **13.4** | **2.61** |
| Magnesium | mg/L | - | - | - | 46.4 | 45 | 53.8 | 43.3 | 39.6 | 46.1 | | 43.3 | 37.7 | 48.1 | 58.2 | 53.2 | 53.1 | 5.12 |
| Manganese | mg/L | 0.05 | - | - | **0.722** | **0.765** | **1.08** | **0.77** | **0.831** | **0.851** | | **0.886** | **0.726** | **0.888** | **1.04** | **0.935** | **0.977** | **0.298** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.5 | 0.8 | 0.73 | < 0.05 | < 0.5 | < 0.5 | | < 0.3 | <0.05 | <0.40 | <0.40 | <0.40 | <0.40 | < 0.1 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.5 | < 0.5 | < 0.5 | 0.06 | < 0.5 | < 0.5 | | < 0.3 | <0.05 | 0.51 | <0.40 | <0.40 | <0.40 | < 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.33 | 7.3 | 7.1 | 7.13 | 7.46 | 7.48 | | 7.5 | 7.27 | 7.31 | 7.72 | 7.53 | 7.45 | 7.54 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.002 | 0.005 | 0.005 | < 0.002 | < 0.001 | | < 0.001 | <0.001 | <0.001 | <0.001 | 0.006 | 0.004 | 0.026 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | 0.4 | 0.2 | 0.3 | 0.3 | | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | < 0.1 |
| Potassium | mg/L | - | - | - | 188 | 183 | 187 | 172 | 204 | 185 | | 181 | 145 | 168 | 184 | 178 | 178 | 1.6 |
| Sodium | mg/L | 200 | 106 | 119 | **217** | **219** | **246** | **210** | **209** | **226** | | **209** | 171 | **211** | **250** | **242** | **218** | 46.8 |
| Sulphate | mg/L | 500 | 251 | 252 | < 10 | < 10 | < 10 | < 1 | < 10 | < 10 | | < 5 | <2 | 13 | <2 | <2 | 3 | 7 |
| TDS | mg/L | 500 | 374 | 504 | **2192** | **2055** | **2159** | **2016** | **2282** | **2066** | | **2044** | **2040** | **2160** | **2320** | **2100** | **2240** | **554** |
| Tot Kjel N | mg/L | - | - | - | 197 | 218 | 216 | 220 | 173 | 198 | | 171 | 187 | 245 | 250 | 248 | 201 | 0.8 |
| Ammonia (NH3-N) | mg/L | - | - | - | 206 | 185 | 207 | 189 | 187 | 175 | | 152 | 175 | 191 | 231 | 185 | 153 | 0.24 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **858** | **842** | **1010** | **835** | **968** | **992** | | **927** | **745** | **870** | **970** | **873** | **886** | 384 |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | | -- |
| Cyanide (free) | mg/L | - | - | - | | 272 | 299 | | | | | | | | | | | -- |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | | -- |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.14** | **0.11** | **0.18** | **0.26** | **0.17** | **0.17** | | **0.15** | **0.16** | **0.15** | **0.18** | **0.17** | **0.15** | 0.05 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0004 | 0.0003 | 0.0007 | 0.0004 | 0.0003 | 0.0004 | | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0007 | 0.0007 | 0.0008 | 0.0007 | 0.0006 | 0.0009 | | 0.0007 | 0.0007 | 0.0009 | 0.001 | 0.001 | 0.0008 | 0.0008 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.58 | 0.682 | 0.915 | 0.71 | 0.985 | 0.96 | | 0.91 | 0.718 | 0.851 | 0.912 | 0.823 | 0.741 | 0.039 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.02 | < 0.002 | < 0.002 | | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 1.23 | 1.56 | 1.86 | 1.43 | 0.948 | 1.35 | | 1.43 | 0.891 | 1.8 | 1.81 | 1.97 | 1.6 | < 0.005 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000059 | < 0.000029 | < 0.000059 | < 0.000029 | < 0.000059 | < 0.000029 | | < 0.000029 | <0.000030 | <0.000015 | <0.000015 | <0.000015 | <0.000030 | < 0.00002 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.002 | < 0.001 | 0.002 | < 0.01 | 0.003 | 0.004 | | 0.003 | 0.003 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 |
| Chromium (VI) | mg/L | - | - | - | | | | | | < 0.001 | | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | |
| Cobalt | mg/L | - | - | - | 0.007 | 0.005 | 0.007 | < 0.05 | 0.008 | 0.005 | | 0.011 | 0.0053 | 0.0056 | 0.0061 | 0.0059 | 0.0059 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0019 | 0.0003 | 0.003 | 0.0008 | 0.0005 | 0.0004 | | 0.0002 | 0.002 | 0.0014 | 0.0003 | 0.0002 | 0.0019 | 0.0011 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.0002 | < 0.00009 | 0.00018 | < 0.00009 | < 0.0002 | < 0.00009 | | < 0.00009 | 0.00009 | <0.00004 | <0.00004 | <0.00004 | <0.00009 | 0.00005 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0004 | 0.0002 | < 0.0004 | < 0.0002 | < 0.0004 | < 0.0002 | | < 0.0002 | <0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.1 | < 0.01 | 0.01 | | < 0.01 | 0.0073 | 0.0093 | 0.0093 | 0.0089 | 0.011 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.004 | 0.003 | 0.003 | 0.002 | 0.003 | 0.005 | | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 | 0.003 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0002 | < 0.0001 | < 0.0002 | < 0.0001 | < 0.0002 | < 0.0001 | | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 |
| Strontium | mg/L | - | - | - | 1.1 | 1 | 1.21 | 1 | 1.12 | 1.01 | | 0.972 | 0.85 | 0.976 | 1.18 | 1.08 | 1.15 | 0.332 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | 0.00021 | < 0.00005 | 0.0001 | 0.007 | | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0057 | 0.0054 | 0.0056 | 0.0055 | 0.0067 | 0.0073 | | 0.0061 | 0.0063 | 0.0058 | 0.0065 | 0.0064 | 0.0061 | 0.0017 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.05 | < 0.005 | < 0.005 | | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | 6.5 | 11.9 | 11.1 | 12.5 | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | 7.1 | 7.02 | 6.55 | 6.97 | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | 3999 | 3920 | 2562 | 337 | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW11A 03-Oct-16 | MW11A 17-Apr-17 | MW11A 23-Oct-17 | MW11A 25-Apr-18 | MW11A 15-Oct-18 | MW11A 11-Apr-19 | MW11A 21-Oct-19 | MW11A 22-Apr-20 | MW11A 19-Oct-20 | MW11A 19-Apr-21 | MW11A 27-Oct-21 | MW11A 20-Apr-22 | MW11A 26-Oct-22 | MW11A 26-Oct-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 242 | 267 | 221 | 282 | 296 | 229 | 218 | 209 | 259 | 204 | 303 | 302 | 278 | 273 |
| Calcium | mg/L | - | - | - | 113 | 133 | 182 | 123 | 148 | 114 | 111 | 113 | 158 | 110 | 158 | 156 | 224 | 224 |
| Chloride | mg/L | 250 | 134 | 194 | 86.7 | 135 | 181 | 83.6 | 107 | 57 | 45.3 | 96.9 | 148 | 26.5 | 128 | 94.7 | 237 | 242 |
| COD | mg/L | - | - | - | 13 | 42 | 73 | 29 | 43 | 51 | 31 | 34 | 22 | 33 | 28 | 31 | 23 | 23 |
| Specific Conductivity | umhos/cm | - | - | - | 736 | 964 | 1090 | 802 | 899 | 655 | 597 | 717 | 1010 | 503 | 957 | 874 | 1450 | 1440 |
| DOC | mg/L | 5 | - | - | **7.9** | 4.7 | **7.3** | **7.2** | **9.4** | **14.7** | **10.3** | **6.3** | 4.4 | **13.9** | **7.8** | **5.4** | 1.8 | 1.8 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | 0.4 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.898** | 0.128 | **3.33** | **1.23** | **2.53** | **1.9** | **0.941** | 0.062 | **1.66** | **2.44** | **2.79** | 2 | **4.6** | **4.61** |
| Magnesium | mg/L | - | - | - | 3.57 | 4.15 | 7.22 | 3.62 | 5.22 | 3.26 | 3.4 | 3.45 | 4.55 | 3.28 | 4.68 | 4.89 | 7.01 | 7.17 |
| Manganese | mg/L | 0.05 | - | - | **0.119** | **0.347** | **0.373** | **0.194** | **0.238** | **0.194** | **0.1** | **0.105** | **0.148** | **0.229** | **0.241** | **0.104** | **0.382** | **0.392** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.07 | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.63 | 7.84 | 7.42 | 7.77 | 7.6 | 7.81 | 7.7 | 7.67 | 7.46 | 7.57 | 7.62 | 7.42 | 7.37 | 7.41 |
| Phenols | mg/L | - | - | - | 0.021 | 0.003 | 0.009 | < 0.001 | 0.005 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 1.6 | 1 | 2.5 | 1.4 | 2.1 | 1 | 1.5 | 0.9 | 1.8 | 1 | 1.6 | 1.4 | 2.7 | 2.7 |
| Sodium | mg/L | 200 | 106 | 119 | 51.6 | 48.2 | 37.4 | 39.7 | 36.6 | 20.1 | 22.6 | 26.5 | 60.7 | 11.3 | 60.3 | 57.8 | 41.2 | 40.5 |
| Sulphate | mg/L | 500 | 251 | 252 | 7 | 9 | 10 | 4 | 7 | 7 | 4 | 5 | 8 | 2 | 5 | 4 | 6 | 6 |
| TDS | mg/L | 500 | 374 | 504 | 410 | 493 | **556** | 426 | 486 | 342 | 320 | 371 | **539** | 277 | **543** | 500 | **690** | **691** |
| Tot Kjel N | mg/L | - | - | - | 0.7 | 0.6 | 1.6 | 0.6 | 0.6 | 0.8 | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 2.7 | 0.8 | 0.8 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.15 | 0.15 | 0.17 | 0.14 | 0.17 | 0.14 | 0.12 | 0.07 | 0.06 | 0.11 | 0.12 | 2.49 | 0.19 | 0.17 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 298 | 351 | 485 | 322 | 391 | 298 | 291 | 297 | 415 | 288 | 414 | 410 | **589** | **589** |
| BOD | mg/L | - | - | - | -- | -- | -- | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | -- | -- | -- | | | | | | | | | | | |
| TSS | mg/L | - | - | - | -- | -- | -- | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | **0.58** | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.06 | 0.06 | 0.07 | 0.1 | 0.09 | 0.07 | 0.07 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0003 | 0.0008 | 0.0012 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | < 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.031 | 0.053 | 0.057 | 0.033 | 0.048 | 0.025 | 0.027 | 0.022 | 0.042 | 0.024 | 0.047 | 0.039 | 0.066 | 0.067 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.017 | 0.026 | 0.019 | 0.014 | 0.016 | 0.013 | 0.018 | 0.013 | 0.022 | 0.012 | 0.025 | 0.026 | 0.015 | 0.014 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000012 | < 0.000012 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.0002 | 0.003 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | < 0.001 | < 0.001 | < 0.001 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0008 | 0.0048 | 0.0002 | 0.0003 | 0.0003 | < 0.0001 | 0.0009 | 0.0005 | 0.0019 | 0.0006 | 0.0005 | 0.0004 | 0.0002 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00004 | 0.00097 | < 0.00002 | 0.00003 | 0.00002 | 0.00002 | 0.00002 | < 0.00002 | 0.00007 | 0.00003 | 0.00002 | 0.00002 | < 0.00004 | < 0.00004 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | 0.003 | < 0.001 | 0.005 | 0.002 | < 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.002 | 0.002 | 0.005 | 0.006 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.246 | 0.327 | 0.366 | 0.262 | 0.325 | 0.248 | 0.258 | 0.237 | 0.375 | 0.228 | 0.409 | 0.362 | 0.609 | 0.599 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium | mg/L | - | - | - | 0.0022 | 0.006 | 0.0013 | 0.0014 | 0.0016 | 0.0023 | 0.0013 | 0.001 | 0.0015 | 0.0028 | 0.0018 | 0.0015 | 0.0011 | 0.0011 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW11A | MW11A | MW11A | MW11A | MW11A | MW11A | MW12 | MW12 | MW12 | MW12 | MW12 | MW12 | MW12 | MW12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 19-Apr-23 | 12-Oct-23 | 17-Apr-24 | 07-Oct-24 | 23-Apr-25 | 01-Oct-25 | 28-Apr-16 | 03-Oct-16 | 17-Apr-17 | 23-Oct-17 | 25-Apr-18 | 15-Oct-18 | 11-Apr-19 | 21-Oct-19 |
| Total Alkalinity | mg/L | 500 | 363 | 381 | 259 | 242 | 284 | 265 | 272 | 199 | 233 | 242 | 224 | 281 | 230 | 235 | 214 | 217 |
| Calcium | mg/L | - | - | - | 141 | 106 | 185 | 179 | 128 | 105 | 88 | 101 | 90.7 | 114 | 91.1 | 89.4 | 89.4 | 95.5 |
| Chloride | mg/L | 250 | 134 | 194 | 119 | 124 | 176 | 213 | 96.7 | 62.8 | 4.2 | 3.9 | 5.7 | 1.6 | 3.4 | 3.7 | 5.9 | 5.2 |
| COD | mg/L | - | - | - | 30 | 30 | 46 | 37 | 34 | 33 | < 5 | < 5 | 9 | 19 | < 5 | < 5 | < 5 | 9 |
| Specific Conductivity | umhos/cm | - | - | - | 915 | 831 | 1110 | 1180 | 831 | 589 | 479 | 497 | 463 | 541 | 434 | 466 | 477 | 457 |
| DOC | mg/L | 5 | - | - | **6.1** | **7.7** | **10.4** | **6.7** | **8.7** | **8.1** | 1.8 | 3.4 | 2.3 | 3.3 | 2.7 | 3.2 | 2.9 | 2.9 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **3.07** | **1.35** | **2.94** | **2.62** | **2.78** | **1.62** | 0.008 | 0.008 | 0.008 | 0.015 | < 0.005 | 0.018 | < 0.005 | 0.036 |
| Magnesium | mg/L | - | - | - | 4.35 | 3.84 | 6.86 | 6.36 | 5.65 | 4.29 | 5.58 | 7.29 | 5.22 | 8.25 | 5.36 | 5.09 | 5.38 | 6.16 |
| Manganese | mg/L | 0.05 | - | - | **0.207** | **0.086** | **0.139** | **0.194** | **0.194** | **0.126** | < 0.001 | 0.002 | 0.001 | 0.007 | < 0.001 | 0.001 | < 0.001 | 0.003 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 0.5 | 0.5 | 0.6 | 0.2 | 0.41 | 0.3 | 0.39 | 0.38 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | <0.05 | 0.07 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.64 | 7.08 | 7.55 | 7.6 | 7.65 | 7.92 | 7.89 | 7.84 | 8.01 | 7.7 | 7.89 | 7.83 | 8.03 | 7.9 |
| Phenols | mg/L | - | - | - | < 0.001 | <0.001 | <0.001 | <0.001 | 0.003 | <0.001 | 0.001 | 0.016 | < 0.001 | 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 2.1 | 1.5 | 1.8 | 2.5 | 1.8 | 1.9 | 1.3 | 1.2 | 1.2 | 1.4 | 1.3 | 1 | 1.3 | 1.2 |
| Sodium | mg/L | 200 | 106 | 119 | 52.2 | 36.5 | 32 | 43 | 28 | 7.7 | 2.7 | 2.9 | 2.6 | 3 | 2.8 | 1.9 | 3.3 | 2.4 |
| Sulphate | mg/L | 500 | 251 | 252 | 4 | 5 | 4 | 5 | 3 | 4 | 9 | 12 | 13 | 6 | 7 | 9 | 12 | 8 |
| TDS | mg/L | 500 | 374 | 504 | 484 | 438 | **598** | **637** | 429 | 307 | 253 | 276 | 257 | 303 | 249 | 251 | 246 | 248 |
| Tot Kjel N | mg/L | - | - | - | 1.2 | 1.6 | 1.8 | 0.6 | 1.1 | 0.9 | 1.4 | 2.8 | 0.2 | 0.7 | 0.3 | 0.3 | 0.5 | 1 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.85 | 1.52 | 0.14 | 0.2 | 0.44 | 0.12 | 0.13 | 0.16 | 0.02 | 0.05 | 0.1 | 0.12 | 0.04 | 0.04 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | 0.000663 | 0.033154 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 371 | 281 | 491 | 474 | 342 | 280 | 243 | 282 | 248 | 319 | 250 | 244 | 246 | 264 |
| BOD | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| TSS | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.08 | **0.11** | 0.07 | 0.06 | 0.07 | 0.03 | 0.03 | 0.06 | 0.06 | 0.05 | 0.06 | 0.05 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.046 | 0.031 | 0.049 | 0.055 | 0.038 | 0.028 | 0.061 | 0.082 | 0.065 | 0.106 | 0.066 | 0.068 | 0.068 | 0.079 |
| Beryllium | mg/L | - | - | - | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.022 | 0.014 | 0.028 | 0.025 | 0.021 | 0.01 | < 0.005 | 0.012 | 0.017 | 0.018 | 0.014 | 0.009 | 0.015 | 0.012 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | 0.0002 | 0.0003 | 0.0004 | <0.0001 | 0.0002 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.012 | 0.006 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0003 | 0.0007 | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0012 | 0.0271 | 0.0016 | 0.0007 | 0.0012 | 0.0014 | 0.0012 | 0.0021 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00003 | 0.00002 | <0.00002 | 0.00004 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | 0.0002 | <0.0001 | 0.0001 | <0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | <0.0002 | 0.0003 | <0.0002 | <0.0002 | 0.0009 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.395 | 0.38 | 0.578 | 0.598 | 0.44 | 0.314 | 0.166 | 0.175 | 0.147 | 0.189 | 0.156 | 0.149 | 0.162 | 0.171 |
| Thallium | mg/L | - | - | - | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0018 | 0.0016 | 0.0012 | 0.0012 | 0.0018 | 0.0016 | 0.0007 | 0.001 | 0.0012 | 0.0004 | < 0.0001 | 0.0001 | 0.0001 | 0.0002 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | 6.9 | 12.5 | 7.7 | 11.4 | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | 7.8 | 7.45 | 8.41 | 7.57 | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | 1068 | 821 | 768 | 678 | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW12 22-Apr-20 | MW12 19-Oct-20 | MW12 19-Apr-21 | MW12 27-Oct-21 | MW12 20-Apr-22 | MW12 20-Apr-22 | MW12 26-Oct-22 | MW12 19-Apr-23 | MW12 11-Oct-23 | MW12 17-Apr-24 | MW12 07-Oct-24 | MW12 23-Apr-25 | MW12 (DUP) 23-Apr-25 | MW12 01-Oct-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 234 | 227 | 206 | 239 | 229 | 226 | 341 | 230 | 256 | 227 | 234 | 212 | 219 | 224 |
| Calcium | mg/L | - | - | - | 94.8 | 101 | 97.8 | 93.8 | 83.6 | 84.2 | 117 | 92.9 | 73.8 | 83.9 | 89.5 | 77.2 | 77.3 | 81.8 |
| Chloride | mg/L | 250 | 134 | 194 | 6.3 | 3.9 | 7.4 | 3.8 | 4.3 | 4 | 1.6 | 4 | 2.6 | 5.2 | 2.8 | 3 | 3.2 | 1.8 |
| COD | mg/L | - | - | - | < 5 | < 5 | 5 | < 5 | 6 | 8 | 12 | 6 | 9 | 14 | 16 | 5 | <5 | <5 |
| Specific Conductivity | umhos/cm | - | - | - | 496 | 483 | 464 | 454 | 467 | 463 | 654 | 479 | 472 | 461 | 488 | 434 | 439 | 441 |
| DOC | mg/L | 5 | - | - | 3.3 | 2.2 | 3.5 | 2.9 | 2.3 | 2.2 | 3.7 | 2.5 | 4.4 | 3.1 | 2.5 | 3.2 | 3.3 | 3.5 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Iron | mg/L | 0.3 | - | - | 0.015 | < 0.005 | < 0.005 | 0.006 | < 0.005 | < 0.005 | 0.091 | < 0.005 | 0.014 | 0.005 | 0.012 | <0.005 | <0.005 | 0.016 |
| Magnesium | mg/L | - | - | - | 6.05 | 6.19 | 5.13 | 6.13 | 5.34 | 5.35 | 7.73 | 5.61 | 5.39 | 5.54 | 6.33 | 5.79 | 5.72 | 5.37 |
| Manganese | mg/L | 0.05 | - | - | 0.004 | < 0.001 | 0.001 | 0.001 | < 0.001 | < 0.001 | 0.009 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | 0.002 | <0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.44 | 0.33 | 0.34 | 0.22 | 0.44 | 0.42 | 0.18 | 0.38 | 0.38 | 0.42 | 0.4 | 0.49 | 0.47 | 0.12 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.92 | 7.7 | 7.85 | 7.84 | 7.74 | 7.71 | 7.67 | 7.82 | 7.54 | 7.85 | 7.94 | 7.81 | 7.79 | 8.01 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 1.2 | 1.1 | 1.2 | 1.2 | 1.1 | 1.1 | 1.6 | 1.4 | 1 | 1.2 | 1.4 | 1.2 | 1.2 | 0.9 |
| Sodium | mg/L | 200 | 106 | 119 | 2.3 | 2.8 | 3.3 | 3.6 | 2.8 | 2.9 | 4 | 2.7 | 2.1 | 2.8 | 2.6 | 2.8 | 2.8 | 1.9 |
| Sulphate | mg/L | 500 | 251 | 252 | 7 | 10 | 11 | 7 | 9 | 8 | 5 | 11 | 9 | 10 | 9 | 7 | 7 | 4 |
| TDS | mg/L | 500 | 374 | 504 | 259 | 261 | 250 | 259 | 246 | 241 | 342 | 256 | 244 | 238 | 252 | 226 | 231 | 231 |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 0.2 | 0.3 | 0.2 | 1 | 0.2 | 0.3 | 0.5 | 0.3 | 0.7 | 0.3 | 0.6 | 0.3 | 0.4 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.04 | 0.01 | 0.06 | 0.04 | 0.94 | 0.11 | < 0.01 | 0.49 | 0.07 | 0.38 | 0.07 | <0.05 | <0.05 | <0.05 |
| Ammonia - Unionized | mg/L | - | - | - | 0.000452 | 8.73E-05 | 0.000738 | 0.000481 | 0.008994 | 0.000983 | <0.0001 | | | 0.003899 | 0.000534 | <0.001 | | <0.001 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 262 | 279 | 266 | 260 | 231 | 232 | 325 | 255 | 207 | 233 | 250 | 217 | 217 | 227 |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.03 | 0.06 | 0.06 | 0.05 | 0.06 | 0.03 | 0.02 | 0.06 | 0.05 | 0.03 | 0.03 | 0.03 | 0.05 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0001 | 0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.069 | 0.075 | 0.07 | 0.075 | 0.063 | 0.064 | 0.089 | 0.068 | 0.057 | 0.064 | 0.069 | 0.062 | 0.062 | 0.061 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.013 | 0.014 | 0.015 | 0.018 | 0.012 | 0.012 | 0.015 | 0.013 | 0.012 | 0.016 | 0.013 | 0.016 | 0.015 | 0.008 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | 0.00006 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0002 | 0.0002 | 0.0002 | <0.0001 | <0.0001 | 0.0002 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0021 | 0.0015 | 0.0027 | 0.0013 | 0.0011 | 0.001 | 0.0015 | 0.0012 | 0.0012 | 0.001 | 0.0013 | 0.0012 | 0.0012 | 0.0011 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00003 | 0.00002 | 0.00006 | < 0.00002 | < 0.00002 | 0.00003 | 0.00002 | < 0.00002 | <0.00002 | 0.00002 | <0.00002 | 0.00004 | 0.00004 | <0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.0002 | 0.0009 | <0.0002 | 0.0002 | <0.0002 | 0.0008 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | 0.0005 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.167 | 0.171 | 0.173 | 0.172 | 0.148 | 0.148 | 0.227 | 0.165 | 0.146 | 0.151 | 0.165 | 0.15 | 0.151 | 0.143 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.006 |
| Field Temp | deg C | - | - | - | | | | | | | | | | 7 | 10.8 | 8.9 | 8.9 | 10.1 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | 7.85 | 7.59 | 8.34 | 8.34 | 7.96 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | 397 | 420 | 426 | 426 | 130 |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW13 27-Apr-16 | MW13 04-Oct-16 | MW13 17-Apr-17 | MW13 23-Oct-17 | MW13 25-Apr-18 | MW13 15-Oct-18 | MW13 11-Apr-19 | MW13 21-Oct-19 | MW13 22-Apr-20 | MW13 19-Oct-20 | MW13 19-Apr-21 | MW13 27-Oct-21 | MW13 20-Apr-22 | MW13 26-Oct-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 187 | 200 | 184 | 196 | 165 | 194 | 162 | 193 | 174 | 168 | 161 | 188 | 178 | 188 |
| Calcium | mg/L | - | - | - | 74.9 | 76.8 | 71 | 75 | 67.2 | 69.3 | 67.3 | 78.9 | 70.3 | 67.5 | 69.6 | 70.2 | 71.1 | 68 |
| Chloride | mg/L | 250 | 134 | 194 | 7.5 | 3.9 | 4.8 | 4 | 3.4 | 2.8 | 4.6 | 3 | 4.9 | 1.6 | 4.4 | 3.5 | 3.9 | 4.5 |
| COD | mg/L | - | - | - | < 5 | 14 | 10 | 8 | < 5 | 5 | < 5 | 15 | 8 | < 5 | 6 | 7 | 10 | 6 |
| Specific Conductivity | umhos/cm | - | - | - | 415 | 416 | 397 | 409 | 326 | 390 | 360 | 404 | 381 | 351 | 360 | 359 | 383 | 402 |
| DOC | mg/L | 5 | - | - | 2 | 3.5 | 1.9 | 2.5 | 2.3 | 2.9 | 2.5 | 2.8 | 2.6 | 1.9 | 2.7 | 2.7 | 2.2 | 2.3 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.696** | 0.214 | **1.02** | **0.415** | **0.612** | **0.813** | **0.494** | **0.365** | **0.594** | 0.245 | **0.93** | **1.05** | **0.926** | **0.926** |
| Magnesium | mg/L | - | - | - | 4.19 | 4.28 | 3.98 | 4.21 | 3.83 | 3.7 | 3.74 | 4.25 | 4.27 | 3.69 | 3.99 | 4 | 4.16 | 4.24 |
| Manganese | mg/L | 0.05 | - | - | **0.078** | **0.079** | **0.091** | **0.095** | **0.083** | **0.1** | **0.06** | **0.062** | **0.07** | **0.054** | **0.084** | **0.107** | **0.073** | **0.066** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.1 | 0.1 | 0.1 | 0.08 | 0.14 | < 0.05 | 0.16 | 0.12 | 0.14 | 0.09 | < 0.05 | 0.13 | 0.1 | 0.08 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.1 | < 0.1 | 0.2 | 0.05 | < 0.05 | < 0.05 | 0.07 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.98 | 7.95 | 8.04 | 7.81 | 7.91 | 7.81 | 8.02 | 7.89 | 7.86 | 7.79 | 7.85 | 7.89 | 7.51 | 7.75 |
| Phenols | mg/L | - | - | - | 0.018 | 0.005 | < 0.001 | 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 2.8 | 4.4 | 2.7 | 3.8 | 2.5 | 3.4 | 2.3 | 3.9 | 2.7 | 3.3 | 2.7 | 3.6 | 2.4 | 3 |
| Sodium | mg/L | 200 | 106 | 119 | 9.8 | 12.5 | 8.7 | 8.2 | 8.3 | 7.6 | 6.8 | 7.2 | 5.4 | 4.5 | 4.2 | 5.3 | 5.4 | 4.9 |
| Sulphate | mg/L | 500 | 251 | 252 | 15 | 6 | 16 | 8 | 9 | 6 | 10 | 4 | 8 | 3 | 7 | 5 | 8 | 5 |
| TDS | mg/L | 500 | 374 | 504 | 229 | 231 | 221 | 223 | 195 | 211 | 194 | 218 | 201 | 185 | 190 | 206 | 204 | 205 |
| Tot Kjel N | mg/L | - | - | - | 0.7 | 1.4 | 0.8 | 1.2 | 0.6 | 1.1 | 0.8 | 0.8 | 0.7 | 0.9 | 0.8 | 0.9 | 1.1 | 1.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.66 | 1.2 | 0.71 | 1.1 | 0.46 | 0.87 | 0.41 | 0.69 | 0.59 | 0.73 | 0.71 | 0.73 | 1.02 | 0.73 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 204 | 210 | 194 | 205 | 184 | 188 | 184 | 215 | 193 | 184 | 190 | 192 | 195 | 187 |
| BOD | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| TSS | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.02 | 0.04 | 0.05 | 0.05 | 0.04 | 0.05 | 0.07 | 0.06 | 0.05 | 0.01 | 0.05 | 0.05 | 0.04 | 0.02 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | < 0.0001 | 0.0002 | 0.0002 | < 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.057 | 0.075 | 0.056 | 0.072 | 0.05 | 0.065 | 0.049 | 0.073 | 0.055 | 0.057 | 0.054 | 0.061 | 0.05 | 0.053 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | < 0.005 | 0.029 | 0.013 | 0.029 | 0.012 | 0.028 | 0.011 | 0.025 | 0.015 | 0.026 | 0.014 | 0.027 | 0.012 | 0.023 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.0002 | 0.0104 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | | < 0.001 | < 0.001 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0006 | 0.0005 | 0.001 | 0.0003 | 0.0011 | 0.0006 | 0.0011 | 0.001 | 0.0006 | 0.0018 | 0.0021 | 0.0011 | 0.0004 | 0.0007 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | 0.0001 | 0.00011 | < 0.00002 | 0.00007 | 0.00007 | < 0.00002 | < 0.00002 | 0.00003 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | 0.00005 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.159 | 0.161 | 0.131 | 0.148 | 0.131 | 0.138 | 0.132 | 0.165 | 0.141 | 0.135 | 0.139 | 0.145 | 0.138 | 0.14 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 |
| Vanadium | mg/L | - | - | - | 0.001 | 0.0006 | 0.001 | 0.0002 | < 0.0001 | 0.0001 | 0.0002 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.006 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.006 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW13 19-Apr-23 | MW13 11-Oct-23 | MW13 17-Apr-24 | MW13 07-Oct-24 | MW13 23-Apr-25 | MW13 01-Oct-25 | MW14 28-Apr-16 | MW14 03-Oct-16 | MW14 17-Apr-17 | MW14 23-Oct-17 | MW14 25-Apr-18 | MW14 15-Oct-18 | MW14 11-Apr-19 | MW14 21-Oct-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 189 | 202 | 186 | 195 | 178 | 196 | 187 | 169 | 178 | 189 | 177 | 181 | 202 | 160 |
| Calcium | mg/L | - | - | - | 62.9 | 55 | 68.6 | 75.3 | 65.5 | 67.9 | 81.5 | 72.2 | 81.1 | 81 | 75.9 | 79.3 | 90.8 | 72.5 |
| Chloride | mg/L | 250 | 134 | 194 | 5.4 | 3.5 | 6 | 7 | 5.9 | 3 | 9.1 | 0.8 | 11.1 | 5.1 | 3.7 | 12.6 | 8.2 | 2.3 |
| COD | mg/L | - | - | - | < 5 | 5 | 21 | 190 | 6 | <5 | 72 | < 5 | 30 | 43 | 64 | < 5 | 67 | 33 |
| Specific Conductivity | umhos/cm | - | - | - | 387 | 370 | 388 | 420 | 384 | 391 | 403 | 346 | 405 | 393 | 341 | 399 | 438 | 327 |
| DOC | mg/L | 5 | - | - | 1.2 | 3.8 | 3.2 | 3 | 2.3 | 2.9 | 3.2 | 3.2 | 4 | 4.1 | 4.2 | 2.7 | 3.8 | 2 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 | < 0.1 | 0.4 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.34** | **0.351** | **0.792** | **1.78** | **0.686** | **0.639** | < 0.005 | 0.043 | < 0.005 | < 0.005 | 0.118 | 0.011 | 0.06 | 0.007 |
| Magnesium | mg/L | - | - | - | 4.23 | 3.61 | 4.34 | 4.86 | 4.59 | 4.18 | 1.82 | 2.12 | 1.82 | 1.98 | 1.62 | 2.12 | 2.03 | 2.22 |
| Manganese | mg/L | 0.05 | - | - | 0.025 | 0.04 | **0.065** | **0.34** | 0.037 | **0.058** | < 0.001 | 0.002 | < 0.001 | 0.002 | 0.002 | < 0.001 | 0.002 | < 0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.15 | 0.15 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | 0.07 | < 0.05 | < 0.05 | 0.07 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | <0.05 | 0.06 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 8.02 | 7.07 | 7.7 | 7.78 | 7.71 | 7.96 | 7.95 | 7.98 | 8.07 | 7.89 | 7.91 | 7.9 | 7.99 | 7.95 |
| Phenols | mg/L | - | - | - | < 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | < 0.001 | 0.008 | < 0.001 | 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 2.1 | 2.3 | 2.1 | 3.3 | 1.9 | 3.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 |
| Sodium | mg/L | 200 | 106 | 119 | 4.2 | 3.6 | 4.2 | 5.3 | 3.6 | 6.2 | 4.3 | 2.9 | 3.6 | 5.4 | 3.9 | 3.1 | 3.5 | 2.3 |
| Sulphate | mg/L | 500 | 251 | 252 | 6 | 4 | 9 | 5 | 6 | 3 | 9 | 7 | 11 | 7 | 7 | 6 | 6 | 4 |
| TDS | mg/L | 500 | 374 | 504 | 198 | 190 | 200 | 217 | 195 | 206 | 218 | 187 | 217 | 214 | 199 | 212 | 232 | 180 |
| Tot Kjel N | mg/L | - | - | - | 0.5 | 0.4 | 1.1 | 2.4 | 0.5 | 0.7 | 1 | 0.7 | 0.6 | 0.9 | 2 | 0.5 | 0.9 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.35 | 0.3 | 0.53 | 0.81 | 0.23 | 0.52 | 0.07 | 0.11 | 0.02 | 0.01 | 0.1 | 0.04 | 0.16 | 0.02 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | 0.001651 | 0.000431 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 175 | 152 | 189 | 208 | 183 | 187 | 211 | 189 | 210 | 211 | 196 | 207 | 235 | 190 |
| BOD | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| TSS | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.02 | 0.03 | 0.05 | 0.03 | 0.03 | 0.03 | 0.02 | 0.09 | 0.05 | 0.05 | **0.19** | 0.05 | 0.08 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | 0.0001 | <0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | < 0.0001 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.045 | 0.046 | 0.049 | 0.072 | 0.046 | 0.059 | 0.014 | 0.016 | 0.016 | 0.02 | 0.018 | 0.017 | 0.017 | 0.015 |
| Beryllium | mg/L | - | - | - | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.008 | 0.018 | 0.014 | 0.026 | 0.013 | 0.027 | < 0.005 | < 0.005 | 0.005 | 0.009 | < 0.005 | 0.005 | 0.007 | 0.006 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.002 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | 0.0002 | 0.0002 | 0.0007 | <0.0001 | 0.0003 | < 0.005 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0006 | 0.0005 | 0.0009 | 0.0005 | 0.0003 | 0.0004 | 0.0009 | 0.0008 | 0.0017 | 0.0005 | 0.001 | 0.0008 | 0.0012 | 0.0017 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00002 | 0.00003 | <0.00002 | 0.00004 | <0.00002 | < 0.00002 | 0.00006 | < 0.00002 | < 0.00002 | 0.00013 | < 0.00002 | 0.00006 | 0.00004 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | < 0.0001 | 0.0003 | < 0.0001 | 0.0002 | < 0.0001 | 0.0003 | < 0.0001 | 0.0003 |
| Nickel | mg/L | - | - | - | < 0.01 | <0.0002 | 0.0006 | 0.0002 | <0.0002 | 0.0008 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.142 | 0.124 | 0.137 | 0.158 | 0.139 | 0.139 | 0.147 | 0.127 | 0.131 | 0.153 | 0.129 | 0.135 | 0.164 | 0.13 |
| Thallium | mg/L | - | - | - | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | < 0.0001 | 0.0001 | <0.0001 | 0.0002 | <0.0001 | 0.0001 | 0.0007 | 0.001 | 0.0012 | 0.0006 | 0.0004 | 0.0003 | 0.0003 | 0.0003 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | 5.8 | 9.3 | 7.1 | 13.1 | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | 7.6 | 7.68 | 7.35 | 8.58 | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | 355 | 377 | 313 | 135 | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW14 22-Apr-20 | MW14 19-Oct-20 | MW14 19-Apr-21 | MW14 27-Oct-21 | MW14 20-Apr-22 | MW14 26-Oct-22 | MW14 19-Apr-23 | MW14 11-Oct-23 | MW14 17-Apr-24 | MW14 07-Oct-24 | MW14 23-Apr-25 | MW14 30-Sep-25 | MW15 28-Apr-16 | MW15 03-Oct-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 161 | 181 | 197 | 211 | 236 | 206 | 206 | 203 | 230 | 163 | 206 | Dry | 171 | 194 |
| Calcium | mg/L | - | - | - | 81.4 | 86.8 | 100 | 98.6 | 109 | 93.8 | 95.7 | 60.6 | 96.3 | 67.9 | 78.2 | | 67.9 | 89.6 |
| Chloride | mg/L | 250 | 134 | 194 | 19.6 | 17.7 | 15.8 | 22 | 16.2 | 24.7 | 21.8 | 7.9 | 17.5 | 0.8 | 11.9 | | 3.7 | 2.4 |
| COD | mg/L | - | - | - | 25 | 60 | 13 | 13 | 16 | 45 | 58 | 19 | 217 | 105 | 116 | | 5 | 13 |
| Specific Conductivity | umhos/cm | - | - | - | 406 | 437 | 474 | 460 | 525 | 497 | 488 | 396 | 505 | 341 | 441 | | 341 | 384 |
| DOC | mg/L | 5 | - | - | 4.4 | 2.1 | 4.4 | 2.9 | 4.1 | 2 | 4.1 | 3.2 | **5.2** | 2.6 | 4.6 | | 2.6 | 4.3 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | 0.005 | < 0.005 | 0.022 | 0.121 | 0.029 | 0.024 | < 0.005 | 0.008 | 0.012 | 0.009 | <0.005 | | < 0.005 | **0.419** |
| Magnesium | mg/L | - | - | - | 1.88 | 2.4 | 2.31 | 2.34 | 2.46 | 2.46 | 2.13 | 1.68 | 2.1 | 1.78 | 1.91 | | 1.97 | 2.48 |
| Manganese | mg/L | 0.05 | - | - | < 0.001 | < 0.001 | 0.001 | 0.017 | 0.001 | 0.003 | < 0.001 | <0.001 | 0.036 | 0.025 | 0.002 | | < 0.001 | **0.326** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.06 | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.06 | <0.05 | 0.06 | <0.05 | | 0.2 | 0.1 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | | < 0.1 | < 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.86 | 7.92 | 7.85 | 7.92 | 7.57 | 7.74 | 7.73 | 7.13 | 7.75 | 7.99 | 7.71 | | 8.04 | 7.93 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | | 0.001 | 0.005 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.4 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | | 0.2 | 0.2 |
| Sodium | mg/L | 200 | 106 | 119 | 4.5 | 4.3 | 5.1 | 6.4 | 4.8 | 4.8 | 5.4 | 3.3 | 5.3 | 2.9 | 6.5 | | 3.3 | 2 |
| Sulphate | mg/L | 500 | 251 | 252 | 11 | 7 | 9 | 5 | 7 | 6 | 8 | 7 | 8 | 7 | 8 | | 1 | 2 |
| TDS | mg/L | 500 | 374 | 504 | 215 | 227 | 251 | 262 | 282 | 256 | 258 | 204 | 261 | 175 | 231 | | 182 | 216 |
| Tot Kjel N | mg/L | - | - | - | 0.5 | 0.7 | 0.5 | 0.7 | 0.5 | 0.6 | 0.6 | 0.4 | 3.8 | 2.4 | 1.2 | | 0.2 | 0.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.01 | 0.04 | 0.03 | 0.05 | 0.05 | 0.03 | 0.04 | <0.05 | 0.06 | 0.15 | 0.81 | | 0.08 | 0.06 |
| Ammonia - Unionized | mg/L | - | - | - | 7.07E-05 | 0.000576 | 0.000369 | 0.000721 | 0.000324 | 0.000287 | | | 0.000572 | 0.001622 | 0.001985 | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 211 | 227 | 259 | 256 | 283 | 245 | 248 | 158 | 249 | 177 | 203 | | 178 | 234 |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | -- | -- |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | -- | -- |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | -- | -- |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.06 | 0.02 | 0.07 | **0.11** | 0.07 | 0.04 | 0.02 | 0.04 | 0.06 | 0.02 | 0.06 | | 0.02 | **0.38** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | < 0.0001 | 0.0005 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | <0.0001 | 0.0001 | | 0.0001 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.015 | 0.019 | 0.018 | 0.023 | 0.019 | 0.019 | 0.017 | 0.014 | 0.02 | 0.014 | 0.016 | | 0.007 | 0.015 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.005 | 0.008 | 0.01 | 0.007 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | 0.007 | <0.005 | | < 0.005 | < 0.005 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | 0.000016 | <0.000015 | <0.000015 | | < 0.00002 | 0.00003 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | | < 0.0002 | < 0.0002 |
| Chromium (VI) | mg/L | - | - | - | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0001 | 0.0002 | 0.0002 | <0.0001 | | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0009 | 0.002 | 0.0025 | 0.0018 | 0.0007 | 0.0009 | 0.0007 | 0.0008 | 0.0009 | 0.0011 | 0.0007 | | 0.0016 | 0.0039 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00006 | 0.00008 | 0.00013 | 0.00003 | 0.00004 | < 0.00002 | <0.00002 | 0.00002 | <0.00002 | 0.00011 | | < 0.00002 | 0.00161 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | 0.0003 | 0.0001 | 0.0002 | < 0.0001 | 0.0002 | < 0.0001 | 0.0004 | <0.0001 | 0.0004 | 0.0001 | | 0.0001 | 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0005 | 0.0009 | <0.0002 | 0.0004 | | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | - | - | 0.142 | 0.172 | 0.184 | 0.186 | 0.191 | 0.179 | 0.181 | 0.132 | 0.183 | 0.129 | 0.169 | | 0.139 | 0.173 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0002 | 0.0004 | 0.0003 | 0.0006 | 0.0004 | 0.0004 | 0.0002 | 0.0004 | 0.0003 | 0.0004 | 0.0003 | | 0.0006 | 0.0016 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | | < 0.005 | 0.006 |
| Field Temp | deg C | - | - | - | | | | | | | | | 5.5 | 9.7 | 5.7 | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | 7.87 | 7.78 | 7.27 | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | 514 | 684 | 354 | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW15 17-Apr-17 | MW15 23-Oct-17 | MW15 25-Apr-18 | MW15 15-Oct-18 | MW15 11-Apr-19 | MW15 21-Oct-19 | MW15 22-Apr-20 | MW15 19-Oct-20 | MW15 19-Apr-21 | MW15 27-Oct-21 | MW15 20-Apr-22 | MW15 26-Oct-22 | MW15 19-Apr-23 | MW15 11-Oct-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 168 | 163 | 187 | 222 | 168 | 213 | 158 | 172 | 155 | 183 | 175 | 199 | 182 | 204 |
| Calcium | mg/L | - | - | - | 66.1 | 70.4 | 74.2 | 78 | 73.9 | 92.8 | 62.6 | 78.1 | 71.5 | 76.3 | 73.9 | 80.7 | 70.9 | 63.8 |
| Chloride | mg/L | 250 | 134 | 194 | 3.3 | 1.9 | 1.1 | 1.6 | 2.9 | 2.1 | 3.2 | 2 | 2.4 | 2.3 | 1.7 | 1.9 | 1.9 | 2.1 |
| COD | mg/L | - | - | - | 9 | 23 | 5 | 7 | 5 | 8 | 12 | < 5 | 10 | 15 | 9 | 10 | 6 | 15 |
| Specific Conductivity | umhos/cm | - | - | - | 332 | 319 | 334 | 366 | 347 | 423 | 325 | 357 | 332 | 341 | 346 | 401 | 357 | 375 |
| DOC | mg/L | 5 | - | - | 2.8 | 3.2 | 2.4 | 3.3 | 3.2 | 3.4 | 3 | 2.7 | 3.6 | 3.2 | 3.3 | 3.4 | 3.2 | **9.2** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 |
| Iron | mg/L | 0.3 | - | - | < 0.005 | < 0.005 | < 0.005 | 0.006 | 0.009 | 0.008 | 0.006 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | 0.005 |
| Magnesium | mg/L | - | - | - | 1.87 | 1.96 | 2.18 | 2.1 | 2.13 | 2.58 | 1.77 | 2.12 | 1.97 | 2.08 | 2.09 | 2.39 | 2.01 | 1.95 |
| Manganese | mg/L | 0.05 | - | - | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | 0.001 | 0.001 | < 0.001 | <0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.2 | 0.17 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.08 | < 0.05 | 0.11 | < 0.05 | < 0.05 | 0.06 | < 0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 8.11 | 7.95 | 7.95 | 7.89 | 8.07 | 7.92 | 7.89 | 7.84 | 7.93 | 7.92 | 7.48 | 7.79 | 7.84 | 7.1 |
| Phenols | mg/L | - | - | - | 0.001 | 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 0.1 | 0.3 | 0.3 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.4 | 0.2 | 0.3 | 0.2 | <0.1 |
| Sodium | mg/L | 200 | 106 | 119 | 3.3 | 2.4 | 3.5 | 1.9 | 1.8 | 2.1 | 8.2 | 1.9 | 3.1 | 1.9 | 2.2 | 2 | 3.5 | 1.6 |
| Sulphate | mg/L | 500 | 251 | 252 | 1 | 3 | < 1 | 2 | 2 | 2 | < 1 | 1 | < 1 | 1 | 2 | 2 | < 1 | 2 |
| TDS | mg/L | 500 | 374 | 504 | 178 | 178 | 194 | 218 | 184 | 230 | 171 | 189 | 172 | 194 | 187 | 208 | 188 | 193 |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.3 | 0.2 | 0.4 | 0.2 | 0.3 | 0.6 | 0.2 |
| Ammonia (NH3-N) | mg/L | - | - | - | < 0.01 | < 0.01 | 0.03 | < 0.01 | 0.03 | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 | 0.17 | 0.02 | 0.5 | <0.05 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | 0.000828 | 0.00011 | 0.000108 | 0.000238 | 0.000439 | 0.000572 | 0.000891 | 0.000213 | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 173 | 184 | 194 | 204 | 194 | 243 | 164 | 204 | 187 | 199 | 193 | 211 | 185 | 168 |
| BOD | mg/L | - | - | - | -- | -- | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | -- | -- | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | -- | -- | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.05 | 0.06 | 0.02 | 0.05 | 0.06 | 0.03 | 0.02 | 0.05 | 0.05 | 0.04 | 0.02 | 0.01 | 0.04 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.007 | 0.008 | 0.008 | 0.009 | 0.007 | 0.01 | 0.007 | 0.008 | 0.007 | 0.009 | 0.008 | 0.008 | 0.007 | 0.007 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.008 | 0.005 | 0.005 | < 0.005 | 0.006 | < 0.005 | 0.007 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.006 | <0.005 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 |
| Cobalt | mg/L | - | - | - | 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0002 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0017 | 0.0011 | 0.0013 | 0.0014 | 0.0015 | 0.0016 | 0.0013 | 0.003 | 0.0034 | 0.0016 | 0.0015 | 0.0018 | 0.0011 | 0.0015 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00005 | < 0.00002 | 0.00006 | 0.00006 | < 0.00002 | 0.00008 | 0.00002 | < 0.00002 | <0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.0002 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.123 | 0.129 | 0.14 | 0.143 | 0.144 | 0.181 | 0.126 | 0.148 | 0.14 | 0.155 | 0.139 | 0.164 | 0.141 | 0.137 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0011 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0003 | 0.0003 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW15 | MW15 | MW15 | MW15 | MW15A | MW15A | MW15A | MW15A | MW15A | MW15A | MW15A | MW15A | MW15A | MW15A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 17-Apr-24 | 07-Oct-24 | 23-Apr-25 | 01-Oct-25 | 28-Apr-16 | 03-Oct-16 | 17-Apr-17 | 23-Oct-17 | 25-Apr-18 | 15-Oct-18 | 11-Apr-19 | 21-Oct-19 | 22-Apr-20 | 19-Oct-20 |
| Total Alkalinity | mg/L | 500 | 363 | 381 | 180 | 186 | 185 | Dry | 400 | 397 | 403 | 395 | 394 | 388 | 365 | 375 | 369 | 362 |
| Calcium | mg/L | - | - | - | 67.2 | 71 | 62.7 | | 150 | 160 | 156 | 163 | 157 | 152 | 158 | 163 | 155 | 160 |
| Chloride | mg/L | 250 | 134 | 194 | 2.9 | 1.7 | 0.9 | | 68.1 | 66.7 | 67.5 | 55.7 | 59.3 | 71 | 72.6 | 69 | 77.5 | 71.7 |
| COD | mg/L | - | - | - | 15 | 23 | 12 | | 31 | 21 | 24 | 44 | 22 | 20 | 20 | 79 | 26 | 17 |
| Specific Conductivity | umhos/cm | - | - | - | 344 | 375 | 338 | | 940 | 956 | 958 | 937 | 900 | 925 | 956 | 959 | 955 | 940 |
| DOC | mg/L | 5 | - | - | 3.6 | 3.6 | 3.1 | | **6.7** | **8.4** | **8.1** | **9.2** | **8.3** | **8.6** | **8.4** | **8.5** | 8 | 6 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | <0.1 | <0.1 | <0.1 | | < 0.1 | < 0.1 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | <0.005 | <0.005 | <0.005 | | **5.27** | **5.52** | **5.55** | **5.52** | **5.25** | **5.37** | **5.46** | **6.2** | **5.25** | **6.07** |
| Magnesium | mg/L | - | - | - | 1.9 | 1.95 | 1.94 | | 16.8 | 17.5 | 16.8 | 17.7 | 17 | 15.6 | 16.6 | 16.8 | 17.9 | 16.8 |
| Manganese | mg/L | 0.05 | - | - | <0.001 | <0.001 | <0.001 | | **0.13** | **0.137** | **0.129** | **0.133** | **0.14** | **0.136** | **0.133** | **0.139** | **0.127** | **0.136** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | <0.05 | <0.05 | <0.05 | | < 0.1 | < 0.1 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.06 | 0.08 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | <0.05 | <0.05 | <0.05 | | < 0.1 | < 0.1 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.76 | 7.99 | 7.7 | | 7.64 | 7.65 | 7.84 | 7.48 | 7.75 | 7.7 | 7.82 | 7.69 | 7.64 | 7.46 |
| Phenols | mg/L | - | - | - | <0.001 | <0.001 | <0.001 | | 0.004 | 0.007 | < 0.001 | 0.003 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.001 |
| Phosphorus | mg/L | - | - | - | <0.1 | <0.1 | <0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 0.1 | 0.2 | <0.1 | | 2.9 | 2.9 | 3 | 3.1 | 3.3 | 2.9 | 3.3 | 3.5 | 3.3 | 3.3 |
| Sodium | mg/L | 200 | 106 | 119 | 2.7 | 2.1 | 3.2 | | 28.7 | 32.6 | 29.2 | 30.8 | 31.5 | 28.2 | 30 | 31.1 | 30.8 | 30 |
| Sulphate | mg/L | 500 | 251 | 252 | 2 | 1 | <1 | | 6 | 7 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 7 |
| TDS | mg/L | 500 | 374 | 504 | 177 | 193 | 180 | | **519** | **531** | **529** | **520** | **516** | **515** | **513** | **523** | **513** | **513** |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 0.3 | 0.8 | | 0.9 | 3.5 | 0.8 | 1 | 0.8 | 0.9 | 0.9 | 1.3 | 0.8 | 1 |
| Ammonia (NH3-N) | mg/L | - | - | - | <0.05 | 0.05 | 0.52 | | 0.46 | 0.51 | 0.49 | 0.63 | 0.49 | 0.5 | 0.43 | 0.61 | 0.5 | 0.59 |
| Ammonia - Unionized | mg/L | - | - | - | <0.001 | 0.000792 | 0.020106 | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 176 | 186 | 165 | | 445 | 471 | 459 | 480 | 462 | 444 | 463 | 477 | 461 | 470 |
| BOD | mg/L | - | - | - | | | | | -- | -- | -- | -- | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | -- | -- | -- | -- | | | | | | |
| TSS | mg/L | - | - | - | | | | | -- | -- | -- | -- | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.04 | 0.02 | 0.02 | | 0.04 | 0.05 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.05 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | <0.0001 | 0.0001 | <0.0001 | | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0001 | 0.0001 | 0.0001 | | 0.0003 | < 0.0001 | 0.0003 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.007 | 0.008 | 0.006 | | 0.269 | 0.311 | 0.305 | 0.332 | 0.316 | 0.313 | 0.319 | 0.352 | 0.32 | 0.329 |
| Beryllium | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.007 | <0.005 | 0.006 | | 0.046 | 0.076 | 0.084 | 0.084 | 0.075 | 0.069 | 0.078 | 0.083 | 0.082 | 0.083 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | <0.000015 | <0.000015 | | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.01 | <0.01 | <0.01 | | < 0.0002 | < 0.0002 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | <0.01 | <0.01 | | | | | | | | | | | |
| Cobalt | mg/L | - | - | - | 0.0002 | 0.0002 | <0.0001 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0015 | 0.0015 | 0.0013 | | 0.0006 | 0.0003 | 0.0006 | 0.0001 | 0.0001 | 0.0003 | 0.0004 | 0.0006 | < 0.0001 | 0.0016 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00003 | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.0001 | 0.00002 | 0.00008 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0001 | | < 0.0001 | < 0.0001 | 0.0012 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | 0.0006 | <0.0002 | <0.0002 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | <0.001 | <0.001 | | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.135 | 0.143 | 0.136 | | 1.02 | 1.03 | 0.94 | 1.02 | 0.997 | 0.956 | 1.04 | 1.05 | 1.01 | 1.01 |
| Thallium | mg/L | - | - | - | <0.00005 | <0.00005 | <0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0002 | 0.0003 | 0.0002 | | 0.0014 | 0.0017 | 0.0026 | 0.0009 | 0.0004 | 0.0005 | 0.0005 | 0.0006 | 0.0005 | 0.0006 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | <0.005 | <0.005 | | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | 6.4 | 12.9 | 8.7 | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | 7.75 | 7.84 | 8.38 | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | 379 | 336 | 303 | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW15A 19-Apr-21 | MW15A 27-Oct-21 | MW15A 20-Apr-22 | MW15A 26-Oct-22 | MW15A 19-Apr-23 | MW15A 11-Oct-23 | MW15A 17-Apr-24 | MW15A 07-Oct-24 | MW15A 23-Apr-25 | MW15A 01-Oct-25 | MW15B 28-Apr-16 | MW15B 03-Oct-16 | MW15B 17-Apr-17 | MW15B 23-Oct-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 355 | 405 | 382 | 402 | 412 | 444 | 441 | 442 | 452 | 483 | 388 | 381 | 388 | 381 |
| Calcium | mg/L | - | - | - | 159 | 154 | 155 | 145 | 157 | 129 | 159 | 169 | 157 | 174 | 137 | 135 | 140 | 142 |
| Chloride | mg/L | 250 | 134 | 194 | 69.4 | 67.5 | 67.1 | 65.2 | 64.1 | 70.4 | 68.1 | 76.7 | 74.9 | 78.1 | 69.5 | 69.1 | 68.3 | 57.5 |
| COD | mg/L | - | - | - | 24 | 15 | 31 | 20 | 22 | 28 | 31 | 41 | 47 | 20 | 20 | 16 | 21 | 35 |
| Specific Conductivity | umhos/cm | - | - | - | 931 | 918 | 952 | 979 | 953 | 999 | 1030 | 1050 | 1050 | 1100 | 921 | 920 | 935 | 910 |
| DOC | mg/L | 5 | - | - | **8.2** | **7.9** | **6.1** | **5.1** | **7.3** | 4.8 | **13.8** | **11.8** | **8.8** | **8.1** | **6.2** | **7.7** | **8.4** | **7.6** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **5.84** | **5.71** | **5.56** | **5.54** | **5.97** | **4.65** | **6.27** | **6.48** | **6.87** | **7.19** | **1.58** | **1.09** | **1.63** | **1.32** |
| Magnesium | mg/L | - | - | - | 16.8 | 16.4 | 16.5 | 17 | 16.9 | 15.4 | 17.5 | 18.8 | 19.1 | 19.3 | 23.6 | 27 | 23.8 | 27.1 |
| Manganese | mg/L | 0.05 | - | - | **0.133** | **0.15** | **0.142** | **0.128** | **0.145** | **0.135** | **0.142** | **0.15** | **0.152** | **0.156** | **0.051** | 0.043 | **0.052** | 0.045 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | 0.11 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.68 | 7.81 | 7.6 | 7.51 | 7.71 | 7.31 | 7.7 | 7.7 | 7.69 | 7.66 | 7.71 | 7.64 | 7.83 | 7.56 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.002 | <0.001 | 0.005 | 0.007 | < 0.001 | 0.005 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 3.5 | 3.5 | 3.4 | 3.6 | 3.6 | 3.1 | 3.6 | 4.1 | 3.7 | 4 | 3.6 | 4 | 3.8 | 4.1 |
| Sodium | mg/L | 200 | 106 | 119 | 32.2 | 32.3 | 30.4 | 30.9 | 30 | 28.2 | 30.6 | 34.3 | 32.8 | 35.1 | 24.1 | 27.9 | 24.8 | 26.1 |
| Sulphate | mg/L | 500 | 251 | 252 | 7 | 6 | 5 | 3 | 2 | 1 | 2 | <1 | <1 | <1 | 4 | < 1 | 5 | 3 |
| TDS | mg/L | 500 | 374 | 504 | **502** | **529** | **507** | **512** | **529** | **533** | **549** | **561** | **566** | **609** | 497 | 494 | 500 | 490 |
| Tot Kjel N | mg/L | - | - | - | 0.8 | 0.9 | 0.9 | 1.1 | 1.7 | 1 | 1 | 1.2 | 2.6 | 1.4 | 0.7 | 0.7 | 0.6 | 0.7 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.59 | 0.62 | 0.59 | 0.65 | 1.36 | 0.64 | 0.73 | 0.82 | 1.66 | 0.76 | 0.4 | 0.44 | 0.41 | 0.38 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 467 | 452 | 455 | 433 | 461 | 386 | 469 | 499 | 471 | **514** | 440 | 450 | 448 | 466 |
| BOD | mg/L | - | - | - | | | | | | | | | | | -- | -- | -- | -- |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | -- | -- | -- | -- |
| TSS | mg/L | - | - | - | | | | | | | | | | | -- | -- | -- | -- |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.09 | 0.09 | 0.08 | 0.04 | 0.05 | 0.09 | 0.08 | 0.06 | 0.05 | 0.1 | 0.04 | 0.05 | 0.08 | 0.07 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0003 | < 0.0001 | 0.0003 | 0.0003 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.333 | 0.327 | 0.32 | 0.304 | 0.336 | 0.292 | 0.354 | 0.377 | 0.351 | 0.396 | 0.131 | 0.145 | 0.155 | 0.153 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.08 | 0.079 | 0.072 | 0.08 | 0.077 | 0.076 | 0.081 | 0.091 | 0.091 | 0.094 | 0.068 | 0.113 | 0.097 | 0.118 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0005 | 0.0005 | 0.0006 | 0.0002 | 0.0005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0015 | 0.0006 | 0.0003 | 0.0004 | 0.0004 | 0.0006 | 0.0003 | 0.0002 | <0.0001 | 0.0004 | 0.0005 | 0.0002 | < 0.0001 | 0.0001 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00006 | 0.00003 | < 0.00002 | 0.00003 | < 0.00002 | <0.00004 | <0.00002 | <0.00002 | 0.00004 | <0.00004 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | 0.0004 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0009 | 0.002 | 0.0011 | 0.0012 | 0.0029 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | - | - | 1.03 | 1.02 | 0.976 | 0.995 | 1.02 | 0.915 | 1.06 | 1.13 | 1.14 | 1.15 | 1.24 | 1.35 | 1.16 | 1.3 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0006 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0006 | 0.0005 | 0.0007 | 0.001 | 0.0016 | 0.0019 | 0.0005 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | 8.1 | 8.9 | 9.7 | 9.6 | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | 7.12 | 7.41 | 7.65 | 6.06 | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | 437 | 821 | 1015 | 1079 | | | | |

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RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW15B 25-Apr-18 | MW15B 15-Oct-18 | MW15B 11-Apr-19 | MW15B 21-Oct-19 | MW15B 22-Apr-20 | MW15B 19-Oct-20 | MW15B 19-Apr-21 | MW15B 27-Oct-21 | MW15B 20-Apr-22 | MW15B 26-Oct-22 | MW15B 19-Apr-23 | MW15B 11-Oct-23 | MW15B 17-Apr-24 | MW15B 07-Oct-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 407 | 378 | 355 | 367 | 357 | 352 | 348 | 391 | 367 | 375 | 394 | 405 | 410 | 396 |
| Calcium | mg/L | - | - | - | 143 | 128 | 144 | 141 | 142 | 140 | 147 | 140 | 143 | 134 | 143 | 109 | 139 | 139 |
| Chloride | mg/L | 250 | 134 | 194 | 59.6 | 71 | 73.1 | 67.9 | 80 | 73.6 | 71.4 | 71.2 | 68.3 | 68.5 | 63.6 | 72.3 | 66.3 | 74.4 |
| COD | mg/L | - | - | - | 21 | 18 | 20 | 18 | 22 | 19 | 18 | 12 | 23 | 23 | 14 | 19 | 29 | 24 |
| Specific Conductivity | umhos/cm | - | - | - | 895 | 884 | 932 | 927 | 934 | 917 | 919 | 897 | 928 | 939 | 920 | 929 | 957 | 970 |
| DOC | mg/L | 5 | - | - | **8.1** | **7.8** | **6.9** | **8.3** | **7.2** | **5.4** | **7.8** | **7.2** | **5.7** | 4.7 | **6.9** | **7.8** | **11.7** | **9.6** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| Iron | mg/L | 0.3 | - | - | **0.803** | **1.24** | **1.53** | **1.54** | **1.57** | **1.79** | **1.66** | **1.4** | **2.02** | **1.88** | **1.76** | **1.01** | **1.66** | **1.35** |
| Magnesium | mg/L | - | - | - | 24 | 24.5 | 24.2 | 26.8 | 24.8 | 26.8 | 24.9 | 25.5 | 23.9 | 27.3 | 23.4 | 23.3 | 24 | 27.5 |
| Manganese | mg/L | 0.05 | - | - | **0.059** | 0.04 | 0.048 | 0.046 | **0.052** | 0.049 | **0.054** | 0.048 | **0.055** | **0.078** | **0.056** | 0.044 | **0.052** | 0.047 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | < 0.05 | 0.07 | 0.05 | < 0.05 | < 0.05 | 0.06 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.82 | 7.76 | 7.89 | 7.76 | 7.67 | 7.55 | 7.64 | 7.84 | 7.66 | 7.6 | 7.76 | 7.38 | 7.82 | 7.78 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.01 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 4 | 3.8 | 4 | 4.6 | 3.8 | 4.2 | 4.1 | 4.2 | 3.8 | 7.4 | 4 | 3.5 | 3.8 | 4.6 |
| Sodium | mg/L | 200 | 106 | 119 | 27.2 | 25.4 | 25.5 | 28.9 | 26.5 | 26.5 | 27 | 27.2 | 26.2 | 32.9 | 26 | 23.4 | 25.3 | 27.5 |
| Sulphate | mg/L | 500 | 251 | 252 | 4 | < 1 | 4 | 1 | 5 | < 1 | 4 | 3 | 4 | 1 | 2 | <1 | 2 | <1 |
| TDS | mg/L | 500 | 374 | 504 | **507** | 481 | 490 | 493 | 497 | 484 | 488 | **508** | 490 | 499 | 500 | 493 | **509** | **517** |
| Tot Kjel N | mg/L | - | - | - | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.7 | 0.6 | 0.7 | 4.1 | 0.8 | 0.7 | 0.7 | 0.9 | 0.8 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.39 | 0.4 | 0.3 | 0.45 | 0.37 | 0.48 | 0.41 | 0.4 | 0.79 | 0.5 | 0.5 | 0.42 | 0.65 | 0.47 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 456 | 421 | 459 | 463 | 457 | 460 | 470 | 455 | 456 | 447 | 452 | 368 | 446 | 461 |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.08 | 0.07 | 0.07 | 0.09 | 0.08 | 0.04 | 0.08 | 0.08 | 0.08 | 0.03 | 0.04 | 0.08 | 0.09 | 0.04 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.152 | 0.145 | 0.153 | 0.172 | 0.156 | 0.157 | 0.159 | 0.15 | 0.153 | 0.141 | 0.158 | 0.124 | 0.156 | 0.153 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.093 | 0.103 | 0.099 | 0.123 | 0.099 | 0.119 | 0.102 | 0.107 | 0.094 | 0.148 | 0.097 | 0.107 | 0.098 | 0.117 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | 0.008 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0004 | 0.0004 | 0.0004 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0004 | 0.0002 | 0.0002 | 0.0006 | < 0.0001 | 0.001 | 0.0013 | 0.0005 | 0.0002 | 0.0008 | 0.0001 | 0.0005 | 0.0013 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00007 | < 0.00002 | 0.00005 | 0.00006 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | <0.00002 | 0.00005 | <0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0006 | 0.0007 | 0.0006 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.003 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 1.21 | 1.3 | 1.29 | 1.49 | 1.24 | 1.4 | 1.31 | 1.33 | 1.24 | 1.32 | 1.24 | 1.21 | 1.24 | 1.41 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | 8.3 | 9.1 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | 7.08 | 7.67 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | 854 | 757 |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW15B 23-Apr-25 | MW15B (DUP) 01-Oct-25 | MW15B 01-Oct-25 | MW16 28-Apr-16 | MW16 03-Oct-16 | MW16 17-Apr-17 | MW16 23-Oct-17 | MW16 25-Apr-18 | MW16 15-Oct-18 | MW16 11-Apr-19 | MW16 22-Oct-19 | MW16 22-Apr-20 | MW16 19-Oct-20 | MW16 19-Apr-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 424 | 407 | 406 | 240 | 213 | 218 | 197 | 216 | 207 | 212 | Dry | 217 | 188 | 192 |
| Calcium | mg/L | - | - | - | 139 | 138 | 136 | 90.5 | 88.8 | 87.1 | 79.5 | 76 | 76.3 | 87.3 | | 90.6 | 83.3 | 82.3 |
| Chloride | mg/L | 250 | 134 | 194 | 71.3 | 72.4 | 72.6 | 5.6 | 2.8 | 6 | 1.6 | 3.1 | 2.2 | 6.2 | | 8.1 | 2.8 | 3.4 |
| COD | mg/L | - | - | - | 19 | 9 | 5 | 7 | < 5 | 6 | 19 | 5 | < 5 | < 5 | | 11 | 6 | 6 |
| Specific Conductivity | umhos/cm | - | - | - | 994 | 959 | 958 | 497 | 435 | 444 | 384 | 415 | 415 | 456 | | 467 | 399 | 410 |
| DOC | mg/L | 5 | - | - | **7.6** | 6 | **6.6** | 1.6 | 3.2 | 2 | 1.9 | 2.9 | 1.8 | 2.6 | | 3.2 | 1.9 | 3.2 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | <0.1 | 0.2 | 0.2 | < 0.1 | < 0.1 | 0.4 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **2.06** | **1.5** | **1.5** | < 0.005 | 0.006 | 0.011 | 0.006 | < 0.005 | < 0.005 | 0.005 | | 0.018 | < 0.005 | < 0.005 |
| Magnesium | mg/L | - | - | - | 25 | 27.4 | 27.3 | 5.56 | 4.89 | 5.11 | 4.41 | 5.64 | 3.98 | 4.91 | | 5.77 | 4.42 | 4.77 |
| Manganese | mg/L | 0.05 | - | - | **0.058** | 0.045 | 0.045 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | < 0.001 | < 0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | <0.05 | <0.05 | <0.05 | 0.7 | 0.5 | 0.7 | 0.38 | 0.55 | 0.33 | 0.53 | | 0.88 | 0.32 | 0.39 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.66 | 7.85 | 7.73 | 8.02 | 7.94 | 8.09 | 7.93 | 8 | 8.08 | 8.07 | | 7.88 | 7.84 | 7.9 |
| Phenols | mg/L | - | - | - | 0.002 | <0.001 | <0.001 | 0.004 | 0.007 | < 0.001 | 0.003 | < 0.001 | < 0.002 | < 0.002 | | < 0.002 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | - | - | - | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 4 | 4.4 | 4.3 | 1 | 0.7 | 0.9 | 0.7 | 1.4 | 0.7 | 0.8 | | 0.9 | 0.8 | 0.9 |
| Sodium | mg/L | 200 | 106 | 119 | 27.8 | 27.6 | 27.5 | 4.3 | 3.6 | 4.1 | 3.5 | 5.4 | 3 | 3 | | 4.8 | 2.5 | 3.3 |
| Sulphate | mg/L | 500 | 251 | 252 | <1 | <1 | <1 | 13 | 6 | 11 | 4 | 5 | 4 | 11 | | 10 | 5 | 6 |
| TDS | mg/L | 500 | 374 | 504 | **524** | **516** | **514** | 268 | 237 | 249 | 212 | 226 | 214 | 240 | | 250 | 211 | 216 |
| Tot Kjel N | mg/L | - | - | - | 2.9 | 1.9 | 0.8 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | < 0.1 | 0.2 | | 0.2 | 0.2 | 0.2 |
| Ammonia (NH3-N) | mg/L | - | - | - | 1.79 | 1.53 | 0.44 | 0.02 | 0.04 | < 0.01 | < 0.01 | 0.02 | < 0.01 | <0.01 | | 0.02 | 0.02 | 0.01 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | <0.0002 | | 0.000213 | 0.000235 | 0.000135 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 450 | 458 | 452 | 249 | 242 | 239 | 217 | 213 | 207 | 238 | | 250 | 226 | 225 |
| BOD | mg/L | - | - | - | | | | -- | -- | -- | -- | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | -- | -- | -- | -- | | | | | | | |
| TSS | mg/L | - | - | - | | | | -- | -- | -- | -- | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.04 | 0.08 | 0.09 | 0.03 | 0.03 | 0.05 | 0.05 | 0.06 | 0.03 | 0.05 | | 0.06 | 0.02 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | <0.0001 | 0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | < 0.0001 | 0.0002 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.162 | 0.162 | 0.16 | 0.054 | 0.049 | 0.056 | 0.048 | 0.054 | 0.044 | 0.054 | | 0.056 | 0.045 | 0.05 |
| Beryllium | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.106 | 0.117 | 0.114 | < 0.005 | 0.008 | 0.015 | 0.009 | 0.064 | 0.006 | 0.019 | | 0.017 | 0.011 | 0.014 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | <0.01 | <0.01 | | | | | | | | | | | |
| Cobalt | mg/L | - | - | - | 0.0002 | 0.0004 | 0.0004 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.013 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | <0.0001 | 0.0003 | 0.0003 | 0.0013 | 0.0009 | 0.0013 | 0.0005 | 0.0022 | 0.001 | 0.0024 | | 0.0015 | 0.0022 | 0.0018 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00004 | <0.00004 | <0.00004 | 0.00006 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | 0.00006 | 0.00003 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0004 | 0.0001 | 0.0002 | | 0.0001 | 0.0001 | 0.0005 |
| Nickel | mg/L | - | - | - | 0.0008 | 0.0019 | 0.0018 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 1.31 | 1.43 | 1.41 | 0.172 | 0.16 | 0.147 | 0.132 | 0.14 | 0.133 | 0.157 | | 0.166 | 0.143 | 0.148 |
| Thallium | mg/L | - | - | - | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0002 | 0.0007 | 0.0009 | 0.0014 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | | 0.0003 | 0.0003 | < 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | 8.4 | 9.7 | 9.7 | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | 8 | 6.1 | 6.1 | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | 944 | 970 | 970 | | | | | | | | | | | |

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**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW16 | MW16 | MW16 | MW16 | MW16 | MW16 | MW16 | MW16 | MW16 (DUP) | MW16 | MW17 | MW17 | MW17 | MW17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 27-Oct-21 | 20-Apr-22 | 26-Oct-22 | 19-Apr-23 | 11-Oct-23 | 18-Apr-24 | 07-Oct-24 | 23-Apr-25 | 23-Apr-25 | 01-Oct-25 | 28-Apr-16 | 03-Oct-16 | 17-Apr-17 | 23-Oct-17 |
| Total Alkalinity | mg/L | 500 | 363 | 381 | Dry | 204 | 217 | 234 | 240 | Dry | Dry | 213 | 218 | Dry | 252 | 249 | 233 | 269 |
| Calcium | mg/L | - | - | - | | 84.5 | 79.3 | 90.6 | 70.5 | | | 81.3 | 82.3 | | 103 | 127 | 101 | 108 |
| Chloride | mg/L | 250 | 134 | 194 | | 2.6 | 3.3 | 3.7 | 2.9 | | | 2.1 | 2.6 | | 35.9 | 82.3 | 50.3 | 25.3 |
| COD | mg/L | - | - | - | | 9 | 9 | 6 | <5 | | | 98 | 96 | | 23 | 10 | 16 | 35 |
| Specific Conductivity | umhos/cm | - | - | - | | 423 | 454 | 471 | 449 | | | 420 | 430 | | 664 | 835 | 672 | 710 |
| DOC | mg/L | 5 | - | - | | 2.3 | 2.1 | 2.8 | 3.7 | | | 2.5 | 2.4 | | 4.7 | **5.6** | 4.6 | 4.9 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | | < 0.1 | < 0.1 | < 0.1 | <0.1 | | | <0.1 | <0.1 | | 0.1 | < 0.1 | 0.3 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | | 0.005 | < 0.005 | 0.006 | 0.007 | | | <0.005 | <0.005 | | < 0.005 | 0.006 | 0.011 | < 0.005 |
| Magnesium | mg/L | - | - | - | | 5.12 | 4.94 | 5.68 | 4.67 | | | 5.73 | 5.77 | | 13.5 | 16.8 | 12.7 | 14.5 |
| Manganese | mg/L | 0.05 | - | - | | < 0.001 | < 0.001 | < 0.001 | <0.001 | | | 0.001 | 0.004 | | < 0.001 | < 0.001 | < 0.001 | 0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | | 0.4 | 0.37 | 0.48 | 0.37 | | | 0.4 | 0.35 | | 3.4 | 3.7 | 3.6 | 2.88 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | | < 0.05 | < 0.05 | < 0.05 | <0.05 | | | <0.05 | <0.05 | | < 0.1 | < 0.1 | 0.2 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | | 7.69 | 7.8 | 7.9 | 7.29 | | | 7.82 | 8.02 | | 7.98 | 7.91 | 8.03 | 7.78 |
| Phenols | mg/L | - | - | - | | < 0.001 | < 0.001 | < 0.001 | <0.001 | | | <0.001 | <0.001 | | 0.002 | 0.004 | < 0.001 | 0.007 |
| Phosphorus | mg/L | - | - | - | | < 0.1 | < 0.1 | < 0.1 | <0.1 | | | <0.1 | <0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | | 0.9 | 1 | 1.2 | 0.7 | | | 1.1 | 1.1 | | 2.9 | 3.1 | 2.8 | 2.7 |
| Sodium | mg/L | 200 | 106 | 119 | | 3.6 | 3 | 4.7 | 3.6 | | | 3.3 | 3.3 | | 13.4 | 25.6 | 24.6 | 33.6 |
| Sulphate | mg/L | 500 | 251 | 252 | | 5 | 6 | 6 | 4 | | | 4 | 3 | | 25 | 32 | 21 | 38 |
| TDS | mg/L | 500 | 374 | 504 | | 225 | 228 | 252 | 232 | | | 226 | 231 | | 361 | 453 | 369 | 384 |
| Tot Kjel N | mg/L | - | - | - | | 0.2 | 0.4 | 0.2 | <0.1 | | | 3.2 | 0.8 | | 0.7 | 0.6 | 0.5 | 0.4 |
| Ammonia (NH3-N) | mg/L | - | - | - | | 0.18 | 0.17 | 0.08 | <0.05 | | | 1.16 | 0.08 | | 0.04 | 0.05 | 0.02 | < 0.01 |
| Ammonia - Unionized | mg/L | - | - | - | | 0.001501 | 0.001822 | | | | | 0.091627 | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | | 232 | 218 | 250 | 195 | | | 227 | 230 | | 313 | 386 | 305 | 330 |
| BOD | mg/L | - | - | - | | | | | | | | | | | -- | -- | -- | -- |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | -- | -- | -- | -- |
| TSS | mg/L | - | - | - | | | | | | | | | | | -- | -- | -- | -- |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | | 0.06 | 0.02 | 0.02 | 0.06 | | | 0.03 | 0.05 | | 0.03 | 0.04 | 0.06 | 0.07 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | | | <0.0001 | <0.0001 | | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | | | <0.0001 | <0.0001 | | 0.0002 | < 0.0001 | 0.0003 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | | 0.056 | 0.047 | 0.064 | 0.045 | | | 0.062 | 0.063 | | 0.108 | 0.146 | 0.116 | 0.131 |
| Beryllium | mg/L | - | - | - | | < 0.002 | < 0.002 | < 0.002 | <0.0001 | | | <0.0001 | <0.0001 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | | 0.015 | 0.01 | 0.02 | 0.013 | | | 0.024 | 0.023 | | 0.042 | 0.087 | 0.063 | 0.099 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | | | <0.000015 | <0.000015 | | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | | < 0.001 | 0.001 | < 0.001 | <0.001 | | | <0.01 | <0.01 | | < 0.0002 | < 0.0002 | < 0.001 | 0.001 |
| Chromium (VI) | mg/L | - | - | - | | < 0.001 | < 0.001 | < 0.001 | <0.01 | | | <0.01 | <0.01 | | | | | |
| Cobalt | mg/L | - | - | - | | < 0.005 | < 0.005 | < 0.005 | 0.0002 | | | 0.0002 | 0.0002 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | | 0.001 | 0.0011 | 0.0012 | 0.001 | | | 0.0019 | 0.0019 | | 0.0029 | 0.0023 | 0.0036 | 0.0018 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | | < 0.00002 | 0.00011 | < 0.00002 | <0.00002 | | | 0.00004 | 0.00007 | | 0.00004 | < 0.00002 | < 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | | | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | | 0.0017 | 0.0001 | 0.0002 | 0.0001 | | | 0.0003 | 0.0003 | | 0.0008 | 0.0006 | 0.0011 | 0.0007 |
| Nickel | mg/L | - | - | - | | < 0.01 | < 0.01 | < 0.01 | <0.0002 | | | 0.0003 | 0.0004 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | | < 0.001 | < 0.001 | < 0.001 | <0.001 | | | <0.001 | <0.001 | | < 0.001 | < 0.001 | 0.002 | < 0.001 |
| Silver | mg/L | - | - | - | | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | | | <0.0001 | <0.0001 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | - | - | | 0.149 | 0.148 | 0.164 | 0.145 | | | 0.163 | 0.164 | | 0.234 | 0.281 | 0.204 | 0.227 |
| Thallium | mg/L | - | - | - | | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | | | <0.00005 | <0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | | 0.0003 | 0.0002 | 0.0003 | 0.0002 | | | 0.0002 | 0.0003 | | 0.0006 | 0.0009 | 0.0012 | 0.0003 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | | < 0.005 | < 0.005 | < 0.005 | <0.005 | | | <0.005 | <0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | 13.4 | 13.4 | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | 8.55 | 8.55 | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | 403 | 403 | | | | | |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW17 25-Apr-18 | MW17 15-Oct-18 | MW17 11-Apr-19 | MW17 22-Oct-19 | MW17 22-Apr-20 | MW17 19-Oct-20 | MW17 19-Apr-21 | MW17 27-Oct-21 | MW17 20-Apr-22 | MW17 26-Oct-22 | MW17 19-Apr-23 | MW17 12-Oct-23 | MW17 07-Oct-24 | MW17 07-Oct-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 293 | 322 | 328 | Dry | 348 | Dry | 319 | 377 | 310 | Dry | 318 | Dry | Dry | Dry |
| Calcium | mg/L | - | - | - | 108 | 122 | 128 | | 134 | | 136 | 146 | 124 | | 122 | | | |
| Chloride | mg/L | 250 | 134 | 194 | 26.4 | 46.3 | 37 | | 31.4 | | 26.6 | 31.9 | 19.2 | | 19.8 | | | |
| COD | mg/L | - | - | - | 15 | 15 | 25 | | 18 | | 19 | 11 | 19 | | 14 | | | |
| Specific Conductivity | umhos/cm | - | - | - | 678 | 792 | 814 | | 805 | | 749 | 788 | 689 | | 704 | | | |
| DOC | mg/L | 5 | - | - | **6.2** | **7.8** | **8.8** | | **7.9** | | **9.2** | **8.5** | **5.8** | | **6.5** | | | |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | | | |
| Iron | mg/L | 0.3 | - | - | 0.006 | < 0.005 | 0.017 | | 0.008 | | 0.019 | 0.023 | 0.008 | | < 0.005 | | | |
| Magnesium | mg/L | - | - | - | 13.8 | 15.9 | 17.4 | | 19 | | 17.7 | 19.3 | 15.8 | | 15.5 | | | |
| Manganese | mg/L | 0.05 | - | - | < 0.001 | 0.001 | 0.001 | | 0.003 | | 0.009 | 0.009 | 0.008 | | 0.02 | | | |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 1.81 | 1.23 | 0.52 | | 0.44 | | 0.38 | 0.44 | 0.59 | | 0.29 | | | |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | | | |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.97 | 7.84 | 7.95 | | 7.77 | | 7.73 | 7.86 | 7.69 | | 7.83 | | | |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.002 | < 0.002 | | < 0.002 | | < 0.001 | < 0.002 | < 0.001 | | < 0.001 | | | |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | 0.14 | | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | | | |
| Potassium | mg/L | - | - | - | 3.4 | 3 | 3.6 | | 3.4 | | 3.5 | 3.7 | 3.5 | | 3.9 | | | |
| Sodium | mg/L | 200 | 106 | 119 | 32.2 | 22.8 | 17.5 | | 17.3 | | 12.5 | 12.7 | 10.6 | | 10 | | | |
| Sulphate | mg/L | 500 | 251 | 252 | 27 | 38 | 25 | | 20 | | 17 | 20 | 20 | | 23 | | | |
| TDS | mg/L | 500 | 374 | 504 | 386 | 441 | 425 | | 434 | | 404 | 460 | 381 | | 386 | | | |
| Tot Kjel N | mg/L | - | - | - | 0.4 | 0.4 | 0.7 | | 0.3 | | 0.4 | 0.5 | 2.5 | | 0.3 | | | |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.01 | < 0.01 | < 0.01 | | 0.02 | | 0.02 | 0.02 | 1.27 | | 0.08 | | | |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 327 | 370 | 392 | | 413 | | 413 | 444 | 375 | | 370 | | | |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.06 | 0.07 | 0.08 | | 0.08 | | 0.08 | 0.08 | 0.06 | | 0.03 | | | |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | | < 0.0001 | 0.0001 | < 0.0001 | | < 0.0001 | | | |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | 0.0001 | 0.0001 | | 0.0001 | | 0.0001 | 0.0001 | < 0.0001 | | < 0.0001 | | | |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.132 | 0.141 | 0.147 | | 0.155 | | 0.143 | 0.154 | 0.137 | | 0.137 | | | |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | | | |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.08 | 0.107 | 0.084 | | 0.116 | | 0.086 | 0.084 | 0.07 | | 0.069 | | | |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | | < 0.000015 | | < 0.000015 | < 0.000015 | < 0.000015 | | < 0.000010 | | | |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | | 0.001 | | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | | | |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | < 0.001 | | < 0.001 | | | |
| Cobalt | mg/L | - | - | - | 0.008 | 0.006 | 0.012 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | | |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0038 | 0.0033 | 0.0038 | | 0.0032 | | 0.0059 | 0.0052 | 0.003 | | 0.0034 | | | |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00003 | < 0.00002 | < 0.00002 | | < 0.00002 | | 0.00008 | < 0.00002 | 0.00002 | | < 0.00002 | | | |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | | | |
| Molybdenum | mg/L | - | - | - | 0.0011 | 0.0008 | 0.0008 | | 0.001 | | 0.0006 | 0.0007 | 0.0009 | | 0.0008 | | | |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | | | |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.001 | < 0.001 | < 0.001 | | < 0.001 | | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | | | |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | | | |
| Strontium | mg/L | - | - | - | 0.231 | 0.272 | 0.302 | | 0.304 | | 0.318 | 0.353 | 0.277 | | 0.288 | | | |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | | < 0.00005 | < 0.00005 | < 0.005 | | < 0.00005 | | | |
| Vanadium | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0002 | | 0.0002 | | 0.0002 | 0.0002 | 0.0002 | | 0.0002 | | | |
| Zinc | mg/L | 5 | 2.5 | 2.5 | 0.007 | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | | |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW17 | MW17 | MW18 | MW18 | MW18 | MW18 | MW18 | MW18 | MW18 | MW18 | MW18 | MW18 | MW18 | MW18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 23-Apr-25 | 01-Oct-25 | 28-Apr-16 | 04-Oct-16 | 17-Apr-17 | 24-Oct-17 | 24-Apr-18 | 15-Oct-18 | 11-Apr-19 | 21-Oct-19 | 22-Apr-20 | 19-Oct-20 | 19-Apr-21 | 27-Oct-21 |
| Total Alkalinity | mg/L | 500 | 363 | 381 | Dry | Dry | 236 | 217 | 229 | 217 | 299 | 247 | 226 | 245 | 244 | 232 | 226 | 265 |
| Calcium | mg/L | - | - | - | | | 96.3 | 87.8 | 92.4 | 90.4 | 91.1 | 86.4 | 85.6 | 98.8 | 103 | 94.2 | 94.9 | 101 |
| Chloride | mg/L | 250 | 134 | 194 | | | 9.8 | 3.9 | 7.1 | 3.6 | 4.2 | 2.5 | 3.2 | 2.5 | 6.9 | 3.1 | 5.5 | 5.4 |
| COD | mg/L | - | - | - | | | 46 | 35 | 19 | 61 | 67 | 35 | 26 | 47 | 24 | 77 | 18 | 10 |
| Specific Conductivity | umhos/cm | - | - | - | | | 592 | 530 | 549 | 538 | 545 | 567 | 518 | 553 | 611 | 556 | 562 | 575 |
| DOC | mg/L | 5 | - | - | | | 4.6 | **10.7** | **5.5** | **15** | **10.5** | **15.7** | **11** | **12.2** | **9.4** | **14.8** | **10.1** | **8.8** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | | | < 0.1 | < 0.1 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | | | < 0.005 | 0.111 | 0.006 | 0.015 | 0.01 | 0.027 | < 0.005 | 0.009 | 0.025 | 0.048 | 0.012 | 0.024 |
| Magnesium | mg/L | - | - | - | | | 6.68 | 6.12 | 6.09 | 6.36 | 6.43 | 5.73 | 5.69 | 6.34 | 7.19 | 6.23 | 6.05 | 6.49 |
| Manganese | mg/L | 0.05 | - | - | | | < 0.001 | 0.021 | 0.001 | 0.004 | 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | 0.003 | < 0.001 | 0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | | | 5 | 1.7 | 2.9 | 0.8 | 1.71 | 0.57 | 0.36 | 0.53 | 4.88 | 0.86 | 3.47 | 2.74 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | | | < 0.1 | 0.2 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | | | 7.92 | 7.89 | 7.99 | 7.71 | 8.22 | 7.85 | 8.11 | 7.96 | 7.83 | 7.82 | 7.88 | 7.89 |
| Phenols | mg/L | - | - | - | | | 0.004 | 0.01 | < 0.001 | 0.003 | < 0.001 | 0.003 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.002 |
| Phosphorus | mg/L | - | - | - | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.15 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | | | 39 | 32.9 | 40.8 | 34.8 | 40.9 | 41.8 | 18.5 | 41.1 | 32.4 | 41.7 | 35.2 | 33.7 |
| Sodium | mg/L | 200 | 106 | 119 | | | 6.7 | 3 | 5.5 | 2.6 | 3.9 | 3.4 | 10.5 | 4 | 8.1 | 3 | 5 | 4.1 |
| Sulphate | mg/L | 500 | 251 | 252 | | | 26 | 33 | 18 | 36 | 21 | 38 | 25 | 26 | 31 | 29 | 22 | 28 |
| TDS | mg/L | 500 | 374 | 504 | | | 348 | 306 | 321 | 304 | 347 | 326 | 284 | 326 | 336 | 316 | 304 | 338 |
| Tot Kjel N | mg/L | - | - | - | | | 1.3 | 2.1 | 0.7 | 1.2 | 0.9 | 1.2 | 0.7 | 1 | 0.9 | 1.5 | 0.9 | 0.9 |
| Ammonia (NH3-N) | mg/L | - | - | - | | | 0.03 | 0.63 | 0.02 | 0.01 | 0.01 | < 0.01 | < 0.01 | 0.04 | 0.03 | 0.04 | 0.03 | 0.06 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | | | 268 | 245 | 256 | 252 | 254 | 240 | 237 | 273 | 287 | 261 | 262 | 279 |
| BOD | mg/L | - | - | - | | | -- | -- | -- | -- | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | -- | -- | -- | -- | | | | | | | | |
| TSS | mg/L | - | - | - | | | -- | -- | -- | -- | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | | | 0.03 | 0.07 | 0.06 | 0.05 | 0.06 | 0.05 | 0.05 | 0.06 | 0.06 | 0.07 | 0.06 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | | | < 0.0001 | 0.0005 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | | | 0.0003 | 0.0002 | 0.0004 | 0.0003 | 0.0003 | 0.0004 | 0.0002 | 0.0003 | 0.0002 | 0.0004 | 0.0003 | 0.0003 |
| Barium | mg/L | 1 | 0.32 | 0.28 | | | 0.08 | 0.06 | 0.086 | 0.068 | 0.08 | 0.079 | 0.043 | 0.085 | 0.074 | 0.08 | 0.072 | 0.072 |
| Beryllium | mg/L | - | - | - | | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | | | < 0.005 | 0.018 | 0.024 | 0.023 | 0.02 | 0.023 | 0.015 | 0.023 | 0.024 | 0.021 | 0.022 | 0.022 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | | | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | | | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cobalt | mg/L | - | - | - | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.006 | 0.011 | 0.006 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | | | 0.0067 | 0.0067 | 0.0069 | 0.0071 | 0.0079 | 0.0132 | 0.0084 | 0.0122 | 0.0076 | 0.015 | 0.0102 | 0.0075 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | | | 0.00003 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | 0.00005 | < 0.00002 | 0.0001 | 0.00006 | 0.00003 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | | | 0.0014 | 0.002 | 0.0016 | 0.0016 | 0.0017 | 0.0019 | 0.0011 | 0.0017 | 0.0009 | 0.0015 | 0.0011 | 0.001 |
| Nickel | mg/L | - | - | - | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | | | < 0.001 | < 0.001 | 0.003 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | | | 0.122 | 0.096 | 0.105 | 0.099 | 0.109 | 0.109 | 0.11 | 0.128 | 0.13 | 0.113 | 0.115 | 0.13 |
| Thallium | mg/L | - | - | - | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | | | 0.001 | 0.0013 | 0.0017 | 0.0009 | 0.0006 | 0.0008 | 0.0004 | 0.0006 | 0.0006 | 0.0009 | 0.0007 | 0.0007 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | | | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW18 20-Apr-22 | MW18 26-Oct-22 | MW18 19-Apr-23 | MW18 11-Oct-23 | MW18 17-Apr-24 | MW18 07-Oct-24 | MW18 23-Apr-25 | MW18 01-Oct-25 | MW18A 28-Apr-16 | MW18A 04-Oct-16 | MW18A 17-Apr-17 | MW18A 24-Oct-17 | MW18A 24-Apr-18 | MW18A 15-Oct-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 272 | 264 | 267 | 283 | 255 | 253 | 268 | 243 | 381 | 379 | 381 | 378 | 377 | 376 |
| Calcium | mg/L | - | - | - | 108 | 99.8 | 97.4 | 80.3 | 87.9 | 92 | 93 | 89.6 | 122 | 126 | 125 | 126 | 127 | 119 |
| Chloride | mg/L | 250 | 134 | 194 | 5.2 | 3.2 | 3.8 | 2.8 | 5.3 | 3.1 | 5.5 | 3.3 | 86.9 | 91 | 85.7 | 73.5 | 75.3 | 90.1 |
| COD | mg/L | - | - | - | 25 | 43 | 29 | 39 | 47 | 98 | 51 | 62 | 24 | 38 | 24 | 30 | 19 | 18 |
| Specific Conductivity | umhos/cm | - | - | - | 631 | 599 | 592 | 608 | 562 | 595 | 611 | 572 | 967 | 985 | 971 | 975 | 949 | 963 |
| DOC | mg/L | 5 | - | - | **7.8** | **11.2** | **5.9** | **17.6** | **10.2** | **14.9** | **11.1** | **14.4** | **5.5** | **7.3** | **7.4** | **7.3** | 8 | **7.9** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 | 0.1 | 0.2 | 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | 0.007 | 0.163 | 0.017 | 0.012 | 0.007 | 0.02 | 0.119 | 0.019 | **2.52** | **1.59** | **2.42** | **2.18** | **1.92** | **2.1** |
| Magnesium | mg/L | - | - | - | 6.39 | 7.2 | 6.36 | 6.24 | 5.27 | 6.51 | 6.34 | 5.9 | 29 | 30.9 | 29.8 | 30.9 | 31.1 | 27.9 |
| Manganese | mg/L | 0.05 | - | - | < 0.001 | 0.024 | 0.006 | 0.001 | <0.001 | 0.001 | 0.019 | 0.003 | **0.123** | **0.111** | **0.111** | **0.113** | **0.111** | **0.104** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 3.85 | 1.85 | 2.4 | 1.21 | 2.74 | 1.39 | 2.67 | 0.51 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.65 | 7.77 | 7.83 | 7.3 | 7.87 | 7.95 | 7.77 | 8.04 | 7.7 | 7.77 | 7.9 | 7.57 | 7.8 | 7.75 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.005 | 0.005 | < 0.001 | 0.006 | < 0.001 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 30.6 | 34.8 | 36.9 | 35.4 | 28.2 | 43.2 | 34.5 | 39.2 | 7 | 7.4 | 7.3 | 7.3 | 7.7 | 6.7 |
| Sodium | mg/L | 200 | 106 | 119 | 5.5 | 8.6 | 5.7 | 3.2 | 4 | 3 | 7 | 3 | 36.3 | 38.9 | 37.2 | 38.1 | 41.5 | 36.1 |
| Sulphate | mg/L | 500 | 251 | 252 | 26 | 28 | 20 | 36 | 15 | 33 | 27 | 37 | 3 | 2 | 3 | 3 | 2 | 2 |
| TDS | mg/L | 500 | 374 | 504 | 346 | 340 | 331 | 316 | 291 | 309 | 346 | 327 | **518** | **527** | **521** | **507** | **515** | **511** |
| Tot Kjel N | mg/L | - | - | - | 1.1 | 1.1 | 1 | 1.1 | 1.4 | 1.3 | 1.5 | 1.3 | 1.8 | 1.7 | 1.5 | 1.6 | 1.7 | 1.6 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.79 | 0.19 | 0.36 | <0.05 | 0.41 | 0.16 | 0.06 | 0.06 | 1.37 | 1.28 | 1.32 | 1.3 | 1.5 | 1.22 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 296 | 279 | 270 | 226 | 241 | 257 | 258 | 248 | 424 | 442 | 435 | 442 | 445 | 412 |
| BOD | mg/L | - | - | - | | | | | | | | | -- | -- | -- | -- | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | -- | -- | -- | -- | | |
| TSS | mg/L | - | - | - | | | | | | | | | -- | -- | -- | -- | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.02 | 0.03 | 0.06 | 0.06 | 0.05 | **0.13** | 0.06 | 0.03 | 0.07 | 0.07 | 0.06 | 0.09 | 0.07 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0001 | < 0.0001 | 0.0002 | <0.0001 | 0.0002 | 0.0001 | 0.0002 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0003 | 0.0002 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0006 | 0.0002 | 0.0004 | 0.0004 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.076 | 0.075 | 0.083 | 0.071 | 0.062 | 0.078 | 0.07 | 0.071 | 0.199 | 0.215 | 0.213 | 0.226 | 0.217 | 0.213 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.021 | 0.024 | 0.024 | 0.021 | 0.02 | 0.024 | 0.026 | 0.021 | 0.185 | 0.217 | 0.221 | 0.227 | 0.222 | 0.197 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | **0.269** | 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | 0.0004 | 0.0002 | 0.0004 | 0.0005 | 0.0004 | < 0.005 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0063 | 0.0099 | 0.0076 | 0.0122 | 0.0066 | 0.0114 | 0.0092 | 0.0086 | 0.0006 | 0.0003 | 0.001 | 0.0001 | < 0.0001 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | 0.00017 | <0.00002 | < 0.00002 | 0.00007 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.001 | 0.0011 | 0.001 | 0.0016 | 0.0012 | 0.0017 | 0.0013 | 0.0019 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | 0.001 | 0.0006 | 0.0009 | 0.0008 | 0.0016 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.006 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.134 | 0.139 | 0.122 | 0.105 | 0.11 | 0.118 | 0.129 | 0.103 | 1.62 | 1.66 | 1.55 | 1.61 | 1.67 | 1.55 |
| Thallium | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0006 | 0.0007 | 0.0006 | 0.0007 | 0.0006 | 0.0007 | 0.0008 | 0.0008 | 0.0011 | < 0.0001 | 0.0017 | 0.0006 | 0.0003 | 0.0003 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | 0.006 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | 7.9 | 11.5 | 10.8 | 10.5 | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | 7.78 | 7.62 | 8.38 | 6.58 | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | 568 | 517 | 599 | 612 | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW18A 11-Apr-19 | MW18A 21-Oct-19 | MW18A 22-Apr-20 | MW18A 19-Oct-20 | MW18A 19-Apr-21 | MW18A 27-Oct-21 | MW18A 20-Apr-22 | MW18A 26-Oct-22 | MW18A 19-Apr-23 | MW18A 11-Oct-23 | MW18A 17-Apr-24 | MW18A 07-Oct-24 | MW18A 23-Apr-25 | MW18A 01-Oct-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 354 | 365 | 349 | 352 | 354 | 413 | 391 | 419 | 426 | 458 | 436 | 440 | 466 | 479 |
| Calcium | mg/L | - | - | - | 123 | 131 | 121 | 127 | 131 | 131 | 133 | 129 | 141 | 119 | 134 | 145 | 141 | 151 |
| Chloride | mg/L | 250 | 134 | 194 | 86.5 | 78.4 | 88.9 | 80.5 | 81.5 | 80.6 | 81.9 | 82.6 | 81.4 | 92.6 | 91.6 | 103 | 100 | 105 |
| COD | mg/L | - | - | - | 19 | 17 | 23 | 18 | 20 | 18 | 29 | 26 | 23 | 27 | 33 | 42 | 36 | 21 |
| Specific Conductivity | umhos/cm | - | - | - | 964 | 953 | 950 | 942 | 951 | 960 | 1000 | 1040 | 1026 | 1090 | 1090 | 1120 | 1150 | 1190 |
| DOC | mg/L | 5 | - | - | 8 | **8.4** | **7.3** | **5.8** | **6.6** | **7.8** | **5.9** | 5 | **6.2** | **9.5** | **12.7** | **12** | **8.8** | **8.3** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 |
| Iron | mg/L | 0.3 | - | - | **2.06** | **2.28** | **2.04** | **2.4** | **2.53** | **2.94** | **2.9** | **3.33** | **4.18** | **3.85** | **3.8** | **4.44** | **5.18** | **4.7** |
| Magnesium | mg/L | - | - | - | 29.9 | 30.9 | 31.1 | 29.1 | 30.7 | 29.9 | 31.6 | 31.5 | 29.9 | 26 | 31.4 | 32.8 | 34.1 | 34.1 |
| Manganese | mg/L | 0.05 | - | - | **0.102** | **0.109** | **0.103** | **0.117** | **0.114** | **0.126** | **0.122** | **0.128** | **0.162** | **0.15** | **0.141** | **0.167** | **0.166** | **0.167** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | 0.06 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.94 | 7.83 | 7.74 | 7.6 | 7.73 | 7.85 | 7.66 | 7.63 | 7.67 | 7.34 | 7.74 | 7.75 | 7.73 | 7.71 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.002 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 7.6 | 7.9 | 7.3 | 7.2 | 7.6 | 7.6 | 7.6 | 8.5 | 7.7 | 6.5 | 7.7 | 8.4 | 8.2 | 8.4 |
| Sodium | mg/L | 200 | 106 | 119 | 39.3 | 40.2 | 39.3 | 37 | 40 | 39.6 | 38.7 | 38.9 | 39.7 | 36.4 | 40.7 | 46 | 48.6 | 47.5 |
| Sulphate | mg/L | 500 | 251 | 252 | 3 | 3 | 3 | 2 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | 1 | <1 | <1 | <1 |
| TDS | mg/L | 500 | 374 | 504 | **505** | **514** | **501** | 496 | **505** | **541** | **530** | **547** | **562** | **584** | **587** | **604** | **617** | **639** |
| Tot Kjel N | mg/L | - | - | - | 1.6 | 1.5 | 1.7 | 1.6 | 1.4 | 1.6 | 2.2 | 2.1 | 2.3 | 2.7 | 2 | 2.7 | 2.3 | 2.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | 1.2 | 1.28 | 1.2 | 1.29 | 1.29 | 1.36 | 1.71 | 1.44 | 2.02 | 1.58 | 1.52 | 2.22 | 1.54 | 1.52 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 430 | 454 | 430 | 437 | 454 | 450 | 462 | 451 | 475 | 404 | 464 | 498 | 492 | **518** |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.08 | 0.09 | 0.07 | 0.04 | 0.08 | 0.09 | 0.07 | 0.04 | 0.04 | 0.07 | 0.08 | 0.04 | 0.05 | 0.09 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | 0.0002 | <0.0001 | 0.0002 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.216 | 0.24 | 0.213 | 0.223 | 0.229 | 0.237 | 0.224 | 0.228 | 0.267 | 0.238 | 0.247 | 0.282 | 0.271 | 0.28 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.227 | 0.241 | 0.227 | 0.218 | 0.228 | 0.232 | 0.233 | 0.249 | 0.252 | 0.236 | 0.273 | 0.305 | 0.332 | 0.315 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000012 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | 0.007 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0005 | 0.0004 | 0.0006 | 0.0003 | 0.0006 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0004 | 0.0006 | < 0.0001 | 0.001 | 0.001 | 0.0006 | 0.0003 | 0.0005 | 0.0002 | 0.0007 | 0.0007 | 0.0003 | <0.0001 | 0.0005 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00007 | < 0.00002 | 0.00005 | 0.00004 | 0.00002 | 0.00002 | 0.00002 | < 0.00004 | <0.00002 | 0.00003 | <0.00002 | 0.00003 | <0.00004 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0015 | 0.0015 | 0.0017 | 0.0019 | 0.0035 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.002 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 1.73 | 1.77 | 1.66 | 1.59 | 1.72 | 1.68 | 1.74 | 1.68 | 1.65 | 1.37 | 1.75 | 1.78 | 1.88 | 1.86 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0005 | 0.0006 | 0.0006 | 0.0006 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.006 | <0.005 | <0.005 | <0.005 | <0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | 8.3 | 10.2 | 10.4 | 10.4 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | 7.48 | 7.75 | 7.92 | 6.75 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | 981 | 890 | 1067 | 1133 |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW18B 28-Apr-16 | MW18B 04-Oct-16 | MW18B 17-Apr-17 | MW18B 24-Oct-17 | MW18B 24-Apr-18 | MW18B 15-Oct-18 | MW18B 11-Apr-19 | MW18B 21-Oct-19 | MW18B 22-Apr-20 | MW18B 19-Oct-20 | MW18B 19-Apr-21 | MW18B 27-Oct-21 | MW18B 20-Apr-22 | MW18B 26-Oct-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 357 | 355 | 352 | 342 | 360 | 348 | 359 | 343 | 330 | 331 | 341 | 411 | 404 | 414 |
| Calcium | mg/L | - | - | - | 146 | 156 | 153 | 156 | 155 | 141 | 149 | 151 | 133 | 145 | 146 | 157 | 159 | 151 |
| Chloride | mg/L | 250 | 134 | 194 | 73.8 | 81.4 | 74.3 | 64.7 | 73.1 | 78.7 | 71 | 63.5 | 59.4 | 59.5 | 51.5 | 55.7 | 57.2 | 60.3 |
| COD | mg/L | - | - | - | 32 | 20 | 24 | 26 | 45 | 19 | 23 | 18 | 23 | 20 | 21 | 19 | 29 | 29 |
| Specific Conductivity | umhos/cm | - | - | - | 918 | 952 | 919 | 916 | 929 | 921 | 921 | 906 | 844 | 867 | 861 | 902 | 959 | 977 |
| DOC | mg/L | 5 | - | - | **6.3** | **7.1** | **7.7** | **7.7** | **7.9** | **8.2** | **9.2** | **9.6** | **8.5** | **7.1** | **9.8** | **9.1** | **7.2** | **6.3** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **8.1** | **8.34** | **8.48** | **8.15** | **3.69** | **7.32** | **7.65** | **8.08** | **6.92** | **7.46** | **7.88** | **8.31** | **8.45** | **8.98** |
| Magnesium | mg/L | - | - | - | 11.1 | 11.8 | 11 | 11.7 | 11.6 | 10.2 | 10.8 | 10.9 | 10.3 | 10.5 | 10.5 | 11.3 | 11.6 | 12.3 |
| Manganese | mg/L | 0.05 | - | - | **0.404** | **0.414** | **0.426** | **0.43** | **0.415** | **0.373** | **0.394** | **0.418** | **0.377** | **0.394** | **0.408** | **0.447** | **0.449** | **0.427** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.06 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.57 | 7.56 | 7.79 | 7.47 | 7.73 | 7.7 | 7.87 | 7.74 | 7.69 | 7.56 | 7.63 | 7.82 | 7.5 | 7.55 |
| Phenols | mg/L | - | - | - | 0.004 | 0.006 | < 0.001 | 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 3.7 | 3.7 | 3.9 | 3.8 | 4.2 | 3.4 | 4 | 4.1 | 3.7 | 3.7 | 4 | 4.3 | 4.3 | 4.7 |
| Sodium | mg/L | 200 | 106 | 119 | 34.5 | 38.6 | 35.4 | 37.7 | 42 | 35.6 | 40.3 | 41.9 | 40.3 | 38.3 | 39.3 | 39.7 | 38.9 | 40.8 |
| Sulphate | mg/L | 500 | 251 | 252 | 17 | 17 | 16 | 13 | 14 | 17 | 16 | 16 | 15 | 16 | 11 | 10 | 8 | 6 |
| TDS | mg/L | 500 | 374 | 504 | **510** | **531** | **516** | **501** | **522** | **504** | **516** | **503** | 462 | 478 | 469 | **535** | **525** | **536** |
| Tot Kjel N | mg/L | - | - | - | 1.8 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.8 | 1.6 | 1.6 | 1.7 | 1.5 | 1.8 | 2.2 | 2.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | 1.37 | 1.48 | 1.46 | 1.37 | 1.31 | 1.25 | 1.32 | 1.37 | 1.26 | 1.29 | 1.43 | 1.6 | 1.89 | 1.74 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 409 | 437 | 428 | 438 | 435 | 394 | 417 | 422 | 375 | 405 | 408 | 439 | 445 | 429 |
| BOD | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| TSS | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.04 | 0.05 | 0.09 | 0.08 | 0.08 | 0.07 | **0.11** | 0.09 | 0.08 | 0.05 | 0.08 | 0.08 | 0.09 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0005 | 0.0001 | 0.0006 | 0.0005 | < 0.0001 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.199 | 0.229 | 0.234 | 0.239 | 0.216 | 0.212 | 0.224 | 0.241 | 0.205 | 0.21 | 0.218 | 0.235 | 0.236 | 0.233 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.06 | 0.087 | 0.09 | 0.095 | 0.088 | 0.078 | 0.096 | 0.099 | 0.092 | 0.092 | 0.089 | 0.095 | 0.1 | 0.113 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.0002 | 0.034 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | | < 0.001 | < 0.001 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | 0.006 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0007 | 0.0005 | 0.0002 | 0.0002 | 0.0007 | 0.0003 | 0.0007 | 0.0009 | < 0.0001 | 0.0017 | 0.0015 | 0.0007 | 0.0004 | 0.0006 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00004 | 0.00008 | 0.00003 | 0.00003 | 0.00003 | 0.00002 | 0.00023 | 0.00009 | 0.00003 | 0.00012 | 0.00006 | 0.00004 | 0.00015 | 0.00008 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | 0.00015 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.371 | 0.375 | 0.338 | 0.363 | 0.373 | 0.341 | 0.377 | 0.381 | 0.334 | 0.353 | 0.362 | 0.399 | 0.401 | 0.431 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 |
| Vanadium | mg/L | - | - | - | 0.0016 | 0.0009 | 0.0023 | 0.0011 | 0.0002 | 0.0009 | 0.001 | 0.0009 | 0.0009 | 0.001 | 0.001 | 0.001 | 0.0011 | 0.0011 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW18B 19-Apr-23 | MW18B 11-Oct-23 | MW18B 17-Apr-24 | MW18B 07-Oct-24 | MW18B 23-Apr-25 | MW18B 01-Oct-25 | MW19 28-Apr-16 | MW19 03-Oct-16 | MW19 17-Apr-17 | MW19 23-Oct-17 | MW19 24-Apr-18 | MW19 15-Oct-18 | MW19 11-Apr-19 | MW19 21-Oct-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 454 | 474 | **511** | 492 | **550** | **511** | 318 | 320 | 303 | 305 | 298 | 301 | 288 | 292 |
| Calcium | mg/L | - | - | - | 175 | 134 | 185 | 184 | 195 | 188 | 145 | 149 | 132 | 138 | 134 | 129 | 134 | 153 |
| Chloride | mg/L | 250 | 134 | 194 | 65.2 | 70.9 | 77.4 | 85.1 | 92.7 | 84.9 | 36 | 34.9 | 36 | 32.9 | 33.5 | 45.7 | 58.7 | 56.1 |
| COD | mg/L | - | - | - | 30 | 31 | 43 | 43 | 48 | 24 | 16 | 8 | 16 | 20 | 11 | 11 | 11 | 14 |
| Specific Conductivity | umhos/cm | - | - | - | 1035 | 1050 | 1180 | 1170 | 1280 | 1190 | 845 | 840 | 783 | 791 | 731 | 783 | 823 | 829 |
| DOC | mg/L | 5 | - | - | **7.9** | **10.8** | **19.1** | **14.6** | **11** | **8.8** | 4.3 | **5.8** | **5.1** | **5.4** | **5.8** | **5.7** | **5.7** | **5.8** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 | < 0.1 | < 0.1 | 0.4 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **10.7** | **8.31** | **12.2** | **11.6** | **15.3** | **12.4** | 0.052 | 0.081 | 0.07 | 0.089 | 0.009 | 0.064 | 0.041 | 0.081 |
| Magnesium | mg/L | - | - | - | 12.6 | 11.2 | 13.7 | 14.5 | 15.4 | 14 | 15.4 | 16.4 | 13.9 | 14.6 | 13.8 | 12.8 | 13.5 | 15.1 |
| Manganese | mg/L | 0.05 | - | - | **0.52** | **0.402** | **0.551** | **0.544** | **0.611** | **0.555** | **0.06** | **0.063** | **0.058** | **0.061** | **0.06** | **0.063** | **0.06** | **0.079** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 0.8 | 0.3 | 0.7 | 0.69 | 0.66 | 0.39 | 1.41 | 0.82 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.65 | 7.27 | 7.61 | 7.66 | 7.46 | 7.62 | 7.88 | 7.8 | 8.05 | 7.79 | 8.05 | 7.91 | 8.04 | 7.91 |
| Phenols | mg/L | - | - | - | < 0.001 | <0.001 | <0.001 | <0.001 | 0.002 | <0.001 | 0.001 | 0.006 | < 0.001 | 0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 5 | 4.2 | 5.2 | 6 | 6.1 | 5.9 | 3.2 | 3.4 | 3.2 | 3.2 | 3.6 | 3.1 | 4 | 3.9 |
| Sodium | mg/L | 200 | 106 | 119 | 41.5 | 38.7 | 44.5 | 49.6 | 54.8 | 49.5 | 18.4 | 25.8 | 17.7 | 17.9 | 18.9 | 16.5 | 18.9 | 21.7 |
| Sulphate | mg/L | 500 | 251 | 252 | 2 | 2 | 2 | <1 | <1 | <1 | 85 | 82 | 61 | 41 | 33 | 42 | 38 | 40 |
| TDS | mg/L | 500 | 374 | 504 | **587** | **564** | **635** | **628** | **710** | **663** | 497 | **505** | 450 | 432 | 416 | 429 | 440 | 465 |
| Tot Kjel N | mg/L | - | - | - | 2.9 | 2.3 | 3.5 | 2.7 | 3 | 2.7 | 0.5 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.5 | 0.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | 2.64 | 2.37 | 2.64 | 2.23 | 2.21 | 1.96 | 0.02 | 0.04 | 0.04 | 0.03 | 0.04 | 0.02 | < 0.01 | 0.02 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 488 | 381 | **519** | **520** | **550** | **528** | 425 | 440 | 387 | 405 | 392 | 375 | 390 | 445 |
| BOD | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| TSS | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.08 | 0.1 | 0.06 | 0.07 | **0.11** | 0.04 | 0.07 | 0.07 | 0.07 | 0.08 | 0.07 | 0.07 | 0.09 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0004 | 0.0003 | 0.0001 | 0.0002 | 0.0003 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.277 | 0.22 | 0.304 | 0.302 | 0.332 | 0.31 | 0.143 | 0.169 | 0.149 | 0.156 | 0.149 | 0.147 | 0.151 | 0.183 |
| Beryllium | mg/L | - | - | - | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.143 | 0.127 | 0.195 | 0.192 | 0.267 | 0.198 | 0.058 | 0.088 | 0.085 | 0.084 | 0.075 | 0.065 | 0.073 | 0.078 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000012 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | 0.0098 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | 0.0006 | 0.0007 | 0.0008 | 0.0005 | 0.0008 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.008 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0002 | 0.0007 | 0.0005 | 0.0003 | <0.0001 | 0.0005 | 0.0023 | 0.0017 | 0.0014 | 0.0011 | 0.0034 | 0.0017 | 0.0021 | 0.0024 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00004 | <0.00002 | 0.00002 | <0.00002 | 0.00005 | <0.00004 | < 0.00002 | 0.00004 | < 0.00002 | < 0.00002 | 0.00005 | < 0.00002 | < 0.00002 | 0.00007 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0006 | 0.0007 | 0.0007 | 0.0005 | 0.0006 | 0.0006 | 0.0013 | 0.0007 |
| Nickel | mg/L | - | - | - | < 0.01 | 0.0012 | 0.003 | 0.0016 | 0.0023 | 0.0035 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.003 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.45 | 0.397 | 0.494 | 0.522 | 0.567 | 0.503 | 0.318 | 0.468 | 0.258 | 0.277 | 0.27 | 0.264 | 0.29 | 0.322 |
| Thallium | mg/L | - | - | - | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0011 | 0.0011 | 0.0013 | 0.0012 | 0.0015 | 0.0015 | 0.0007 | 0.001 | 0.0015 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | < 0.005 | < 0.005 | 0.007 | < 0.005 | 0.009 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | 8.9 | 10.5 | 9.9 | 10.6 | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | 6.94 | 7.64 | 7.78 | 7.02 | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | 1060 | 1108 | 1232 | 1166 | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW19 22-Apr-20 | MW19 19-Oct-20 | MW19 19-Apr-21 | MW19 27-Oct-21 | MW19 20-Apr-22 | MW19 20-Apr-22 | MW19 26-Oct-22 | MW19 19-Apr-23 | MW19 11-Oct-23 | MW19 17-Apr-24 | MW19 07-Oct-24 | MW19 (DUP) 23-Apr-25 | MW19 23-Apr-25 | MW19 (DUP) 01-Oct-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 294 | 293 | 318 | 405 | 423 | 435 | 445 | 449 | 462 | 472 | 460 | 495 | **504** | 454 |
| Calcium | mg/L | - | - | - | 134 | 133 | 139 | 148 | 165 | 166 | 152 | 160 | 130 | 170 | 172 | 178 | 177 | 168 |
| Chloride | mg/L | 250 | 134 | 194 | 52.6 | 40.2 | 36.8 | 34.1 | 33.1 | 32.8 | 28.3 | 29.5 | 32.3 | 34.6 | 39.7 | 47.7 | 48.9 | 39.9 |
| COD | mg/L | - | - | - | 15 | 9 | 12 | 9 | 26 | 21 | 14 | 11 | 18 | 29 | 25 | 24 | 25 | 8 |
| Specific Conductivity | umhos/cm | - | - | - | 818 | 784 | 814 | 862 | 963 | 969 | 950 | 932 | 940 | 1000 | 997 | 1080 | 1090 | 972 |
| DOC | mg/L | 5 | - | - | **5.9** | 4.9 | **6.5** | **5.8** | **5.7** | **5.7** | 5 | **6.5** | **8.8** | **10.3** | 9 | **7.6** | **7.7** | **6.7** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Iron | mg/L | 0.3 | - | - | 0.057 | 0.108 | 0.076 | 0.147 | 0.211 | 0.202 | **0.458** | < 0.005 | 0.292 | **0.425** | **0.511** | **0.519** | **0.518** | **0.636** |
| Magnesium | mg/L | - | - | - | 14.6 | 14 | 14.4 | 15.6 | 17.7 | 17.8 | 18.3 | 17.4 | 16.6 | 19.7 | 21.3 | 23 | 22.6 | 20.4 |
| Manganese | mg/L | 0.05 | - | - | **0.071** | **0.071** | **0.078** | **0.085** | **0.101** | **0.101** | **0.101** | **0.106** | **0.097** | **0.142** | **0.155** | **0.177** | **0.176** | **0.164** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.92 | 0.08 | 0.35 | 0.07 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.9 | 7.69 | 7.86 | 7.94 | 7.74 | 7.74 | 7.68 | 7.73 | 7.44 | 7.91 | 7.78 | 7.67 | 7.78 | 7.76 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 3.5 | 3.5 | 3.8 | 3.9 | 4 | 4.1 | 4.2 | 4 | 3.4 | 4 | 4.7 | 4.5 | 4.5 | 4.2 |
| Sodium | mg/L | 200 | 106 | 119 | 23.9 | 24.7 | 31.3 | 33.3 | 33.1 | 33.4 | 29.8 | 24.6 | 20.2 | 19.7 | 21.4 | 21.8 | 21.4 | 20.1 |
| Sulphate | mg/L | 500 | 251 | 252 | 44 | 44 | 35 | 34 | 31 | 31 | 28 | 24 | 21 | 19 | 18 | 17 | 17 | 14 |
| TDS | mg/L | 500 | 374 | 504 | 449 | 436 | 451 | **512** | **540** | **547** | **528** | **529** | 500 | **534** | **532** | **589** | **594** | **540** |
| Tot Kjel N | mg/L | - | - | - | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.7 | 0.3 | 0.6 | 0.4 | 0.5 | 0.5 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.01 | 0.02 | 0.02 | 0.03 | 0.18 | 0.02 | 0.07 | 0.43 | <0.05 | 0.33 | 0.09 | 0.07 | <0.05 | 0.1 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 395 | 390 | 407 | 434 | 485 | 488 | 456 | 471 | 393 | **506** | **519** | **538** | **535** | **504** |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.08 | 0.04 | 0.08 | 0.08 | 0.08 | 0.08 | 0.04 | 0.04 | 0.08 | 0.09 | 0.06 | 0.06 | 0.05 | 0.1 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.158 | 0.154 | 0.166 | 0.18 | 0.2 | 0.201 | 0.195 | 0.203 | 0.168 | 0.216 | 0.223 | 0.234 | 0.233 | 0.217 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.075 | 0.072 | 0.079 | 0.084 | 0.093 | 0.094 | 0.106 | 0.105 | 0.105 | 0.105 | 0.118 | 0.123 | 0.12 | 0.109 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.003 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.007 | 0.001 | 0.001 | 0.0016 | 0.0014 | 0.0013 | 0.0016 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0033 | 0.0034 | 0.0038 | 0.0023 | 0.0021 | 0.0021 | 0.0023 | 0.0023 | 0.0024 | 0.0027 | 0.0029 | 0.0033 | 0.0032 | 0.0035 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00004 | 0.00007 | 0.00007 | < 0.00002 | 0.00003 | 0.00004 | < 0.00002 | < 0.00002 | <0.00002 | 0.00003 | 0.00002 | 0.00005 | 0.00004 | 0.00005 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0004 | 0.0006 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0024 | 0.004 | 0.0037 | 0.0053 | 0.005 | 0.0068 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.282 | 0.277 | 0.288 | 0.312 | 0.341 | 0.344 | 0.336 | 0.327 | 0.304 | 0.356 | 0.381 | 0.412 | 0.404 | 0.351 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | 8.5 | 9.5 | 11.5 | 11.5 | 10.5 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | 7.43 | 7.34 | 6.85 | 6.85 | 6.06 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | 890 | 960 | 775 | 775 | 980 |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW19 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 | MW22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 01-Oct-25 | 27-Apr-16 | 03-Oct-16 | 17-Apr-17 | 24-Oct-17 | 24-Apr-18 | 15-Oct-18 | 11-Apr-19 | 21-Oct-19 | 22-Apr-20 | 20-Oct-20 | 19-Apr-21 | 27-Oct-21 | 20-Apr-22 |
| Total Alkalinity | mg/L | 500 | 363 | 381 | 431 | 260 | 298 | 309 | 250 | 262 | 273 | 240 | 258 | 237 | 239 | 235 | 263 | 255 |
| Calcium | mg/L | - | - | - | 167 | 105 | 146 | 143 | 89.5 | 114 | 84.2 | 85.5 | 102 | 86.2 | 92.9 | 90.1 | 87.2 | 88.1 |
| Chloride | mg/L | 250 | 134 | 194 | 37.4 | 92.1 | 106 | 90.9 | 48 | 92.9 | 46.8 | 56.2 | 59.5 | 63.1 | 55.3 | 55.8 | 49.8 | 56 |
| COD | mg/L | - | - | - | 10 | 12 | 24 | 31 | 29 | 25 | 21 | 24 | 32 | 31 | 22 | 26 | 15 | 32 |
| Specific Conductivity | umhos/cm | - | - | - | 938 | 798 | 910 | 879 | 665 | 818 | 655 | 657 | 698 | 655 | 654 | 661 | 621 | 673 |
| DOC | mg/L | 5 | - | - | **6.7** | **7.1** | **7.8** | **9.7** | **8.3** | **8.8** | **9.1** | **8.5** | **12.9** | **8.2** | **8.4** | **9.4** | **10** | **8.7** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | <0.1 | 0.2 | < 0.1 | 0.4 | 0.1 | < 0.1 | < 0.1 | 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.633** | **1.42** | **2.94** | **3.22** | **1.05** | **1.68** | **1.13** | **1.63** | **2.22** | **1.47** | **1.51** | **1.44** | **1.4** | **1.6** |
| Magnesium | mg/L | - | - | - | 20.3 | 19.8 | 6 | 5.67 | 19.3 | 20.1 | 16.8 | 18.7 | 19.4 | 19.8 | 16.8 | 18.7 | 18.2 | 18.8 |
| Manganese | mg/L | 0.05 | - | - | **0.163** | 0.048 | **0.161** | **0.162** | 0.035 | **0.055** | 0.03 | 0.04 | **0.055** | 0.033 | 0.039 | 0.039 | 0.034 | 0.035 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | 0.5 | < 0.05 | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.74 | 7.95 | 7.65 | 7.94 | 7.87 | 7.91 | 7.87 | 8.05 | 7.93 | 7.94 | 7.87 | 7.86 | 7.98 | 7.61 |
| Phenols | mg/L | - | - | - | <0.001 | 0.009 | 0.003 | < 0.001 | 0.002 | < 0.001 | < 0.002 | 0.003 | 0.004 | 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 |
| Phosphorus | mg/L | - | - | - | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.01 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 4.2 | 3.8 | 1.3 | 1.3 | 3.6 | 4.3 | 3.4 | 4.5 | 4.6 | 3.8 | 3.8 | 4.8 | 4.3 | 4.4 |
| Sodium | mg/L | 200 | 106 | 119 | 20 | 29.1 | 45.6 | 36.7 | 23.4 | 33.6 | 22.6 | 25.2 | 25.9 | 24.4 | 24.6 | 26.7 | 24 | 24.2 |
| Sulphate | mg/L | 500 | 251 | 252 | 14 | 2 | 9 | 11 | 1 | 3 | 40 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| TDS | mg/L | 500 | 374 | 504 | **522** | 410 | 496 | 478 | 338 | 427 | 380 | 338 | 370 | 340 | 339 | 339 | 344 | 348 |
| Tot Kjel N | mg/L | - | - | - | 0.5 | 0.9 | 1.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.9 | 1 | 0.9 | 1 | 1.5 | 1 | 1.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.08 | 0.67 | 0.4 | 0.46 | 0.59 | 0.64 | 0.53 | 0.78 | 0.81 | 0.59 | 0.7 | 1.33 | 0.81 | 1.46 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **501** | 343 | 390 | 381 | 303 | 368 | 280 | 291 | 335 | 297 | 302 | 302 | 293 | 298 |
| BOD | mg/L | - | - | - | | -- | -- | -- | -- | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | -- | -- | -- | -- | | | | | | | | | |
| TSS | mg/L | - | - | - | | -- | -- | -- | -- | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.1 | 0.03 | 0.05 | 0.08 | 0.04 | 0.07 | 0.05 | 0.05 | 0.07 | 0.05 | 0.03 | 0.06 | 0.06 | 0.05 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0003 | 0.0004 | < 0.0001 | 0.0005 | 0.0003 | < 0.0001 | 0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.215 | 0.117 | 0.085 | 0.082 | 0.109 | 0.138 | 0.101 | 0.1 | 0.12 | 0.1 | 0.089 | 0.095 | 0.095 | 0.088 |
| Beryllium | mg/L | - | - | - | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.106 | 0.057 | 0.009 | 0.013 | 0.088 | 0.063 | 0.083 | 0.1 | 0.102 | 0.097 | 0.095 | 0.103 | 0.097 | 0.099 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.01 | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | | | | | | | | | | | | | < 0.001 |
| Cobalt | mg/L | - | - | - | 0.0015 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.008 | 0.007 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0034 | 0.0007 | 0.0003 | 0.0012 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 0.0007 | 0.0004 | 0.0013 | 0.0016 | 0.0006 | < 0.0001 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | <0.00004 | 0.00005 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00019 | < 0.00002 | 0.00008 | 0.00002 | 0.00006 | 0.00005 | < 0.00002 | 0.00004 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0003 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | 0.0064 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.002 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.35 | 1.63 | 0.361 | 0.322 | 1.42 | 1.57 | 1.32 | 1.51 | 1.55 | 1.43 | 1.28 | 1.43 | 1.43 | 1.44 |
| Thallium | mg/L | - | - | - | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 |
| Vanadium | mg/L | - | - | - | <0.0001 | 0.0013 | 0.0027 | 0.0033 | 0.0005 | 0.0008 | 0.0005 | 0.0004 | 0.0006 | 0.0005 | 0.0007 | 0.0006 | 0.0006 | 0.0007 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.009 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | 10.5 | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | 6.06 | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | 980 | | | | | | | | | | | | | |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW22 26-Oct-22 | MW22 19-Apr-23 | MW22 11-Oct-23 | MW22 17-Apr-24 | MW22 07-Oct-24 | MW22 23-Apr-25 | MW22 (DUP) 23-Apr-25 | MW22 01-Oct-25 | MW22A 27-Apr-16 | MW22A 03-Oct-16 | MW22A 17-Apr-17 | MW22A 24-Oct-17 | MW22A 24-Apr-18 | MW22A 15-Oct-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 256 | 256 | 290 | 265 | 335 | 290 | 299 | 273 | 347 | 250 | 265 | 274 | 273 | 272 |
| Calcium | mg/L | - | - | - | 89.7 | 89.5 | 73.2 | 86.7 | 96.7 | 82.3 | 88.2 | 93.6 | 160 | 90.2 | 107 | 142 | 153 | 138 |
| Chloride | mg/L | 250 | 134 | 194 | 50.9 | 54.1 | 53.4 | 50 | 55.6 | 61.9 | 62.1 | 66.4 | 106 | 59.5 | 97.7 | 92.4 | 120 | 111 |
| COD | mg/L | - | - | - | 40 | 18 | 31 | 43 | 54 | 28 | 25 | 17 | 17 | 19 | 25 | 37 | 27 | 23 |
| Specific Conductivity | umhos/cm | - | - | - | 664 | 663 | 685 | 663 | 801 | 746 | 755 | 720 | 1010 | 662 | 805 | 900 | 957 | 876 |
| DOC | mg/L | 5 | - | - | **7.7** | **7.9** | **11.5** | **12.2** | **15.7** | **8.2** | **8.4** | **7.7** | **7.2** | 9 | **8.4** | **8.5** | **8.7** | **8.2** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | <0.1 | 0.1 | <0.1 | <0.1 | <0.1 | 0.1 | < 0.1 | < 0.1 | 0.5 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **2.29** | **1.75** | **1.68** | **1.92** | **3.67** | <0.005 | **1.63** | **1.91** | **3.68** | **1.02** | **1.52** | **2.97** | **2.73** | **3.03** |
| Magnesium | mg/L | - | - | - | 19.6 | 19.1 | 17.6 | 18.3 | 28.7 | 21.6 | 19.7 | 19.6 | 6.51 | 19.5 | 20 | 6.41 | 6.51 | 5.81 |
| Manganese | mg/L | 0.05 | - | - | **0.069** | 0.034 | 0.038 | 0.038 | **0.06** | 0.038 | 0.038 | 0.038 | **0.229** | 0.035 | 0.049 | **0.169** | **0.146** | **0.133** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | 0.09 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.77 | 7.82 | 7.1 | 7.82 | 7.76 | 7.67 | 7.79 | 7.85 | 7.8 | 7.9 | 8.06 | 7.64 | 7.79 | 7.76 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.009 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 7.9 | 4.4 | 4.7 | 4.1 | 8.8 | 5 | 4.1 | 4.2 | 1.4 | 3.6 | 3.9 | 1.3 | 1.7 | 1.3 |
| Sodium | mg/L | 200 | 106 | 119 | 30.4 | 22.9 | 22 | 20.8 | 29.4 | 24.2 | 24 | 22.6 | 48.4 | 25.5 | 28.6 | 39.8 | 47.3 | 38.8 |
| Sulphate | mg/L | 500 | 251 | 252 | < 1 | < 1 | <1 | 1 | <1 | 1 | 1 | <1 | 14 | < 1 | 2 | 6 | 8 | 8 |
| TDS | mg/L | 500 | 374 | 504 | 356 | 346 | 356 | 344 | 421 | 370 | 380 | 373 | **550** | 351 | 421 | 456 | **505** | 470 |
| Tot Kjel N | mg/L | - | - | - | 1.9 | 1 | 1.7 | 2.4 | 2.9 | 1.1 | 1.1 | 1.4 | 0.9 | 0.9 | 0.9 | 0.8 | 0.7 | 0.8 |
| Ammonia (NH3-N) | mg/L | - | - | - | 1.08 | 0.78 | 1.6 | 1.79 | 2.4 | 0.71 | 0.72 | 1.02 | 0.56 | 0.56 | 0.65 | < 0.01 | 0.4 | 0.64 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 305 | 302 | 255 | 292 | 360 | 294 | 301 | 315 | 427 | 306 | 350 | 381 | 409 | 369 |
| BOD | mg/L | - | - | - | | | | | | | | | -- | -- | -- | -- | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | -- | -- | -- | -- | | |
| TSS | mg/L | - | - | - | | | | | | | | | -- | -- | -- | -- | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.03 | 0.02 | 0.06 | **0.16** | 0.03 | 0.03 | **0.11** | 0.07 | 0.05 | 0.05 | 0.06 | 0.07 | 0.08 | 0.07 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | 0.0001 | 0.0005 | 0.0007 | <0.0001 | < 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0003 | 0.0002 | 0.0005 | 0.0004 | 0.0013 | 0.0004 | 0.0005 | 0.0003 | 0.0002 | < 0.0001 | 0.0005 | 0.0004 | < 0.0001 | 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.088 | 0.098 | 0.075 | 0.091 | 0.093 | 0.096 | 0.106 | 0.104 | 0.089 | 0.101 | 0.123 | 0.087 | 0.085 | 0.076 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.143 | 0.1 | 0.112 | 0.095 | 0.205 | 0.135 | 0.1 | 0.087 | < 0.005 | 0.087 | 0.079 | 0.014 | 0.01 | 0.011 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | 0.000029 | < 0.000014 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0005 | 0.0002 | 0.0005 | 0.0004 | 0.0003 | <0.0001 | <0.0001 | 0.0003 | 0.0006 | 0.0002 | 0.0012 | 0.0001 | < 0.0001 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00002 | < 0.00002 | 0.00003 | 0.00166 | 0.00004 | <0.00002 | <0.00002 | 0.00004 | < 0.00002 | 0.00005 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0008 | 0.0009 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | 0.0002 | 0.0006 | 0.0003 | 0.0006 | 0.0007 | 0.0008 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.003 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 1.39 | 1.49 | 1.32 | 1.41 | 2.12 | 1.72 | 1.57 | 1.5 | 0.443 | 1.43 | 1.48 | 0.35 | 0.355 | 0.298 |
| Thallium | mg/L | - | - | - | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0007 | 0.0006 | 0.0008 | 0.0008 | 0.0014 | 0.0002 | 0.0002 | 0.0006 | 0.0029 | 0.0011 | 0.0016 | 0.0021 | 0.0018 | 0.002 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | 8.7 | 9 | 11.7 | 11.7 | 13.6 | | | | | | |
| Field pH | pH Unit | - | - | - | | | | 7.62 | 7.98 | 8.14 | 8.14 | 7.01 | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | 593 | 1683 | 699 | 699 | 920 | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW22A 11-Apr-19 | MW22A 21-Oct-19 | MW22A 22-Apr-20 | MW22A 20-Oct-20 | MW22A 19-Apr-21 | MW22A 27-Oct-21 | MW22A 20-Apr-22 | MW22A 26-Oct-22 | MW22A 19-Apr-23 | MW22A 11-Oct-23 | MW22A 17-Apr-24 | MW22A 07-Oct-24 | MW22A 23-Apr-25 | MW22A 01-Oct-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 281 | 386 | 315 | 317 | 317 | 382 | 344 | 365 | 373 | 364 | 353 | 336 | 326 | **1800** |
| Calcium | mg/L | - | - | - | 153 | 177 | 170 | 157 | 270 | 268 | 231 | 174 | 285 | 161 | 204 | 158 | 193 | 346 |
| Chloride | mg/L | 250 | 134 | 194 | 117 | 97.4 | 141 | 113 | **414** | **561** | **428** | **342** | **504** | **336** | **310** | 234 | 239 | **458** |
| COD | mg/L | - | - | - | 28 | 264 | 31 | 85 | 30 | 21 | 37 | 34 | 33 | 62 | 68 | 50 | 32 | 479 |
| Specific Conductivity | umhos/cm | - | - | - | 939 | 1130 | 1050 | 978 | 1960 | 2380 | 2060 | 1860 | 2205 | 1660 | 1680 | 1360 | 1420 | 5880 |
| DOC | mg/L | 5 | - | - | **9.9** | **64.1** | 8 | **10.3** | 4.5 | 4.3 | 3.4 | 2.5 | 3.7 | **6.2** | **14.2** | **9.4** | 5 | **17.1** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | **5.3** | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 1 | < 0.1 | <0.1 | <0.7 | <0.1 | 0.4 | <1.8 |
| Iron | mg/L | 0.3 | - | - | **3.52** | **5.66** | **3.98** | **3.55** | **6.42** | **6.66** | **5.65** | **4.35** | **7.47** | 0.29 | **3.58** | **3.5** | **4.91** | **0.623** |
| Magnesium | mg/L | - | - | - | 11.6 | 8.41 | 8.05 | 9.27 | 12.3 | 12.2 | 10.9 | 12.7 | 14.4 | 12.3 | 14.7 | 13 | 11 | 72.5 |
| Manganese | mg/L | 0.05 | - | - | **0.214** | **0.219** | **0.22** | **0.154** | **0.385** | **0.397** | **0.334** | **0.234** | **0.437** | **0.236** | **0.268** | **0.192** | **0.185** | **5.18** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | 0.06 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.3 | < 0.5 | < 0.05 | <0.05 | <0.40 | <0.05 | <0.05 | <1.00 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.3 | < 0.5 | < 0.05 | <0.05 | 0.52 | <0.05 | <0.05 | <1.00 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.87 | 7.63 | 7.69 | 7.55 | 7.62 | 7.83 | 7.52 | 7.67 | 7.61 | 7.27 | 7.75 | 7.76 | 7.75 | 7.52 |
| Phenols | mg/L | - | - | - | < 0.002 | 0.115 | < 0.002 | 0.019 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.011 |
| Phosphorus | mg/L | - | - | - | 0.2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 |
| Potassium | mg/L | - | - | - | 2.4 | 1.5 | 1.7 | 1.9 | 2.6 | 2.5 | 2 | 2.6 | 2.3 | 2.5 | 2.8 | 2.7 | 2.3 | 235 |
| Sodium | mg/L | 200 | 106 | 119 | 28.2 | 47.6 | 48.4 | 44.7 | 135 | **235** | 194 | 177 | 176 | 154 | 122 | 103 | 69.6 | **412** |
| Sulphate | mg/L | 500 | 251 | 252 | 6 | 5 | 9 | 2 | 10 | 14 | 9 | < 10 | 9 | 6 | 19 | 7 | 30 | 32 |
| TDS | mg/L | 500 | 374 | 504 | 492 | **580** | **568** | **522** | **1036** | **1330** | **1083** | **933** | **1224** | **909** | **917** | **737** | **746** | **2640** |
| Tot Kjel N | mg/L | - | - | - | 1.1 | 1.4 | 0.9 | 1.3 | 1.3 | 1.6 | 2 | 1.7 | 2.1 | 1.3 | 1.6 | 1.4 | 1 | 304 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.62 | 0.57 | 0.47 | 0.46 | 0.98 | 1.11 | 1.2 | 0.92 | 1.62 | 0.89 | 0.86 | 0.84 | 0.58 | 244 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 430 | 477 | 458 | 431 | **726** | **720** | **622** | 488 | **771** | 453 | **570** | 448 | **529** | **1160** |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.08 | 0.1 | 0.09 | 0.06 | **0.13** | **0.12** | **0.11** | 0.06 | 0.08 | **0.11** | **0.31** | 0.06 | 0.07 | **0.16** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0003 | <0.0001 | <0.0001 | 0.0008 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0003 | 0.0001 | 0.0003 | < 0.0003 | < 0.0003 | < 0.0003 | 0.0001 | < 0.0003 | 0.0002 | 0.0002 | 0.0001 | <0.0003 | 0.0022 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.123 | 0.119 | 0.112 | 0.096 | 0.218 | 0.288 | 0.247 | 0.216 | 0.327 | 0.206 | 0.247 | 0.182 | 0.137 | 0.165 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.035 | 0.095 | 0.022 | 0.057 | 0.036 | 0.041 | 0.036 | 0.049 | 0.036 | 0.048 | 0.052 | 0.048 | 0.038 | 3.5 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000029 | < 0.000029 | < 0.000029 | < 0.000012 | < 0.000029 | <0.000015 | <0.000015 | <0.000015 | <0.000030 | <0.000030 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | 0.007 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.007 | 0.0003 | 0.0004 | 0.0004 | <0.0001 | 0.0073 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0003 | 0.0006 | 0.0002 | 0.0004 | 0.0008 | 0.0006 | 0.0004 | 0.0003 | 0.0005 | 0.0005 | 0.0005 | 0.0003 | <0.0002 | 0.0036 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00007 | < 0.00004 | 0.00013 | < 0.00009 | < 0.00009 | < 0.00009 | < 0.00004 | < 0.00009 | 0.00009 | <0.00002 | <0.00002 | <0.00009 | <0.00009 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0001 | 0.0003 | <0.0001 | 0.0002 | <0.0001 | <0.0002 | 0.0016 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0008 | 0.0007 | <0.0002 | <0.0002 | 0.0278 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.003 | < 0.001 | 0.003 | <0.001 | <0.001 | <0.001 | <0.001 | 0.004 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0005 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.966 | 0.453 | 0.463 | 0.605 | 0.825 | 0.9 | 0.767 | 0.943 | 0.993 | 0.893 | 1.2 | 1.01 | 0.642 | 1.35 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0021 | 0.0021 | 0.0021 | 0.0029 | 0.0018 | 0.0016 | 0.0021 | 0.0019 | 0.0021 | 0.0013 | 0.0003 | 0.0019 | 0.0018 | 0.0032 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | 0.006 | <0.005 | <0.005 | 0.014 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | 8.7 | 10.5 | 11.8 | 13.6 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | 7.37 | 8.22 | 7.92 | 6.47 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | 1247 | 1208 | 1251 | 76000 |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW22B 27-Apr-16 | MW22B 03-Oct-16 | MW22B 18-Apr-17 | MW22B 24-Oct-17 | MW22B 24-Apr-18 | MW22B 15-Oct-18 | MW22B 11-Apr-19 | MW22B 21-Oct-19 | MW22B 22-Apr-20 | MW22B 20-Oct-20 | MW22B 19-Apr-21 | MW22B 27-Oct-21 | MW22B 20-Apr-22 | MW22B 26-Oct-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 415 | 453 | 447 | **553** | **1120** | **4300** | **1200** | **2140** | **1870** | **2760** | **1910** | **1890** | **1200** | **1260** |
| Calcium | mg/L | - | - | - | 176 | 216 | 133 | 238 | 838 | 1520 | 310 | 466 | 413 | 525 | 500 | 364 | 307 | 256 |
| Chloride | mg/L | 250 | 134 | 194 | 27.5 | 21.6 | 27.9 | 86 | **420** | 129 | 195 | **274** | **285** | 38 | **288** | **338** | 181 | 199 |
| COD | mg/L | - | - | - | < 5 | 22 | 38 | 36 | 5670 | 8250 | 234 | 455 | 357 | 627 | 401 | 380 | 188 | 230 |
| Specific Conductivity | umhos/cm | - | - | - | 1040 | 1030 | 919 | 1270 | 6840 | 10400 | 2880 | 4660 | 4180 | 6030 | 4560 | 4320 | 3050 | 3050 |
| DOC | mg/L | 5 | - | - | 4.8 | **9.4** | **10.6** | **8.1** | **134** | **533** | **83.2** | **174** | **90.7** | **100** | **30** | **90.6** | **14.4** | **54** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | **165** | **75.7** | < 1 | < 1 | < 3 | < 0.1 | < 1 | < 1 | < 1 | 1.5 |
| Iron | mg/L | 0.3 | - | - | 0.01 | 0.006 | **5.87** | **30** | **123** | **363** | | **1.65** | **7.9** | **38.2** | **33.5** | **31.7** | **28.1** | 0.198 |
| Magnesium | mg/L | - | - | - | 8.13 | 7.71 | 4.94 | 9.53 | 79.5 | 123 | 37.9 | 56.1 | 59.7 | 78.1 | 58.9 | 49.7 | 35.5 | 34.8 |
| Manganese | mg/L | 0.05 | - | - | **0.128** | **1.41** | **3.4** | **3.91** | **9.35** | **12.9** | **2.15** | **1.73** | **1.64** | **1.99** | **1.94** | **1.82** | **1.66** | **1.12** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | **17.5** | 10 | 0.4 | 1.96 | < 0.5 | < 0.3 | < 0.5 | < 0.5 | < 1 | < 0.05 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.1 | < 0.1 | 0.3 | < 0.05 | < 0.5 | < 0.3 | < 0.5 | < 0.5 | < 1 | < 0.05 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.66 | 7.35 | 7.63 | 7 | 6.68 | 6.86 | 7.75 | 7.5 | 7.28 | 7.17 | 7.08 | 7.57 | 7.26 | 7.36 |
| Phenols | mg/L | - | - | - | 0.005 | 0.005 | < 0.001 | < 0.001 | 2.7 | 5.85 | 0.82 | 0.016 | 0.026 | 0.028 | 0.02 | 0.01 | 0.003 | 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 8.1 | 5.6 | 4.9 | < 0.1 | < 0.1 | 4.6 | 2.4 | 2.7 | 2.3 | < 0.1 |
| Potassium | mg/L | - | - | - | 1.4 | 2.8 | 4.4 | 7.5 | 315 | 420 | 138 | 218 | 163 | 239 | 157 | 146 | 95.9 | 103 |
| Sodium | mg/L | 200 | 106 | 119 | 51.2 | 17.2 | 18.9 | 51 | **534** | **709** | 189 | **319** | **259** | **356** | **267** | **285** | **204** | **210** |
| Sulphate | mg/L | 500 | 251 | 252 | 40 | 27 | 17 | 17 | 221 | < 5 | 17 | < 10 | < 30 | < 1 | 18 | 17 | 40 | 21 |
| TDS | mg/L | 500 | 374 | 504 | **631** | **611** | 487 | **775** | **3622** | **5998** | **1747** | **2865** | **2484** | **2934** | **2657** | **2617** | **1709** | **1734** |
| Tot Kjel N | mg/L | - | - | - | 0.7 | 1 | 1.1 | 0.9 | 233 | 508 | 92.8 | 182 | 166 | 319 | 214 | 203 | 114 | 153 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.05 | 0.07 | 0.19 | 0.52 | 189 | 421 | 108 | 183 | 141 | 283 | 172 | 192 | 95.7 | 130 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 473 | **572** | 353 | **634** | **2340** | **4310** | **931** | **1400** | **1280** | **1630** | **1490** | **1110** | **913** | **871** |
| BOD | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| TSS | mg/L | - | - | - | -- | -- | -- | -- | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.06 | 0.08 | 0.09 | **0.37** | **0.36** | **0.13** | **0.17** | **0.16** | **0.23** | **0.29** | **0.14** | **0.12** | 0.1 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0004 | 0.0001 | < 0.0001 | **0.0063** | **0.0064** | 0.0011 | 0.0025 | 0.0012 | 0.0026 | 0.0017 | 0.0013 | 0.0006 | 0.0006 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | < 0.0001 | 0.0031 | 0.0029 | 0.0071 | 0.0131 | 0.0079 | 0.0037 | 0.0013 | 0.0033 | 0.0022 | 0.0017 | 0.0014 | 0.0013 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.051 | 0.071 | 0.075 | 0.179 | 0.47 | 0.751 | 0.107 | 0.07 | 0.099 | 0.272 | 0.19 | 0.252 | 0.154 | 0.07 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.01 | < 0.02 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.051 | 0.134 | 0.234 | 0.203 | 1.98 | 2.71 | 0.785 | 1.14 | 1.7 | 2.55 | 1.94 | 1.73 | 1.09 | 1.08 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | 0.00005 | 0.00012 | < 0.000020 | < 0.000014 | < 0.000059 | 0.000066 | 0.000031 | < 0.000059 | < 0.000029 | < 0.000059 | < 0.000059 | < 0.000059 | < 0.000029 | < 0.000029 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.0002 | < 0.0002 | 0.001 | 0.001 | **0.157** | **0.093** | 0.016 | 0.011 | 0.012 | 0.022 | 0.02 | 0.017 | 0.009 | 0.006 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | | < 0.001 | < 0.001 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | 0.019 | 0.028 | 0.052 | 0.039 | < 0.005 | 0.013 | < 0.005 | < 0.03 | < 0.05 | 0.005 | < 0.005 | 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0026 | 0.0048 | 0.0018 | 0.0007 | 0.0012 | 0.0024 | 0.0011 | 0.0033 | < 0.0002 | 0.0016 | 0.0013 | 0.0007 | 0.0005 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00004 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00029 | 0.0011 | 0.00059 | 0.0005 | < 0.00009 | 0.00034 | 0.00022 | < 0.0002 | < 0.00009 | < 0.00009 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00007 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0004 | 0.0013 | 0.0005 | 0.0005 | 0.0005 | 0.0002 | 0.0009 | 0.0002 | 0.0006 | 0.0005 | 0.0005 | 0.0002 | < 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.09 | 0.04 | 0.01 | 0.03 | 0.01 | < 0.05 | < 0.1 | 0.02 | 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | 0.002 | < 0.001 | **0.013** | 0.005 | 0.002 | 0.003 | 0.002 | < 0.002 | 0.002 | 0.002 | 0.004 | 0.001 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.0004 | 0.0049 | < 0.0001 | 0.0048 | < 0.0001 | < 0.0002 | 0.0006 | < 0.0002 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.393 | 0.451 | 0.25 | 0.442 | 1.8 | 4.05 | 0.906 | 1.34 | 1.32 | 1.84 | 1.49 | 1.21 | 0.907 | 0.782 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | 0.00025 | < 0.00005 | 0.00008 | 0.00006 | < 0.00005 | 0.008 | < 0.005 |
| Vanadium | mg/L | - | - | - | 0.0015 | 0.0019 | 0.0025 | 0.0027 | 0.0479 | 0.0114 | 0.0066 | 0.0071 | 0.0007 | 0.009 | 0.0064 | 0.0053 | 0.0039 | 0.004 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.011 | 0.072 | 0.026 | 0.015 | < 0.005 | < 0.03 | < 0.05 | < 0.005 | 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW22B 19-Apr-23 | MW22B 11-Oct-23 | MW22B 17-Apr-24 | MW22B 07-Oct-24 | MW22B 23-Apr-25 | MW22B 01-Oct-25 | MW23 28-Apr-16 | MW23 04-Oct-16 | MW23 18-Apr-17 | MW23 24-Oct-17 | MW23 25-Apr-18 | MW23 16-Oct-18 | MW23 11-Apr-19 | MW23 21-Oct-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | **2440** | **2040** | **1750** | **1620** | **2470** | Dry | 239 | 262 | 391 | 382 | 391 | 379 | 357 | 367 |
| Calcium | mg/L | - | - | - | 428 | 281 | 296 | 290 | 404 | | 93.3 | 106 | 153 | 157 | 142 | 153 | 153 | 163 |
| Chloride | mg/L | 250 | 134 | 194 | **404** | **323** | **353** | **368** | **493** | | 9.6 | 13.2 | 64.8 | 52.5 | 53.7 | 66.9 | 65.3 | 64.7 |
| COD | mg/L | - | - | - | 537 | 466 | 417 | 330 | 489 | | 7 | 5 | 27 | 30 | 50 | 27 | 23 | 24 |
| Specific Conductivity | umhos/cm | - | - | - | 4951 | 4620 | 4890 | 3990 | 5630 | | 497 | 559 | 918 | 906 | 869 | 906 | 906 | 913 |
| DOC | mg/L | 5 | - | - | **24.1** | **29.4** | **151** | **86.7** | **135** | | 1.3 | 3.4 | **9.5** | **9.9** | **8.2** | **10.1** | **9.7** | **9.4** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 1 | <0.7 | <0.7 | <0.7 | **3.3** | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.825** | **25.9** | **0.442** | **36.6** | **0.676** | | 0.066 | 0.218 | **5.19** | **5.08** | 0.043 | **5.01** | **4.99** | **5.55** |
| Magnesium | mg/L | - | - | - | 72.9 | 59.4 | 60.8 | 51.9 | 69.3 | | 5.76 | 6.38 | 14.2 | 14.8 | 14.3 | 13.3 | 14.1 | 14.6 |
| Manganese | mg/L | 0.05 | - | - | **1.73** | **2.53** | **5.47** | **6.23** | **8.83** | | 0.019 | 0.039 | **0.133** | **0.134** | 0.032 | **0.131** | **0.129** | **0.138** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.5 | <0.40 | <0.40 | <0.40 | <0.40 | | 0.3 | 0.2 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.06 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.5 | <0.40 | <0.40 | <0.40 | <0.40 | | < 0.1 | < 0.1 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.42 | 7.25 | 7.47 | 7.7 | 7.23 | | 7.99 | 7.98 | 7.85 | 7.53 | 7.91 | 7.89 | 7.86 | 7.76 |
| Phenols | mg/L | - | - | - | 0.017 | 0.012 | 0.023 | 0.006 | 0.018 | | < 0.001 | 0.007 | < 0.001 | < 0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.002 |
| Phosphorus | mg/L | - | - | - | 0.1 | 2.8 | <0.1 | 2.4 | 0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.01 | < 0.1 |
| Potassium | mg/L | - | - | - | 197 | 160 | 183 | 166 | 194 | | 1.1 | 1 | 2.8 | 2.7 | 3.5 | 2.6 | 3 | 3.2 |
| Sodium | mg/L | 200 | 106 | 119 | **381** | **286** | **298** | **283** | **368** | | 5.9 | 7.6 | 28.6 | 29.2 | 29.8 | 27.4 | 29.7 | 30.6 |
| Sulphate | mg/L | 500 | 251 | 252 | 14 | 14 | 36 | 14 | 11 | | 7 | 7 | 2 | 2 | 1 | < 1 | 2 | < 1 |
| TDS | mg/L | 500 | 374 | 504 | **3266** | **2610** | **2760** | **2240** | **3030** | | 267 | 299 | **508** | 494 | 480 | 497 | 487 | **503** |
| Tot Kjel N | mg/L | - | - | - | 268 | 273 | 262 | 239 | 382 | | 0.2 | 0.4 | 0.7 | 0.7 | 1.7 | 0.7 | 0.8 | 0.7 |
| Ammonia (NH3-N) | mg/L | - | - | - | 237 | 257 | 250 | 226 | 258 | | 0.02 | 0.04 | 0.4 | 0.33 | 0.45 | 0.37 | 0.45 | 0.4 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **1370** | **947** | **1020** | **937** | **1290** | | 257 | 291 | 441 | 453 | 414 | 437 | 440 | 468 |
| BOD | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| TSS | mg/L | - | - | - | | | | | | | -- | -- | -- | -- | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.12** | **0.15** | 0.1 | **0.17** | **0.12** | | 0.04 | 0.04 | 0.09 | 0.08 | 0.08 | 0.07 | 0.08 | 0.09 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0015 | 0.0009 | 0.0008 | 0.0005 | 0.0007 | | < 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0025 | 0.0025 | 0.0026 | 0.0027 | 0.0029 | | 0.0004 | < 0.0001 | 0.0003 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.133 | 0.207 | 0.092 | 0.197 | 0.118 | | 0.141 | 0.156 | 0.156 | 0.166 | 0.128 | 0.162 | 0.16 | 0.181 |
| Beryllium | mg/L | - | - | - | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 2.9 | 2.29 | 2.82 | 2.32 | 3.2 | | 0.06 | 0.084 | 0.086 | 0.094 | 0.084 | 0.079 | 0.092 | 0.1 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000059 | <0.000015 | <0.000030 | 0.000056 | <0.000015 | | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.015 | 0.019 | <0.01 | <0.01 | <0.01 | | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | | |
| Cobalt | mg/L | - | - | - | 0.025 | 0.0083 | 0.0115 | 0.0119 | 0.008 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0005 | 0.0005 | 0.0026 | 0.0023 | 0.0003 | | 0.0006 | 0.0004 | 0.0008 | 0.0001 | 0.0011 | 0.0003 | 0.0004 | 0.0007 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.0002 | 0.00012 | <0.00009 | 0.00134 | 0.00006 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00007 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0006 | 0.0005 | 0.0006 | 0.0004 | 0.0005 | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | 0.03 | 0.0241 | 0.0207 | 0.0242 | 0.0264 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.005 | <0.001 | <0.001 | <0.001 | <0.001 | | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.003 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 1.4 | 1.09 | 1.1 | 1.07 | 1.3 | | 0.811 | 0.815 | 0.758 | 0.785 | 0.757 | 0.753 | 0.825 | 0.861 |
| Thallium | mg/L | - | - | - | 0.00007 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0077 | 0.0066 | 0.0047 | 0.0058 | 0.0089 | | 0.0014 | 0.0017 | 0.0025 | 0.0009 | < 0.0001 | 0.0006 | 0.0007 | 0.0006 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | 0.011 | 0.01 | 0.009 | 0.062 | 0.006 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.009 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | 9.3 | 8.5 | 12 | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | 6.98 | 7.15 | 7.44 | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | 3984 | 2747 | 5160 | | | | | | | | | |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW23 22-Apr-20 | MW23 19-Oct-20 | MW23 19-Apr-21 | MW23 27-Oct-21 | MW23 20-Apr-22 | MW23 26-Oct-22 | MW23 19-Apr-23 | MW23 11-Oct-23 | MW23 17-Apr-24 | MW23 07-Oct-24 | MW23 23-Apr-25 | MW23 01-Oct-25 | MW23A 28-Apr-16 | MW23A 04-Oct-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 359 | 353 | 355 | 396 | 373 | 389 | 146 | 423 | 419 | 421 | 440 | 448 | 239 | 262 |
| Calcium | mg/L | - | - | - | 155 | 155 | 161 | 158 | 156 | 139 | 59.8 | 126 | 155 | 163 | 161 | 172 | 93.3 | 106 |
| Chloride | mg/L | 250 | 134 | 194 | 72.3 | 68.9 | 67.5 | 66.1 | 63.5 | 63.2 | 0.5 | 65.9 | 64.1 | 72.7 | 72.5 | 75.5 | 9.6 | 13.2 |
| COD | mg/L | - | - | - | 26 | 28 | 22 | 19 | 20 | 39 | 9 | 27 | 31 | 46 | 26 | 16 | 7 | 5 |
| Specific Conductivity | umhos/cm | - | - | - | 921 | 905 | 908 | 898 | 918 | 924 | 289 | 950 | 977 | 1010 | 1040 | 1050 | 497 | 559 |
| DOC | mg/L | 5 | - | - | **9.7** | **7.6** | **11.4** | **9.4** | **7.2** | 6 | 4.2 | **12.6** | **14.9** | **12.2** | **9.9** | **8.8** | 1.3 | 3.4 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **5.36** | **5.4** | **5.5** | **5.38** | **5.34** | **5.13** | 0.008 | **4.65** | **5.65** | **5.82** | **7.14** | **6.29** | 0.066 | 0.218 |
| Magnesium | mg/L | - | - | - | 15.3 | 14.4 | 14.6 | 14.6 | 14.1 | 14 | 1.21 | 13 | 14.4 | 16.4 | 16.3 | 16.4 | 5.76 | 6.38 |
| Manganese | mg/L | 0.05 | - | - | **0.134** | **0.133** | **0.143** | **0.135** | **0.133** | **0.121** | 0.015 | **0.113** | **0.137** | **0.145** | **0.151** | **0.153** | 0.019 | 0.039 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.08 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.07 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 0.3 | 0.2 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.65 | 7.44 | 7.59 | 7.89 | 7.57 | 7.64 | 7.72 | 7.63 | 7.68 | 7.86 | 7.72 | 7.74 | 7.99 | 7.98 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.002 | 0.002 | < 0.001 | 0.007 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 3 | 2.9 | 3 | 3.1 | 2.9 | 3 | 0.3 | 2.8 | 3 | 3.6 | 3.3 | 3.3 | 1.1 | 1 |
| Sodium | mg/L | 200 | 106 | 119 | 30.4 | 28.1 | 30.4 | 30.7 | 29.2 | 28.2 | 0.8 | 26.6 | 28.7 | 32.8 | 32.7 | 32.2 | 5.9 | 7.6 |
| Sulphate | mg/L | 500 | 251 | 252 | 2 | < 1 | 1 | 1 | 1 | < 1 | < 1 | <1 | 1 | <1 | <1 | <1 | 7 | 7 |
| TDS | mg/L | 500 | 374 | 504 | 493 | 486 | 492 | **517** | 494 | 487 | 151 | **505** | **521** | **539** | **558** | **575** | 267 | 299 |
| Tot Kjel N | mg/L | - | - | - | 0.7 | 0.7 | 0.7 | 0.7 | 3 | 1 | 0.3 | 1.5 | 1 | 2 | 1.3 | 1.4 | 0.2 | 0.4 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.37 | 0.38 | 0.43 | 0.4 | 2.65 | 0.5 | 0.12 | 0.91 | 1.13 | 0.77 | 0.55 | 0.73 | 0.02 | 0.04 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 450 | 446 | 463 | 455 | 448 | 405 | 154 | 368 | 447 | 475 | 470 | 497 | 257 | 291 |
| BOD | mg/L | - | - | - | | | | | | | | | | | | | -- | -- |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | | | -- | -- |
| TSS | mg/L | - | - | - | | | | | | | | | | | | | -- | -- |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.08 | 0.04 | 0.08 | 0.08 | 0.08 | 0.04 | < 0.01 | 0.09 | 0.09 | 0.05 | 0.06 | 0.09 | 0.03 | 0.03 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0005 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | 0.0002 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | 0.0006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.163 | 0.159 | 0.168 | 0.167 | 0.163 | 0.148 | 0.005 | 0.142 | 0.172 | 0.182 | 0.186 | 0.195 | 0.066 | 0.082 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.101 | 0.092 | 0.092 | 0.093 | 0.087 | 0.094 | 0.007 | 0.091 | 0.1 | 0.109 | 0.114 | 0.108 | < 0.005 | 0.018 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | 0.000236 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | **0.0582** |
| Chromium (VI) | mg/L | - | - | - | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0006 | 0.0006 | 0.0007 | 0.0004 | 0.0006 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | < 0.0001 | 0.001 | 0.0011 | 0.0004 | 0.0002 | 0.0005 | 0.0008 | 0.0006 | 0.0004 | 0.0003 | <0.0001 | 0.0004 | 0.001 | 0.0011 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00022 | 0.00004 | < 0.00002 | < 0.00002 | 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | 0.00004 | <0.00004 | 0.00002 | 0.00004 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0001 | 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0007 | 0.0008 | 0.0008 | 0.001 | 0.0025 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | - | - | 0.807 | 0.794 | 0.819 | 0.83 | 0.782 | 0.758 | 0.105 | 0.722 | 0.799 | 0.91 | 0.909 | 0.892 | 0.201 | 0.211 |
| Thallium | mg/L | - | - | - | < 0.00005 | 0.00026 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0007 | 0.001 | 0.0007 | 0.0006 | 0.0007 | 0.0006 | 0.0003 | 0.0006 | 0.0006 | 0.0006 | 0.0007 | 0.0007 | 0.0007 | < 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.009 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | 6.3 | 8.7 | 8.3 | 9.2 | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | 7.71 | 7.87 | 6.7 | 7.68 | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | 478 | 980 | 334 | 150 | | |

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Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW23A 18-Apr-17 | MW23A 24-Oct-17 | MW23A 25-Apr-18 | MW23A 16-Oct-18 | MW23A 11-Apr-19 | MW23A 21-Oct-19 | MW23A 22-Apr-20 | MW23A 19-Oct-20 | MW23A 19-Apr-21 | MW23A 27-Oct-21 | MW23A 20-Apr-22 | MW23A 26-Oct-22 | MW23A 19-Apr-23 | MW23A 11-Oct-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 251 | 250 | 217 | 250 | 232 | 258 | 225 | 248 | 228 | 268 | 233 | 255 | 235 | 268 |
| Calcium | mg/L | - | - | - | 96.4 | 104 | 96.3 | 101 | 97.7 | 121 | 96.1 | 107 | 101 | 103 | 94.7 | 98.9 | 91.1 | 75.3 |
| Chloride | mg/L | 250 | 134 | 194 | 11.3 | 10.6 | 4.7 | 14.7 | 12.8 | 17.9 | 13.9 | 18.8 | 15.5 | 13.9 | 12.3 | 11.8 | 7.9 | 12 |
| COD | mg/L | - | - | - | 5 | 9 | < 5 | < 5 | < 5 | 7 | < 5 | < 5 | < 5 | < 5 | 9 | 8 | < 5 | <5 |
| Specific Conductivity | umhos/cm | - | - | - | 526 | 530 | 419 | 533 | 512 | 571 | 502 | 570 | 520 | 537 | 503 | 532 | 482 | 523 |
| DOC | mg/L | 5 | - | - | 2.2 | 2.6 | 2.3 | 3.5 | 2.8 | 3.1 | 2.6 | 2.9 | 2.9 | 2.2 | 2.3 | 2.7 | 1.6 | **5.3** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | 0.4 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 |
| Iron | mg/L | 0.3 | - | - | 0.109 | 0.244 | < 0.005 | 0.261 | 0.142 | 0.296 | 0.127 | **0.313** | 0.186 | **0.313** | 0.183 | **0.496** | 0.113 | 0.125 |
| Magnesium | mg/L | - | - | - | 5.77 | 6.29 | 5.68 | 5.7 | 5.77 | 6.91 | 5.9 | 6.39 | 5.99 | 6.04 | 5.62 | 6.45 | 5.3 | 5.02 |
| Manganese | mg/L | 0.05 | - | - | 0.027 | 0.027 | 0.011 | 0.038 | 0.02 | 0.039 | 0.018 | 0.029 | 0.025 | 0.029 | 0.024 | 0.034 | 0.016 | 0.022 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.3 | 0.2 | 0.29 | 0.12 | 0.14 | 0.11 | 0.19 | < 0.05 | 0.07 | 0.1 | 0.11 | 0.12 | 0.14 | 0.11 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 8.07 | 7.84 | 8.02 | 7.92 | 8.02 | 7.92 | 7.88 | 7.64 | 7.83 | 8 | 7.57 | 7.81 | 7.77 | 7.37 |
| Phenols | mg/L | - | - | - | < 0.001 | 0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 1 | 1 | 1 | 1 | 1.1 | 1.3 | 1 | 1.1 | 1.1 | 1.1 | 1 | 1.3 | 1.1 | 0.8 |
| Sodium | mg/L | 200 | 106 | 119 | 5.9 | 7.7 | 6.5 | 7.8 | 6.7 | 9.5 | 6.3 | 7 | 7.7 | 7.7 | 7 | 9.4 | 6 | 6.5 |
| Sulphate | mg/L | 500 | 251 | 252 | 7 | 6 | 5 | 7 | 6 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 5 | 6 |
| TDS | mg/L | 500 | 374 | 504 | 280 | 286 | 249 | 287 | 270 | 319 | 264 | 297 | 275 | 299 | 269 | 288 | 258 | 271 |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 0.2 | 0.1 | < 0.1 | 0.2 | 0.3 | 0.1 | 0.2 | 0.2 | 0.2 | 0.6 | 0.3 | 0.2 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.01 | < 0.01 | 0.02 | 0.03 | 0.06 | 0.03 | 0.01 | < 0.01 | 0.04 | 0.14 | 0.4 | 0.1 | 0.07 | 0.32 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 265 | 286 | 264 | 276 | 268 | 331 | 264 | 295 | 277 | 282 | 260 | 274 | 249 | 209 |
| BOD | mg/L | - | - | - | -- | -- | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | -- | -- | | | | | | | | | | | | |
| TSS | mg/L | - | - | - | -- | -- | | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.06 | 0.06 | 0.05 | 0.06 | 0.06 | 0.05 | 0.06 | 0.03 | 0.06 | 0.06 | 0.05 | 0.02 | 0.02 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.072 | 0.082 | 0.073 | 0.084 | 0.075 | 0.102 | 0.073 | 0.083 | 0.077 | 0.08 | 0.072 | 0.081 | 0.067 | 0.061 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.017 | 0.021 | 0.015 | 0.018 | 0.02 | 0.027 | 0.017 | 0.021 | 0.019 | 0.02 | 0.016 | 0.027 | 0.018 | 0.017 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | 0.009 | 0.017 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0003 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0014 | 0.0004 | 0.0006 | 0.001 | 0.001 | 0.0014 | 0.0005 | 0.0021 | 0.002 | 0.0011 | 0.0171 | 0.0011 | 0.0007 | 0.001 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00004 | < 0.00002 | 0.00006 | 0.00005 | 0.00004 | 0.00003 | < 0.00002 | < 0.00002 | <0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0004 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.183 | 0.2 | 0.182 | 0.197 | 0.202 | 0.251 | 0.191 | 0.214 | 0.206 | 0.213 | 0.192 | 0.223 | 0.18 | 0.171 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0013 | 0.0003 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW23A 17-Apr-24 | MW23A 07-Oct-24 | MW23A 23-Apr-25 | MW23A 01-Oct-25 | MW23B 28-Apr-16 | MW23B 04-Oct-16 | MW23B 18-Apr-17 | MW23B 24-Oct-17 | MW23B 25-Apr-18 | MW23B 16-Oct-18 | MW23B 12-Apr-19 | MW23B 21-Oct-19 | MW23B 22-Apr-20 | MW23B 19-Oct-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 237 | 242 | 254 | 251 | 149 | 159 | 154 | 132 | 141 | 153 | Dry | 141 | 139 | 149 |
| Calcium | mg/L | - | - | - | 88.7 | 92.8 | 95.8 | 96.7 | 62.9 | 68.3 | 60.3 | 62.4 | 59.2 | 60.9 | | 63.1 | 61 | 69.5 |
| Chloride | mg/L | 250 | 134 | 194 | 7.2 | 10 | 9 | 9.5 | 1 | < 0.5 | 1.1 | 0.8 | 0.8 | < 0.5 | | 1.4 | 0.9 | 1.2 |
| COD | mg/L | - | - | - | <5 | 11 | 5 | <5 | 7 | < 5 | 8 | 20 | 5 | < 5 | | 43 | 5 | 68 |
| Specific Conductivity | umhos/cm | - | - | - | 480 | 510 | 503 | 516 | 289 | 322 | 295 | 261 | 264 | 294 | | 285 | 287 | 308 |
| DOC | mg/L | 5 | - | - | 3.4 | 2.9 | 3.4 | 2.7 | 1.7 | 3 | 2.2 | 2.6 | 2.7 | 2.3 | | 1.5 | 2.3 | 2.7 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | 0.2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | 0.141 | 0.153 | **0.613** | 0.131 | 0.012 | 0.013 | 0.011 | 0.005 | 0.018 | 0.053 | | 0.02 | 0.02 | < 0.005 |
| Magnesium | mg/L | - | - | - | 5.29 | 5.97 | 6.92 | 5.91 | 1.34 | 1.54 | 1.27 | 1.25 | 1.1 | 1.24 | | 1.43 | 1.37 | 1.49 |
| Manganese | mg/L | 0.05 | - | - | 0.007 | 0.022 | 0.024 | 0.025 | 0.015 | 0.004 | 0.005 | 0.009 | 0.024 | 0.023 | | **0.305** | 0.011 | < 0.001 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.13 | 0.09 | 0.13 | 0.06 | 0.2 | 0.4 | 0.2 | 0.14 | 0.08 | 0.15 | | 0.28 | 0.16 | 0.25 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | 0.2 | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.83 | 8.01 | 7.7 | 7.96 | 8.13 | 8.08 | 8.17 | 7.99 | 7.98 | 7.94 | | 7.97 | 7.92 | 7.93 |
| Phenols | mg/L | - | - | - | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | 0.002 | 0.001 | 0.004 | < 0.001 | 0.002 | | < 0.002 | < 0.002 | < 0.001 |
| Phosphorus | mg/L | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 0.9 | 1.3 | 1.2 | 0.9 | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.2 | | 0.4 | 0.2 | 0.3 |
| Sodium | mg/L | 200 | 106 | 119 | 4.8 | 6.9 | 8.3 | 5.4 | 1 | 1.1 | 0.7 | 1 | 1.1 | 0.9 | | 1 | 0.9 | 0.9 |
| Sulphate | mg/L | 500 | 251 | 252 | 6 | 6 | 6 | 6 | 2 | 2 | 2 | 3 | 2 | < 1 | | 1 | 1 | 1 |
| TDS | mg/L | 500 | 374 | 504 | 248 | 264 | 281 | 276 | 159 | 171 | 160 | 147 | 149 | 156 | | 154 | 149 | 164 |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 0.4 | 0.3 | 0.5 | 0.3 | 0.3 | 0.4 | 0.2 | 0.3 | 0.2 | | 0.6 | 0.2 | 0.6 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.22 | 0.32 | 0.1 | 0.17 | 0.03 | 0.04 | 0.02 | 0.04 | < 0.1 | 0.03 | | 0.12 | < 0.01 | 0.02 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 243 | 257 | 268 | 266 | 163 | 177 | 156 | 161 | 153 | 157 | | 164 | 158 | 180 |
| BOD | mg/L | - | - | - | | | | | -- | -- | -- | -- | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | | | -- | -- | -- | -- | | | | | | |
| TSS | mg/L | - | - | - | | | | | -- | -- | -- | -- | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.07 | 0.03 | 0.03 | 0.06 | 0.02 | 0.03 | 0.04 | 0.04 | 0.05 | 0.05 | | 0.05 | 0.03 | 0.01 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.065 | 0.072 | 0.08 | 0.075 | 0.005 | 0.008 | 0.005 | 0.005 | 0.004 | 0.007 | | 0.009 | 0.005 | 0.007 |
| Beryllium | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.018 | 0.022 | 0.03 | 0.017 | < 0.005 | 0.005 | 0.006 | 0.008 | < 0.005 | < 0.005 | | 0.01 | 0.006 | 0.008 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | 0.001 | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | | | |
| Cobalt | mg/L | - | - | - | 0.0002 | 0.0004 | 0.0001 | 0.0003 | < 0.005 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0012 | 0.0011 | 0.0005 | 0.0008 | 0.0009 | 0.0009 | 0.0014 | 0.0003 | 0.0008 | 0.0008 | | 0.0006 | 0.0004 | 0.0023 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00011 | <0.00002 | <0.00002 | <0.00004 | 0.00003 | 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | < 0.00002 | 0.00007 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | <0.0001 | <0.0001 | 0.0001 | <0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | | 0.0002 | < 0.0001 | 0.0001 |
| Nickel | mg/L | - | - | - | 0.001 | 0.0003 | 0.0004 | 0.0013 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.176 | 0.202 | 0.27 | 0.198 | 0.119 | 0.124 | 0.103 | 0.111 | 0.106 | 0.103 | | 0.118 | 0.106 | 0.118 |
| Thallium | mg/L | - | - | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0005 | 0.0007 | 0.0008 | 0.0001 | < 0.0001 | 0.0002 | | 0.0004 | 0.0002 | 0.0003 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | 5.4 | 8.5 | 8.6 | 8.9 | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | 7.84 | 7.98 | 6.92 | 7.81 | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | 473 | 264 | 414 | 135 | | | | | | | | | | |

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RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW23B 19-Apr-21 | MW23B 27-Oct-21 | MW23B 20-Apr-22 | MW23B 26-Oct-22 | MW23B 19-Apr-23 | MW23B 11-Oct-23 | MW23B 17-Apr-24 | MW23B 07-Oct-24 | MW23B 23-Apr-25 | MW23B 01-Oct-25 | MW26 27-Apr-16 | MW26 03-Oct-16 | MW26 17-Apr-17 | MW26 23-Oct-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 136 | 150 | 153 | 153 | 157 | 160 | 158 | 153 | 149 | 152 | 297 | 266 | 292 | 262 |
| Calcium | mg/L | - | - | - | 62.4 | 63.1 | 64.1 | 61.2 | 61.5 | 49.3 | 60.6 | 60.2 | 54 | 60.3 | 123 | 117 | 131 | 116 |
| Chloride | mg/L | 250 | 134 | 194 | 0.7 | 1.3 | 0.6 | < 0.5 | < 0.5 | <0.5 | 2 | <0.5 | <0.5 | 0.9 | 42.6 | 40.7 | 42.9 | 31.2 |
| COD | mg/L | - | - | - | 7 | < 5 | 11 | 7 | 6 | 15 | 31 | 16 | 19 | <5 | 544 | 132 | 11 | 175 |
| Specific Conductivity | umhos/cm | - | - | - | 287 | 277 | 297 | 296 | 301 | 297 | 295 | 303 | 290 | 297 | 715 | 684 | 710 | 658 |
| DOC | mg/L | 5 | - | - | 3 | 2.2 | 3 | 2.5 | 3 | **5.2** | 3.3 | 2.8 | 2.7 | 2.8 | 3.2 | 4.3 | 4.2 | 4.7 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | 0.006 | 0.016 | 0.017 | 0.018 | 0.007 | 0.031 | 0.01 | 0.07 | <0.005 | 0.008 | **0.618** | **0.66** | **0.741** | **0.576** |
| Magnesium | mg/L | - | - | - | 1.35 | 1.25 | 1.35 | 1.5 | 1.32 | 1.17 | 1.3 | 1.38 | 1.32 | 1.38 | 11.6 | 11 | 11.1 | 10.7 |
| Manganese | mg/L | 0.05 | - | - | 0.003 | 0.001 | 0.014 | 0.003 | 0.004 | **0.158** | 0.009 | **0.098** | <0.001 | 0.044 | 0.035 | 0.035 | 0.037 | 0.033 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.21 | 0.24 | 0.08 | 0.18 | 0.06 | 0.27 | <0.05 | 0.09 | 0.06 | 0.11 | < 0.1 | 0.1 | < 0.1 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.99 | 7.99 | 7.4 | 7.89 | 7.87 | 7.02 | 7.75 | 8.1 | 7.5 | 8.01 | 7.88 | 7.79 | 8.07 | 7.95 |
| Phenols | mg/L | - | - | - | 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | 0.004 | <0.001 | <0.001 | <0.001 | <0.001 | 0.003 | < 0.001 | 0.004 | 0.004 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 0.2 | 0.3 | 0.2 | 0.4 | 0.3 | 0.2 | 0.3 | 0.4 | 0.2 | 0.2 | 2.6 | 2.4 | 2.5 | 2.5 |
| Sodium | mg/L | 200 | 106 | 119 | 0.9 | 1 | 0.8 | 1.2 | 0.8 | 0.9 | 0.8 | 1 | 0.9 | 0.9 | 18.8 | 18.2 | 17.2 | 17.3 |
| Sulphate | mg/L | 500 | 251 | 252 | 2 | < 1 | 1 | < 1 | < 1 | 1 | 2 | <1 | <1 | 1 | 21 | 38 | 22 | 26 |
| TDS | mg/L | 500 | 374 | 504 | 149 | 157 | 162 | 156 | 158 | 152 | 151 | 155 | 147 | 157 | 399 | 388 | 403 | 362 |
| Tot Kjel N | mg/L | - | - | - | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.6 | 0.3 | 0.5 | 0.4 | 0.4 | 0.4 | 0.8 | 0.3 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.03 | 0.03 | 0.2 | 0.03 | 0.11 | 0.18 | 0.15 | 0.34 | <0.05 | 0.1 | 0.06 | 0.09 | 0.05 | 0.05 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 162 | 163 | 166 | 159 | 159 | 128 | 157 | 156 | 140 | 156 | 354 | 337 | 373 | 334 |
| BOD | mg/L | - | - | - | | | | | | | | | | | < 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | | | | | | | | | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | | | | | | | | | | | -- | -- | 20 | 48500 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 | 0.04 | 0.03 | 0.02 | 0.02 | 0.03 | 0.03 | 0.06 | 0.06 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | 0.0002 | <0.0001 | <0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0002 | < 0.0001 | 0.0002 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.005 | 0.007 | 0.005 | 0.008 | 0.005 | 0.006 | 0.005 | 0.007 | 0.005 | 0.007 | 0.161 | 0.162 | 0.21 | 0.167 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.007 | 0.008 | < 0.005 | 0.007 | 0.006 | <0.005 | 0.007 | 0.007 | 0.007 | 0.006 | 0.02 | 0.036 | 0.042 | 0.042 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0004 | 0.0001 | 0.0004 | <0.0001 | 0.0002 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0024 | 0.0009 | 0.0007 | 0.0014 | 0.0008 | 0.0007 | 0.002 | 0.0006 | 0.0004 | 0.0006 | 0.0005 | 0.0002 | < 0.0001 | 0.0002 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00005 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | <0.00002 | 0.00004 | <0.00002 | <0.00002 | 0.00002 | 0.00003 | 0.00003 | < 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00004 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.0002 | 0.0005 | <0.0002 | <0.0002 | 0.0006 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | - | - | 0.108 | 0.109 | 0.109 | 0.114 | 0.105 | 0.096 | 0.105 | 0.114 | 0.104 | 0.105 | 0.41 | 0.362 | 0.336 | 0.352 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.005 | < 0.005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0004 | 0.0002 | 0.0004 | 0.0001 | 0.0003 | 0.0009 | 0.001 | 0.002 | 0.0009 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | 5.9 | 11.3 | 8.8 | 9.9 | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | 7.58 | 8.25 | 7.12 | 7.99 | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | 304 | 200 | 253 | 125 | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW26 25-Apr-18 | MW26 15-Oct-18 | MW26 11-Apr-19 | MW26 21-Oct-19 | MW26 22-Apr-20 | MW26 19-Oct-20 | MW26 19-Apr-21 | MW26 27-Oct-21 | MW26 20-Apr-22 | MW26 24-Oct-22 | MW26 19-Apr-23 | MW26 12-Oct-23 | MW26 17-Apr-24 | MW26 07-Oct-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 283 | 273 | 281 | 254 | 353 | 265 | 266 | 287 | 301 | 264 | 289 | 288 | 287 | 274 |
| Calcium | mg/L | - | - | - | 120 | 107 | 125 | 118 | 149 | 112 | 122 | 119 | 121 | 117 | 120 | 108 | 114 | 112 |
| Chloride | mg/L | 250 | 134 | 194 | 51.9 | 40.2 | 43.2 | 38.7 | 52.3 | 42.7 | 43.8 | 42.7 | 44 | 56.2 | 39.8 | 42.4 | 41.1 | 36.7 |
| COD | mg/L | - | - | - | 5 | 8 | 99 | 148 | 18 | < 5 | 9 | 8 | 29 | 105 | 34 | 19 | 235 | 147 |
| Specific Conductivity | umhos/cm | - | - | - | 669 | 661 | 723 | 676 | 832 | 670 | 710 | 670 | 695 | 677 | 686 | 688 | 700 | 678 |
| DOC | mg/L | 5 | - | - | 4.7 | 3.4 | 4.5 | 4.4 | **7.3** | 3.5 | 4.8 | 3.7 | 3.4 | 2.8 | 2.4 | 6 | **5.4** | 4.6 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| Iron | mg/L | 0.3 | - | - | **0.521** | **0.6** | **0.655** | **0.764** | **3.51** | **0.645** | **0.702** | **0.73** | **0.684** | **0.777** | **0.73** | **0.719** | **0.583** | **0.72** |
| Magnesium | mg/L | - | - | - | 11.3 | 9.83 | 11.1 | 11.1 | 12.5 | 10.6 | 11.1 | 10.9 | 11 | 10.7 | 11.4 | 10.4 | 10.5 | 11.1 |
| Manganese | mg/L | 0.05 | - | - | 0.037 | 0.031 | 0.036 | 0.035 | **0.098** | 0.03 | 0.034 | 0.034 | 0.034 | 0.038 | 0.038 | 0.031 | 0.033 | 0.032 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | < 0.05 | 0.05 | 0.08 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.89 | 7.8 | 7.68 | 7.94 | 7.74 | 7.89 | 7.78 | 8 | 7.79 | 7.74 | 8.09 | 7.33 | 7.91 | 8.12 |
| Phenols | mg/L | - | - | - | < 0.001 | 0.007 | < 0.002 | < 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 2.9 | 2.5 | 2.7 | 2.7 | 2.2 | 2.7 | 2.7 | 2.7 | 2.6 | 2.5 | 3 | 2.7 | 2.5 | 2.9 |
| Sodium | mg/L | 200 | 106 | 119 | 18.4 | 16.2 | 18.9 | 17.4 | 22.1 | 17 | 18.7 | 18.4 | 18.2 | 16.2 | 18.6 | 17.1 | 16.2 | 17.1 |
| Sulphate | mg/L | 500 | 251 | 252 | 6 | 26 | 17 | 26 | < 1 | 21 | 17 | 18 | 16 | 24 | 17 | 21 | 17 | 15 |
| TDS | mg/L | 500 | 374 | 504 | 381 | 366 | 387 | 367 | 454 | 366 | 376 | 385 | 394 | 386 | 383 | 357 | 364 | 360 |
| Tot Kjel N | mg/L | - | - | - | 1.4 | 0.3 | 0.1 | 1 | 0.5 | 0.2 | 0.2 | 0.3 | 0.3 | 0.5 | 0.3 | 0.3 | 1.7 | 1.1 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.12 | 0.05 | 0.12 | 0.07 | 0.18 | 0.04 | 0.04 | 0.04 | 0.06 | 0.08 | 0.06 | 0.22 | <0.05 | 0.15 |
| Ammonia - Unionized | mg/L | - | - | - | | | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 346 | 308 | 358 | 341 | 424 | 324 | 351 | 342 | 348 | 336 | 346 | 313 | 328 | 326 |
| BOD | mg/L | - | - | - | < 3 | 5 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | <3 | 3 | <3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 |
| TSS | mg/L | - | - | - | 115000 | 109000 | 36200 | 32000 | 18 | 5400 | 9400 | 21000 | 40200 | 30100 | 30500 | 11800 | 65000 | 59800 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.12** | 0.06 | 0.07 | 0.08 | 0.08 | 0.07 | 0.08 | 0.07 | 0.07 | **0.09** | 0.03 | 0.07 | 0.06 | 0.04 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.164 | 0.154 | 0.172 | 0.17 | 0.2 | 0.158 | 0.17 | 0.166 | 0.166 | 0.16 | 0.173 | 0.157 | 0.164 | 0.159 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.041 | 0.037 | 0.045 | 0.045 | 0.043 | 0.045 | 0.045 | 0.049 | 0.044 | 0.044 | 0.049 | 0.045 | 0.045 | 0.047 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.0001 | < 0.005 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0003 | 0.0002 | 0.0003 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0003 | 0.0003 | 0.0001 | 0.0006 | 0.0007 | 0.0016 | 0.0015 | 0.0007 | 0.0003 | 0.0006 | 0.0003 | 0.0006 | 0.0003 | <0.0001 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.0001 | < 0.00002 | 0.00006 | 0.0001 | < 0.00002 | 0.0001 | 0.00006 | < 0.00002 | 0.00003 | 0.00012 | < 0.00002 | 0.00003 | <0.00002 | <0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0003 | 0.0003 | 0.0002 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.358 | 0.35 | 0.401 | 0.374 | 0.576 | 0.362 | 0.386 | 0.381 | 0.374 | 0.363 | 0.408 | 0.37 | 0.366 | 0.385 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0008 | 0.0002 | 0.0003 | 0.0003 | 0.0006 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | 7.8 | 10.2 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | 7.25 | 8.01 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | 650 | 584 |

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RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW26 23-Apr-25 | MW26 30-Sep-25 | MW26-1 27-Apr-16 | MW26-1 03-Oct-16 | MW26-1 17-Apr-17 | MW26-1 23-Oct-17 | MW26-1 25-Apr-18 | MW26-1 15-Oct-18 | MW26-1 11-Apr-19 | MW26-1 21-Oct-19 | MW26-1 22-Apr-20 | MW26-1 19-Oct-20 | MW26-1 19-Apr-21 | MW26-1 27-Oct-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 308 | 284 | 333 | 321 | 329 | 316 | 338 | 303 | 313 | 303 | 306 | 334 | 300 | 335 |
| Calcium | mg/L | - | - | - | 114 | 111 | 131 | 130 | 137 | 129 | 131 | 123 | 135 | 129 | 131 | 130 | 133 | 129 |
| Chloride | mg/L | 250 | 134 | 194 | 28.1 | 37.7 | 48.4 | 48.5 | 49.3 | 38.9 | 121 | 49.3 | 49 | 46.5 | 51.3 | 50.8 | 49.7 | 50.3 |
| COD | mg/L | - | - | - | 775 | 11 | < 5 | 9 | 20 | 15 | 11 | < 5 | 16 | 10 | 14 | < 5 | 11 | 7 |
| Specific Conductivity | umhos/cm | - | - | - | 738 | 676 | 774 | 774 | 786 | 753 | 773 | 754 | 779 | 771 | 763 | 753 | 773 | 754 |
| DOC | mg/L | 5 | - | - | 3.9 | 3.3 | 4.3 | **5.4** | **5.7** | **5.3** | **5.5** | **5.4** | **6.5** | **5.1** | **5.6** | 4.7 | 6 | **5.1** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | <0.1 | <0.1 | < 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.678** | **0.712** | **1.34** | **1.29** | **1.43** | **1.19** | **0.615** | **1.17** | **1.29** | **1.28** | **1.27** | **1.31** | **1.33** | **1.25** |
| Magnesium | mg/L | - | - | - | 11.4 | 10.9 | 13.3 | 13.3 | 12.8 | 13 | 13.1 | 12.1 | 12.9 | 13.2 | 13.2 | 12.6 | 13.1 | 12.8 |
| Manganese | mg/L | 0.05 | - | - | 0.036 | 0.032 | **0.064** | **0.063** | **0.065** | **0.063** | **0.073** | **0.059** | **0.063** | **0.061** | **0.062** | **0.061** | **0.061** | **0.058** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 1.75 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.07 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.66 | 8.05 | 7.82 | 7.83 | 7.85 | 7.88 | 7.88 | 7.78 | 7.61 | 7.99 | 7.74 | 7.84 | 7.69 | 7.92 |
| Phenols | mg/L | - | - | - | <0.001 | <0.001 | 0.001 | < 0.001 | < 0.001 | 0.003 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 |
| Phosphorus | mg/L | - | - | - | <0.1 | <0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 2.7 | 2.4 | 2.6 | 2.4 | 2.5 | 2.6 | 2.8 | 2.5 | 2.7 | 2.8 | 2.6 | 2.8 | 2.7 | 2.7 |
| Sodium | mg/L | 200 | 106 | 119 | 18 | 15.5 | 23 | 23.8 | 20.8 | 22.6 | 23.1 | 21.8 | 23.3 | 22.7 | 22.3 | 22.3 | 22.9 | 22.6 |
| Sulphate | mg/L | 500 | 251 | 252 | 31 | 16 | 9 | 12 | 11 | 10 | < 1 | 10 | 6 | 9 | 8 | 9 | 8 | 7 |
| TDS | mg/L | 500 | 374 | 504 | 399 | 364 | **429** | **424** | **432** | **407** | **494** | **402** | **419** | **406** | **413** | **430** | **411** | **427** |
| Tot Kjel N | mg/L | - | - | - | 2.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | <0.05 | 0.07 | 0.09 | 0.1 | 0.09 | 0.09 | 0.11 | 0.1 | 0.13 | 0.1 | 0.08 | 0.09 | 0.1 | 0.09 |
| Ammonia - Unionized | mg/L | - | - | - | <0.01 | <0.01 | | | | | | | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 332 | 322 | **381** | **380** | **395** | **376** | **381** | 357 | **391** | **377** | **382** | **377** | **386** | **375** |
| BOD | mg/L | - | - | - | 3 | <3 | < 3 | < 3 | < 3 | < 3 | < 3 | 4 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | 165000 | 16600 | -- | -- | 3 | 28 | 14 | 6 | 7 | 18 | 14 | 7 | 3 | < 3 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.04 | 0.07 | 0.04 | 0.04 | 0.06 | 0.06 | **0.08** | **0.07** | **0.07** | **0.09** | **0.07** | **0.07** | **0.08** | **0.08** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | <0.0001 | <0.0001 | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | <0.0001 | <0.0001 | 0.0003 | < 0.0001 | 0.0003 | 0.0003 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.167 | 0.157 | 0.186 | 0.199 | 0.226 | 0.209 | 0.197 | 0.194 | 0.208 | 0.201 | 0.206 | 0.202 | 0.205 | 0.197 |
| Beryllium | mg/L | - | - | - | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.053 | 0.047 | 0.024 | 0.043 | 0.049 | 0.051 | 0.046 | 0.046 | 0.049 | 0.052 | 0.052 | 0.054 | 0.053 | 0.053 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | <0.01 | | | | | | | | | | | | |
| Cobalt | mg/L | - | - | - | <0.0001 | 0.0002 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.005 | 0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | <0.0001 | 0.0002 | 0.0004 | 0.0002 | 0.0005 | 0.0002 | 0.0002 | 0.0003 | 0.0004 | 0.0008 | 0.0006 | 0.0012 | 0.0009 | 0.0006 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00004 | 0.00008 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00007 | < 0.00002 | 0.00005 | 0.00004 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0001 | 0.0002 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0001 |
| Nickel | mg/L | - | - | - | 0.0004 | 0.0007 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.394 | 0.367 | 0.548 | 0.511 | 0.455 | 0.499 | 0.492 | 0.508 | 0.539 | 0.531 | 0.504 | 0.51 | 0.531 | 0.526 |
| Thallium | mg/L | - | - | - | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 |
| Vanadium | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0013 | 0.0012 | 0.0022 | 0.0014 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.007 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.005 |
| Field Temp | deg C | - | - | - | 7 | 9.9 | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | 6.84 | 8.09 | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | 560 | 146 | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW26-1 20-Apr-22 | MW26-1 24-Oct-22 | MW26-1 19-Apr-23 | MW26-1 12-Oct-23 | MW26-1 17-Apr-24 | MW26-1 07-Oct-24 | MW26-1 23-Apr-25 | MW26-1 30-Sep-25 | MW26-2 27-Apr-16 | MW26-2 03-Oct-16 | MW26-2 17-Apr-17 | MW26-2 23-Oct-17 | MW26-2 25-Apr-18 | MW26-2 15-Oct-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 326 | 323 | 329 | 331 | 324 | 314 | 329 | 324 | **380** | **374** | **382** | **369** | **384** | 360 |
| Calcium | mg/L | - | - | - | 127 | 126 | 130 | 118 | 123 | 127 | 118 | 124 | 148 | 150 | 158 | 153 | 149 | 143 |
| Chloride | mg/L | 250 | 134 | 194 | 50.7 | 68.8 | 47 | 51.8 | 49.6 | 45.2 | 8 | 48.4 | 47.5 | 47.4 | 49.2 | 40.1 | 53.4 | 49.8 |
| COD | mg/L | - | - | - | 12 | 5 | 15 | 10 | 11 | 15 | 9 | <5 | 7 | 16 | 14 | 28 | 18 | 18 |
| Specific Conductivity | umhos/cm | - | - | - | 738 | 780 | 760 | 766 | 780 | 763 | 793 | 767 | 830 | 848 | 855 | 828 | 837 | 841 |
| DOC | mg/L | 5 | - | - | 4.2 | 3.6 | 2.1 | **7.7** | 7 | **5.9** | 4.9 | 4.7 | 6 | **7.7** | **7.4** | **7.7** | **6.6** | **7.6** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **1.24** | **1.19** | **1.31** | **1.16** | **1.23** | **1.24** | **1.32** | **1.18** | **3.94** | **3.64** | **4.07** | **3.64** | **2.98** | **3.33** |
| Magnesium | mg/L | - | - | - | 12.6 | 12.6 | 13.3 | 12.3 | 12.3 | 13.5 | 12.8 | 13 | 12.6 | 13 | 12.5 | 12.8 | 12.6 | 12.1 |
| Manganese | mg/L | 0.05 | - | - | **0.057** | **0.057** | **0.062** | **0.053** | **0.055** | **0.057** | **0.055** | **0.054** | **0.096** | **0.099** | **0.101** | **0.096** | **0.094** | **0.09** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | 0.05 | <0.05 | 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.75 | 7.68 | 7.96 | 7.35 | 7.94 | 8.13 | 7.86 | 7.97 | 7.66 | 7.77 | 7.73 | 7.82 | 7.87 | 7.69 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.01 | 0.02 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 2.6 | 2.6 | 3 | 2.8 | 2.6 | 3 | 2.7 | 2.6 | 2.2 | 2.1 | 2.2 | 2.2 | 2.5 | 2.3 |
| Sodium | mg/L | 200 | 106 | 119 | 21.8 | 20.9 | 22.9 | 22 | 20 | 22.4 | 21.4 | 20.1 | 21.2 | 23 | | | 23.6 | 22.2 |
| Sulphate | mg/L | 500 | 251 | 252 | 10 | 8 | 8 | 9 | 8 | 7 | 6 | 9 | < 1 | < 1 | 5 | 1 | < 1 | < 1 |
| TDS | mg/L | 500 | 374 | 504 | **422** | **434** | **422** | **401** | **409** | **409** | 368 | **412** | **464** | **465** | **481** | **457** | **475** | **449** |
| Tot Kjel N | mg/L | - | - | - | 0.3 | 0.4 | 0.5 | 0.2 | 0.5 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.14 | 0.1 | 0.36 | 0.18 | 0.21 | 0.12 | 0.23 | 0.1 | 0.2 | 0.22 | 0.2 | 0.19 | 0.27 | 0.19 |
| Ammonia - Unionized | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **369** | **367** | **379** | 346 | 358 | **373** | 348 | **363** | **421** | **429** | **446** | **435** | **424** | **407** |
| BOD | mg/L | - | - | - | < 3 | < 3 | < 3 | <3 | <3 | <3 | <3 | <3 | < 3 | < 3 | < 3 | < 3 | < 3 | 4 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | 11 | 12 | 17 | 8 | 10 | 7 | 13 | 13 | -- | -- | 10 | 28 | 80 | 10 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.07** | **0.09** | 0.03 | **0.09** | **0.08** | 0.04 | 0.04 | 0.06 | 0.04 | 0.04 | **0.08** | **0.08** | **0.07** | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0003 | < 0.0001 | 0.0003 | 0.0003 | 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.194 | 0.2 | 0.208 | 0.19 | 0.196 | 0.202 | 0.192 | 0.193 | 0.176 | 0.192 | 0.222 | 0.21 | 0.187 | 0.193 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.053 | 0.054 | 0.057 | 0.058 | 0.054 | 0.056 | 0.059 | 0.059 | 0.012 | 0.033 | 0.035 | 0.039 | 0.038 | 0.035 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | 0.0004 | 0.0003 | 0.0004 | 0.0001 | 0.0002 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0017 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0003 | 0.0005 | 0.0003 | 0.0005 | 0.0007 | 0.0001 | <0.0001 | 0.0002 | 0.0003 | < 0.0001 | 0.0008 | 0.0002 | 0.0001 | 0.0002 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00002 | 0.00003 | < 0.00002 | <0.00002 | 0.00002 | <0.00002 | 0.00003 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0001 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | 0.0006 | 0.0004 | 0.0004 | 0.0004 | 0.0009 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.508 | 0.501 | 0.556 | 0.513 | 0.5 | 0.546 | 0.515 | 0.52 | 0.608 | 0.587 | 0.519 | 0.575 | 0.565 | 0.581 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0003 | 0.0004 | 0.0003 | 0.0017 | 0.0018 | 0.0027 | 0.002 | 0.0007 | 0.0006 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | 7.1 | 8.9 | 7 | 8.5 | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | 7.64 | 7.83 | 7.02 | 8.31 | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | 794 | 651 | 592 | 155 | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW26-2 11-Apr-19 | MW26-2 21-Oct-19 | MW26-2 22-Apr-20 | MW26-2 19-Oct-20 | MW26-2 19-Apr-21 | MW26-2 27-Oct-21 | MW26-2 20-Apr-22 | MW26-2 24-Oct-22 | MW26-2 19-Apr-23 | MW26-2 12-Oct-23 | MW26-2 17-Apr-24 | MW26-2 07-Oct-24 | MW26-2 23-Apr-25 | MW26-2 30-Sep-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 357 | **380** | 270 | **365** | 343 | **384** | **386** | **371** | **387** | **393** | **374** | **369** | **376** | **387** |
| Calcium | mg/L | - | - | - | 153 | 151 | 117 | 149 | 153 | 151 | 149 | 147 | 150 | 139 | 142 | 149 | 137 | 143 |
| Chloride | mg/L | 250 | 134 | 194 | 49 | 46.3 | 42.8 | 51.1 | 50 | 50.4 | 50.9 | 68.8 | 48.3 | 53.9 | 51.1 | 49 | 54.2 | 51.7 |
| COD | mg/L | - | - | - | 23 | 15 | 14 | 9 | 17 | 14 | 23 | 10 | 17 | 21 | 23 | 21 | 13 | <5 |
| Specific Conductivity | umhos/cm | - | - | - | 841 | 846 | 683 | 836 | 853 | 826 | 828 | 871 | 849 | 873 | 860 | 858 | 870 | 860 |
| DOC | mg/L | 5 | - | - | **8.6** | **7.4** | 4 | **6.4** | **8.2** | **7.1** | **5.9** | **5.2** | 3.5 | **10.8** | **8.2** | **8.5** | **6.8** | **6.5** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | 0.2 | 0.2 |
| Iron | mg/L | 0.3 | - | - | **3.44** | **3.4** | **0.656** | **3.51** | **3.51** | **3.4** | **3.37** | **3.32** | **3.59** | **3.27** | **3.44** | **3.32** | **3.77** | **3.21** |
| Magnesium | mg/L | - | - | - | 12.2 | 13.1 | 11 | 12.5 | 12.7 | 12.6 | 12.4 | 12.5 | 13 | 12.2 | 12 | 13.2 | 12.4 | 12.6 |
| Manganese | mg/L | 0.05 | - | - | **0.092** | **0.093** | 0.034 | **0.093** | **0.092** | **0.092** | **0.09** | **0.093** | **0.097** | **0.089** | **0.092** | **0.095** | **0.092** | **0.091** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | 0.07 | 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.5 | 7.89 | 7.81 | 7.77 | 7.62 | 7.96 | 7.7 | 7.59 | 7.94 | 7.39 | 7.99 | 7.97 | 7.71 | 7.88 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 2.3 | 2.5 | 2.5 | 2.5 | 2.4 | 2.4 | 2.3 | 2.3 | 2.7 | 2.5 | 2.3 | 2.8 | 2.5 | 2.2 |
| Sodium | mg/L | 200 | 106 | 119 | 22.4 | 23.5 | 17.3 | 22.9 | 23.3 | 23.4 | 22.5 | 22 | 24.3 | 23.3 | 21.4 | 24.2 | 23.1 | 21.8 |
| Sulphate | mg/L | 500 | 251 | 252 | < 1 | < 1 | 21 | < 1 | < 1 | 1 | < 1 | < 1 | < 1 | <1 | 2 | <1 | 1 | 1 |
| TDS | mg/L | 500 | 374 | 504 | **458** | **469** | 374 | **460** | **451** | **475** | **472** | **479** | **475** | **462** | **454** | **463** | **460** | **469** |
| Tot Kjel N | mg/L | - | - | - | 0.5 | 0.4 | 0.3 | 0.5 | 0.6 | 0.5 | 0.5 | 0.6 | 0.6 | 0.4 | 1.1 | 1 | 0.6 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.2 | 0.19 | 0.03 | 0.2 | 0.2 | 0.2 | 0.21 | 0.19 | 0.29 | 0.25 | 0.62 | 0.28 | 0.27 | 0.21 |
| Ammonia - Unionized | mg/L | - | - | - | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | **433** | **431** | 338 | **424** | **435** | **429** | **423** | **419** | **430** | **398** | **404** | **427** | **394** | **409** |
| BOD | mg/L | - | - | - | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | <3 | <3 | <3 | <3 | <3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| TSS | mg/L | - | - | - | 33 | 20 | 33900 | 14 | < 3 | 5 | 11 | 17 | 9 | 10 | 12 | 8 | 11 | 13 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.08** | **0.09** | **0.08** | **0.08** | **0.09** | **0.1** | **0.08** | **0.08** | 0.04 | **0.1** | **0.08** | 0.05 | 0.04 | **0.08** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.197 | 0.2 | 0.164 | 0.195 | 0.201 | 0.199 | 0.195 | 0.2 | 0.207 | 0.194 | 0.196 | 0.205 | 0.192 | 0.194 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.04 | 0.044 | 0.044 | 0.045 | 0.041 | 0.043 | 0.04 | 0.042 | 0.046 | 0.043 | 0.045 | 0.049 | 0.049 | 0.048 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | 0.007 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.002 | 0.0016 | 0.0017 | 0.0013 | 0.0015 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0009 | 0.0013 | 0.0006 | 0.001 | < 0.0001 | 0.0007 | 0.0003 | 0.0004 | 0.0005 | 0.0003 | 0.0009 | 0.0002 | 0.0006 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00008 | 0.00005 | 0.00004 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | <0.00002 | 0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0001 | 0.0002 | 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Nickel | mg/L | - | - | - | 0.01 | 0.01 | < 0.01 | 0.01 | < 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.0153 | 0.0154 | 0.0153 | 0.0157 | 0.0199 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.611 | 0.604 | 0.362 | 0.578 | 0.59 | 0.594 | 0.571 | 0.578 | 0.632 | 0.582 | 0.562 | 0.615 | 0.581 | 0.573 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0007 | 0.0007 | 0.0002 | 0.0007 | 0.0007 | 0.0007 | 0.0007 | 0.0007 | 0.0007 | 0.0007 | 0.0006 | 0.0006 | 0.0006 | 0.0006 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | 0.005 | < 0.005 | 0.006 | < 0.005 | < 0.005 | < 0.005 | <0.005 | 0.005 | <0.005 | <0.005 | <0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | 7.1 | 8 | 7.4 | 8.6 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | 7.54 | 7.76 | 7.27 | 7.82 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | 882 | 880 | 388 | 150 |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW27-II 27-Apr-16 | MW27-II 07-Jul-16 | MW27-II 03-Oct-16 | MW27-II 22-Feb-17 | MW27-II 17-Apr-17 | MW27-II 20-Jul-17 | MW27-II 23-Oct-17 | MW27-II 26-Apr-18 | MW27-II 15-Oct-18 | MW27-II 11-Apr-19 | MW27-II 21-Oct-19 | MW27-II 22-Apr-20 | MW27-II 19-Oct-20 | MW27-II 19-Apr-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 198 | 201 | 200 | 200 | 205 | 201 | 199 | 210 | 213 | 193 | 197 | 192 | 204 | 194 |
| Calcium | mg/L | - | - | - | 88.6 | 97.2 | 101 | 92.1 | 99.6 | 86.7 | 97.3 | 95.8 | 86.1 | 90.6 | 86.5 | 87.2 | 84.5 | 85.4 |
| Chloride | mg/L | 250 | 134 | 194 | 21.3 | 26.1 | 36.5 | 31.9 | 31.4 | 26.6 | 29.8 | 33.1 | 29.5 | 25.3 | 21.6 | 24.3 | 18.6 | 16.7 |
| COD | mg/L | - | - | - | 402 | 5 | < 5 | 104 | 181 | 75 | 67 | < 5 | 17 | < 5 | 7 | < 5 | 159 | 10 |
| Specific Conductivity | umhos/cm | - | - | - | 495 | 510 | 536 | 529 | 540 | 545 | 536 | 518 | 530 | 516 | 498 | 497 | 488 | 486 |
| DOC | mg/L | 5 | - | - | 0.6 | 1.1 | 2.5 | 2 | 1.8 | 1.4 | 3.1 | 2.3 | 1.6 | 1.5 | 1.4 | 1.8 | 1.8 | 1.9 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | < 0.005 | < 0.005 | 0.119 | 0.143 | < 0.005 | < 0.005 | 0.005 | 0.008 | 0.005 | < 0.005 | 0.006 | 0.018 | 0.005 | 0.021 |
| Magnesium | mg/L | - | - | - | 7.68 | 8.28 | 8.51 | 7.79 | 7.88 | 7.58 | 8.19 | 8.13 | 7.3 | 7.65 | 7.73 | 7.91 | 7.02 | 7.37 |
| Manganese | mg/L | 0.05 | - | - | 0.006 | 0.01 | 0.014 | 0.009 | 0.008 | 0.005 | 0.006 | 0.003 | 0.004 | 0.004 | 0.003 | 0.005 | 0.003 | 0.004 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.7 | 0.6 | < 0.1 | 0.7 | 0.7 | 0.65 | 0.63 | 0.99 | 0.6 | 0.57 | 0.64 | 0.43 | 0.54 | 0.81 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | 0.2 | **0.3** | < 0.1 | 0.1 | < 0.1 | 0.1 | < 0.05 | < 0.05 | < 0.05 | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.86 | 7.86 | 7.99 | 7.95 | 8.1 | 7.96 | 7.96 | 8 | 8.05 | 7.86 | 8.06 | 7.92 | 7.97 | 7.96 |
| Phenols | mg/L | - | - | - | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.004 | < 0.001 | < 0.001 | 0.006 | < 0.002 | < 0.001 | < 0.002 | < 0.001 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 1.5 | 1.6 | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 | 1.8 | 1.4 | 1.5 | 1.5 | 1.7 | 1.6 | 1.5 |
| Sodium | mg/L | 200 | 106 | 119 | 3.9 | 4.5 | 4.9 | 6 | 5.7 | 6.7 | 7.8 | 11.7 | 10.6 | 9.6 | 12.1 | 10.3 | 12.1 | 11 |
| Sulphate | mg/L | 500 | 251 | 252 | 22 | 21 | < 1 | 21 | 21 | 17 | 19 | 18 | 19 | 17 | 16 | 18 | 17 | 15 |
| TDS | mg/L | 500 | 374 | 504 | 267 | 283 | 273 | 284 | 293 | 266 | 283 | 294 | 282 | 268 | 263 | 265 | 263 | 253 |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 4.1 | 0.9 | 2 | 1 | 0.9 | 0.7 | 0.2 | 0.4 | 0.2 | 0.2 | < 0.1 | 1.5 | 0.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.07 | 0.12 | 0.1 | 0.03 | 0.07 | 0.06 | 0.04 | 0.02 | 0.05 | 0.05 | 0.05 | 0.03 | 0.13 | 0.06 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 253 | 277 | 288 | 262 | 281 | 248 | 277 | 273 | 245 | 258 | 248 | 251 | 240 | 244 |
| BOD | mg/L | - | - | - | < 3 | 6 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | 4 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | -- | -- | -- | 26300 | 64 | 35000 | 51500 | 575 | 2200 | 92 | 2510 | 1330 | 28700 | 30300 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.03 | 0.03 | **0.15** | **0.17** | **0.07** | 0.03 | 0.06 | 0.05 | 0.05 | 0.03 | 0.06 | 0.06 | 0.05 | 0.05 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0004 | < 0.0001 | 0.0003 | 0.0004 | 0.0004 | 0.0006 | < 0.0001 | < 0.0001 | 0.0003 | 0.0002 | 0.0004 | 0.0003 | 0.0002 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.064 | 0.081 | 0.088 | 0.076 | 0.086 | 0.066 | 0.079 | 0.072 | 0.07 | 0.07 | 0.068 | 0.07 | 0.068 | 0.065 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | < 0.005 | 0.012 | 0.009 | < 0.005 | 0.041 | 0.01 | 0.014 | 0.011 | 0.01 | 0.013 | 0.014 | 0.013 | 0.014 | 0.012 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0012 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.009 | 0.0004 | 0.008 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0006 | 0.0007 | 0.0007 | 0.0007 | 0.0012 | 0.0011 | 0.0004 | 0.001 | 0.0007 | 0.0008 | 0.0012 | 0.0009 | 0.0021 | 0.0017 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00005 | 0.00014 | 0.00015 | < 0.00002 | 0.00007 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00004 | 0.00002 | 0.00008 | 0.00005 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.196 | 0.199 | 0.209 | 0.214 | 0.173 | 0.187 | 0.201 | 0.195 | 0.197 | 0.194 | 0.193 | 0.185 | 0.181 | 0.182 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0009 | 0.0009 | 0.0012 | 0.0014 | 0.001 | 0.0014 | < 0.0001 | < 0.0001 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.055 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW27-II 27-Oct-21 | MW27-II 20-Apr-22 | MW27-II 26-Oct-22 | MW27-II 19-Apr-23 | MW27-II 12-Oct-23 | MW27-II 17-Apr-24 | MW27-II 07-Oct-24 | MW27-II 23-Apr-25 | MW27-II 01-Oct-25 | MW27-III 21-Jan-16 | MW27-III 27-Apr-16 | MW27-III 07-Jul-16 | MW27-III 03-Oct-16 | MW27-III 22-Feb-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 216 | 222 | 217 | 217 | 229 | 213 | 208 | 216 | 220 | 174 | 176 | 178 | 175 | 179 |
| Calcium | mg/L | - | - | - | 84.1 | 84.8 | 80 | 83.4 | 76.6 | 76.7 | 79.8 | 74.4 | 79.5 | 61.9 | 70.3 | 74.8 | 73.6 | 69.8 |
| Chloride | mg/L | 250 | 134 | 194 | 15 | 15.1 | 15 | 12.5 | 13 | 10.6 | 11.5 | 9.5 | 8.9 | 2.7 | 2.6 | 3 | 3 | 3.7 |
| COD | mg/L | - | - | - | < 5 | 39 | 97 | < 5 | 12 | 7 | 94 | 41 | 27 | 730 | 304 | < 5 | 6 | 183 |
| Specific Conductivity | umhos/cm | - | - | - | 471 | 474 | 470 | 471 | 481 | 473 | 470 | 476 | 471 | 380 | 378 | 379 | 384 | 385 |
| DOC | mg/L | 5 | - | - | 1.5 | 1.5 | 1 | 1.4 | 2.7 | 2.2 | 2.6 | 1.9 | 2.7 | 3.5 | 0.9 | 1.3 | 4.2 | 2.5 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | 0.1 | 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | 0.015 | 0.119 | < 0.005 | 0.024 | 0.006 | 0.016 | 0.005 | <0.005 | <0.005 | 0.114 | 0.077 | 0.207 | 0.111 | 0.142 |
| Magnesium | mg/L | - | - | - | 7.08 | 7.15 | 7.17 | 7.51 | 7.04 | 6.79 | 7.33 | 7.07 | 7.13 | 6.13 | 6.75 | 7.26 | 7.08 | 6.65 |
| Manganese | mg/L | 0.05 | - | - | 0.004 | 0.005 | < 0.001 | 0.005 | 0.004 | 0.004 | 0.003 | 0.004 | 0.004 | 0.016 | 0.023 | 0.024 | 0.023 | 0.022 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.65 | 0.63 | 0.67 | 0.58 | 0.7 | 0.62 | 0.86 | 0.78 | 0.63 | < 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 8.13 | 7.91 | 7.98 | 8.1 | 7.44 | 8.05 | 8.2 | 7.86 | 8.07 | 8.04 | 8.04 | 8 | 8.1 | 8.03 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 1.6 | 1.5 | 1.6 | 1.9 | 1.7 | 1.5 | 1.7 | 1.5 | 1.2 | 1.2 | 1.4 | 1.5 | 1.5 | 1.3 |
| Sodium | mg/L | 200 | 106 | 119 | 12.1 | 11.2 | 11 | 12.3 | 11.7 | 10.5 | 11 | 10.3 | 9.1 | 3.2 | 3.2 | 3.5 | 3.6 | 3.4 |
| Sulphate | mg/L | 500 | 251 | 252 | 15 | 15 | 16 | 14 | 15 | 14 | 13 | 13 | 12 | 20 | 22 | 23 | 22 | 21 |
| TDS | mg/L | 500 | 374 | 504 | 264 | 268 | 260 | 261 | 249 | 245 | 253 | 249 | 253 | 200 | 212 | 221 | 216 | 214 |
| Tot Kjel N | mg/L | - | - | - | 0.3 | 0.1 | 1.6 | 0.2 | <0.1 | 0.2 | 1.3 | 0.5 | 0.8 | 8.8 | 0.6 | 6.5 | 2.5 | 3.2 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.07 | 0.05 | 0.06 | 0.06 | 0.07 | <0.05 | 0.27 | 0.07 | 0.16 | 0.09 | 0.1 | 0.07 | 0.1 | 0.06 |
| Ammonia - Unionized | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 239 | 241 | 271 | 239 | 220 | 220 | 230 | 215 | 228 | 180 | 203 | 217 | 213 | 202 |
| BOD | mg/L | - | - | - | < 3 | < 3 | < 3 | < 3 | <3 | <3 | <3 | <3 | <3 | < 3 | < 3 | 6 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | 15000 | 208 | 26400 | 267 | 253 | 686 | 116000 | 380000 | 12300 | -- | -- | -- | -- | 5600 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.06 | 0.05 | 0.04 | 0.02 | 0.06 | 0.05 | 0.03 | 0.03 | 0.05 | 0.03 | 0.05 | 0.06 | **0.11** | **0.13** |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0004 | 0.0002 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0004 | 0.0003 | 0.0004 | 0.0002 | 0.0004 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.068 | 0.066 | 0.062 | 0.069 | 0.064 | 0.062 | 0.063 | 0.059 | 0.061 | 0.104 | 0.1 | 0.103 | 0.129 | 0.119 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.014 | 0.009 | 0.005 | 0.013 | 0.012 | 0.015 | 0.013 | 0.013 | 0.012 | 0.007 | < 0.005 | 0.01 | 0.008 | < 0.005 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0008 |
| Chromium (VI) | mg/L | - | - | - | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0003 | 0.0002 | 0.0003 | 0.0001 | 0.0002 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.001 | 0.0005 | 0.001 | 0.0005 | 0.0016 | 0.0006 | 0.0004 | 0.0004 | 0.0005 | 0.0004 | 0.0005 | 0.0003 | 0.0003 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00004 | 0.00011 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | 0.00004 | <0.00002 | 0.00002 | 0.00005 | 0.00005 | 0.0001 | 0.00012 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00005 |
| Molybdenum | mg/L | - | - | - | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0007 | 0.0006 | 0.0006 | 0.0006 | 0.0006 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0007 | 0.0006 | 0.0004 | 0.0005 | 0.0009 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | - | - | 0.181 | 0.175 | 0.171 | 0.192 | 0.177 | 0.17 | 0.182 | 0.174 | 0.172 | 0.132 | 0.156 | 0.157 | 0.155 | 0.161 |
| Thallium | mg/L | - | - | - | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0003 | 0.0004 | 0.0005 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0005 | 0.0006 | 0.0005 | 0.0011 | 0.0011 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | 6.9 | 9.2 | 8.7 | 8.2 | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | 8.03 | 7.98 | 7.95 | 8.13 | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | 493 | 431 | 853 | 137 | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW27-III 17-Apr-17 | MW27-III 20-Jul-17 | MW27-III 23-Oct-17 | MW27-III 25-Apr-18 | MW27-III 15-Oct-18 | MW27-III 11-Apr-19 | MW27-III 21-Oct-19 | MW27-III 22-Apr-20 | MW27-III 19-Oct-20 | MW27-III 19-Apr-21 | MW27-III 27-Oct-21 | MW27-III 20-Apr-22 | MW27-III 26-Oct-22 | MW27-III 19-Apr-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 181 | 178 | 175 | 188 | 190 | 172 | 171 | 173 | 178 | 175 | 183 | 194 | 190 | 194 |
| Calcium | mg/L | - | - | - | 76.3 | 65 | 71.7 | 74.6 | 70.4 | 73.2 | 73.1 | 74.6 | 77.7 | 92.2 | 82.4 | 85.8 | 80.2 | 86.7 |
| Chloride | mg/L | 250 | 134 | 194 | 3 | 2.9 | 3 | 4.7 | 4.8 | 5.7 | 9 | 13.4 | 15 | 19.6 | 20.4 | 24.5 | 25.2 | 24.1 |
| COD | mg/L | - | - | - | 221 | 174 | 180 | < 5 | < 5 | 162 | 450 | 630 | 461 | 363 | 205 | 278 | 698 | 246 |
| Specific Conductivity | umhos/cm | - | - | - | 395 | 390 | 382 | 384 | 398 | 402 | 415 | 422 | 426 | 449 | 445 | 465 | 467 | 481 |
| DOC | mg/L | 5 | - | - | 2.2 | 1.4 | 3.5 | 2.2 | 1.6 | 1.7 | 1.3 | 1.7 | 1.9 | 2.3 | 1.7 | 1.6 | 1.2 | 1.2 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | **0.5** | < 0.1 |
| Iron | mg/L | 0.3 | - | - | 0.065 | 0.027 | 0.088 | 0.083 | 0.181 | 0.146 | 0.173 | 0.213 | 0.209 | **0.519** | 0.069 | 0.178 | **0.342** | **0.329** |
| Magnesium | mg/L | - | - | - | 6.79 | 6.51 | 6.96 | 7.24 | 6.51 | 6.73 | 7.38 | 7.37 | 7.34 | 8.17 | 7.77 | 8 | 8.44 | 8.6 |
| Manganese | mg/L | 0.05 | - | - | 0.02 | 0.019 | 0.026 | 0.019 | 0.02 | 0.022 | 0.022 | 0.021 | 0.021 | 0.046 | 0.023 | 0.026 | 0.025 | 0.028 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.06 | 0.07 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 8.13 | 8.11 | 8.07 | 8.05 | 8.08 | 8 | 8.07 | 7.9 | 7.98 | 8.03 | 8.07 | 7.97 | 7.97 | 8.09 |
| Phenols | mg/L | - | - | - | < 0.001 | 0.004 | 0.002 | < 0.001 | 0.018 | < 0.002 | < 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | - | - | - | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 1.3 | 1.3 | 1.8 | 1.8 | 1.5 | 1.4 | 1.7 | 1.4 | 1.7 | 1.6 | 1.7 | 1.5 | 1.8 | 1.8 |
| Sodium | mg/L | 200 | 106 | 119 | 3 | 3.4 | 4.6 | 4.4 | 3.3 | 3.4 | 3.5 | 3.3 | 3.5 | 3.5 | 3.7 | 3.5 | 4.1 | 3.9 |
| Sulphate | mg/L | 500 | 251 | 252 | 22 | 18 | 19 | 22 | 25 | 21 | 23 | 23 | 22 | 22 | 24 | 21 | 23 | 20 |
| TDS | mg/L | 500 | 374 | 504 | 221 | 204 | 212 | 228 | 226 | 216 | 221 | 227 | 234 | 253 | 250 | 262 | 258 | 262 |
| Tot Kjel N | mg/L | - | - | - | 4.8 | 1.1 | 1.4 | 1 | 7.2 | 3.6 | 3.1 | 3.7 | 11.3 | 3.1 | 3.5 | 10.5 | 4.1 | 3.7 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.1 | 0.08 | 0.11 | 0.1 | 0.07 | 0.18 | 0.15 | 0.04 | 0.09 | 0.07 | 0.09 | 0.09 | 0.01 | 0.45 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 219 | 189 | 208 | 216 | 203 | 211 | 213 | 217 | 224 | 264 | 238 | 247 | 235 | 252 |
| BOD | mg/L | - | - | - | < 3 | < 3 | < 3 | < 3 | 14 | < 3 | 4 | < 3 | 6 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | 6000 | 4400 | 10000 | 4320 | 73000 | 10900 | 44000 | 22000 | 46100 | 20800 | 15000 | 11100 | 30700 | 6920 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.04 | 0.02 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 | 0.05 | 0.05 | **0.24** | 0.06 | 0.06 | 0.03 | 0.02 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0004 | 0.0003 | 0.0005 | < 0.0001 | 0.0006 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.134 | 0.096 | 0.124 | 0.117 | 0.128 | 0.114 | 0.119 | 0.119 | 0.147 | 0.133 | 0.137 | 0.139 | 0.136 | 0.143 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.034 | 0.008 | 0.011 | 0.008 | 0.007 | 0.008 | 0.012 | 0.009 | 0.012 | 0.01 | 0.013 | 0.007 | 0.01 | 0.009 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000020 | < 0.000014 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | < 0.001 | < 0.001 | < 0.001 |
| Cobalt | mg/L | - | - | - | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0009 | 0.0008 | 0.0005 | 0.0007 | 0.0004 | 0.0005 | 0.0005 | 0.0001 | 0.0019 | 0.0019 | 0.0009 | 0.0004 | 0.0005 | 0.0002 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | 0.00009 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00005 | < 0.00002 | 0.00007 | 0.00034 | 0.00004 | 0.00006 | 0.00003 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0005 | 0.0005 | 0.0005 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.135 | 0.143 | 0.153 | 0.152 | 0.157 | 0.158 | 0.165 | 0.158 | 0.167 | 0.192 | 0.18 | 0.177 | 0.189 | 0.198 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0012 | 0.0013 | < 0.0001 | 0.0003 | 0.0002 | < 0.0001 | 0.0001 | < 0.0001 | 0.0002 | 0.0011 | 0.0003 | 0.0002 | < 0.0001 | < 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | 0.017 | 0.014 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW27-III 12-Oct-23 | MW27-III 17-Apr-24 | MW27-III 07-Oct-24 | MW27-III 23-Apr-25 | MW27-III 01-Oct-25 | MW28-I 21-Jan-16 | MW28-I 27-Apr-16 | MW28-I 07-Jul-16 | MW28-I 03-Oct-16 | MW28-I 22-Feb-17 | MW28-I 17-Apr-17 | MW28-I 20-Jul-17 | MW28-I 23-Oct-17 | MW28-I 25-Apr-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 205 | 198 | 182 | 195 | 188 | 203 | 205 | 202 | 200 | 204 | 206 | 200 | 198 | 207 |
| Calcium | mg/L | - | - | - | 79.5 | 81.9 | 81.1 | 77.4 | 80.6 | 72.2 | 83.5 | 90.7 | 93.5 | 87.5 | 97.3 | 92.5 | 108 | 112 |
| Chloride | mg/L | 250 | 134 | 194 | 26 | 24.1 | 22.6 | 23.4 | 20.8 | 9.3 | 13.4 | 21.9 | 26.7 | 27.1 | 34.7 | 40.6 | 49.7 | 74.4 |
| COD | mg/L | - | - | - | 68 | 179 | 750 | 164 | 135 | 8 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | 14 | 29 |
| Specific Conductivity | umhos/cm | - | - | - | 481 | 482 | 466 | 489 | 464 | 455 | 463 | 490 | 511 | 516 | 539 | 584 | 606 | 632 |
| DOC | mg/L | 5 | - | - | 3.2 | 2.4 | 2.9 | 1.8 | 2.5 | 3.1 | 0.9 | 1.2 | 2.7 | 2.6 | 2 | 1 | 1.3 | 1.8 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 | < 0.1 | 0.2 | 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | 0.276 | **0.369** | 0.241 | 0.142 | 0.294 | 0.276 | **0.387** | **0.306** | **0.379** | **0.408** | **0.509** | **0.41** | **0.502** | **0.427** |
| Magnesium | mg/L | - | - | - | 8.09 | 8.11 | 8.67 | 8.26 | 8.49 | 7.98 | 8.96 | 9.73 | 9.95 | 9.35 | 9.89 | 10.2 | 11.4 | 12 |
| Manganese | mg/L | 0.05 | - | - | 0.025 | 0.023 | 0.023 | 0.024 | 0.02 | 0.018 | 0.021 | 0.025 | 0.024 | 0.025 | 0.024 | 0.023 | 0.026 | 0.028 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.37 | 7.95 | 8.11 | 7.81 | 8.14 | 7.98 | 8 | 7.89 | 7.96 | 7.92 | 8.07 | 8.02 | 7.97 | 7.98 |
| Phenols | mg/L | - | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.004 | < 0.001 | < 0.001 | < 0.001 | 0.003 | 0.002 | < 0.001 |
| Phosphorus | mg/L | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 1.8 | 1.5 | 2 | 1.6 | 1.6 | 1.5 | 1.8 | 1.9 | 1.9 | 1.7 | 1.9 | 1.8 | 2 | 2.6 |
| Sodium | mg/L | 200 | 106 | 119 | 3.8 | 3.4 | 4 | 3.9 | 3.8 | 4.4 | 4.5 | 5 | 5 | 4.6 | 4.3 | 4.6 | 5 | 6.4 |
| Sulphate | mg/L | 500 | 251 | 252 | 23 | 20 | 18 | 20 | 18 | 17 | 18 | 19 | 19 | 18 | 19 | 16 | 15 | 19 |
| TDS | mg/L | 500 | 374 | 504 | 249 | 249 | 245 | 252 | 247 | 235 | 254 | 270 | 276 | 271 | 291 | 286 | 311 | 351 |
| Tot Kjel N | mg/L | - | - | - | 1.2 | 2.4 | 4.5 | 2.9 | 0.3 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.3 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.08 | 0.09 | 0.1 | 0.11 | 0.19 | 0.08 | 0.1 | 0.07 | 0.07 | 0.06 | 0.05 | 0.05 | 0.05 | 0.09 |
| Ammonia - Unionized | mg/L | - | - | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 232 | 238 | 238 | 228 | 236 | 213 | 246 | 267 | 275 | 257 | 284 | 273 | 317 | 329 |
| BOD | mg/L | - | - | - | <3 | <3 | 3 | <3 | <3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | 4110 | 6480 | 23600 | 3700 | 9000 | -- | -- | -- | -- | 455 | 100 | 33 | 156 | 710 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.07 | 0.06 | 0.03 | 0.03 | 0.06 | 0.03 | 0.02 | 0.03 | 0.08 | 0.07 | 0.06 | 0.04 | 0.06 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | <0.0001 | <0.0001 | 0.0002 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | <0.0001 | 0.0002 | 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0002 | < 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.152 | 0.131 | 0.153 | 0.134 | 0.137 | 0.089 | 0.094 | 0.112 | 0.118 | 0.11 | 0.127 | 0.111 | 0.138 | 0.136 |
| Beryllium | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.011 | 0.014 | 0.011 | 0.011 | 0.013 | 0.015 | < 0.005 | 0.02 | 0.017 | < 0.005 | 0.043 | 0.017 | 0.021 | 0.019 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000014 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | | |
| Cobalt | mg/L | - | - | - | 0.0002 | 0.0001 | 0.0002 | <0.0001 | <0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0004 | 0.0003 | 0.0008 | 0.0001 | 0.0001 | 0.0006 | 0.0003 | 0.0003 | 0.0004 | 0.0002 | 0.0008 | < 0.0001 | < 0.0001 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | <0.00002 | <0.00002 | <0.00002 | 0.00004 | <0.00002 | 0.00003 | < 0.00002 | < 0.00002 | 0.0001 | 0.00004 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0005 | 0.0004 | 0.0004 | 0.0005 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0001 |
| Nickel | mg/L | - | - | - | <0.0002 | 0.0006 | <0.0002 | <0.0002 | 0.0004 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.187 | 0.18 | 0.193 | 0.183 | 0.185 | 0.22 | 0.273 | 0.33 | 0.269 | 0.272 | 0.237 | 0.271 | 0.295 | 0.302 |
| Thallium | mg/L | - | - | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.0002 | <0.0001 | 0.0002 | <0.0001 | <0.0001 | 0.0003 | 0.0005 | 0.0004 | 0.0006 | 0.0008 | 0.0011 | 0.001 | 0.0001 | < 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | 0.008 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.009 |
| Field Temp | deg C | - | - | - | | 6.9 | 10.9 | 7.4 | 8.9 | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | 8.14 | 8.31 | 7.27 | 8.35 | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | 515 | 482 | 388 | 139 | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW28-I 15-Oct-18 | MW28-I 11-Apr-19 | MW28-I 21-Oct-19 | MW28-I 22-Apr-20 | MW28-I 19-Oct-20 | MW28-I 19-Apr-21 | MW28-I 27-Oct-21 | MW28-I 20-Apr-22 | MW28-I 26-Oct-22 | MW28-I 19-Apr-23 | MW28-I 12-Oct-23 | MW28-I 17-Apr-24 | MW28-I 07-Oct-24 | MW28-I 23-Apr-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 199 | 196 | 198 | 220 | 204 | 191 | 218 | 220 | 217 | 220 | 228 | 222 | 214 | 217 |
| Calcium | mg/L | - | - | - | 106 | 105 | 106 | 98.7 | 97.5 | 96 | 94.1 | 94.6 | 88.8 | 91.5 | 83.7 | 83.4 | 88.8 | 78.8 |
| Chloride | mg/L | 250 | 134 | 194 | 75.2 | 63.4 | 62.2 | 48.5 | 45.9 | 37.3 | 36.1 | 35.9 | 37.6 | 32 | 37.5 | 31 | 31.2 | 32.4 |
| COD | mg/L | - | - | - | < 5 | 7 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | 10 | 5 | 7 | <5 | <5 |
| Specific Conductivity | umhos/cm | - | - | - | 658 | 628 | 643 | 574 | 570 | 553 | 538 | 542 | 546 | 545 | 548 | 544 | 546 | 547 |
| DOC | mg/L | 5 | - | - | 1.4 | 1.7 | 1.4 | 1.8 | 1.7 | 2 | 1.7 | 1.4 | 0.8 | 1.4 | 3.6 | 2.8 | 2.4 | 1.9 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Iron | mg/L | 0.3 | - | - | **0.501** | **0.492** | **0.526** | **0.478** | **0.511** | **0.491** | **0.483** | **0.464** | **0.472** | **0.488** | **0.433** | **0.415** | **0.442** | **0.381** |
| Magnesium | mg/L | - | - | - | 11.4 | 11.2 | 12.2 | 10.8 | 10.2 | 10.1 | 9.93 | 9.78 | 10.3 | 10.2 | 9.37 | 9.01 | 9.86 | 9.18 |
| Manganese | mg/L | 0.05 | - | - | 0.027 | 0.025 | 0.026 | 0.023 | 0.024 | 0.022 | 0.022 | 0.022 | 0.027 | 0.023 | 0.02 | 0.02 | 0.021 | 0.02 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | < 0.05 | 0.08 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.97 | 7.8 | 7.99 | 7.86 | 7.92 | 7.92 | 8.07 | 7.9 | 7.93 | 8.06 | 7.28 | 7.95 | 8.18 | 7.81 |
| Phenols | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 2.1 | 2.1 | 2.3 | 2.1 | 2.2 | 2.1 | 2.1 | 2 | 2.3 | 2.4 | 2.2 | 2 | 2.4 | 2.1 |
| Sodium | mg/L | 200 | 106 | 119 | 6.1 | 7 | 8.7 | 9.4 | 9.5 | 10.4 | 11.2 | 11.3 | 11.9 | 13.1 | 13.3 | 12.6 | 14.3 | 13.8 |
| Sulphate | mg/L | 500 | 251 | 252 | 19 | 18 | 17 | 19 | 19 | 18 | 17 | 17 | 17 | 15 | 16 | 15 | 13 | 15 |
| TDS | mg/L | 500 | 374 | 504 | 340 | 325 | 328 | 321 | 307 | 289 | 302 | 303 | 298 | 297 | 284 | 282 | 289 | 282 |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.09 | 0.07 | 0.06 | 0.05 | 0.09 | 0.06 | 0.05 | 0.07 | 0.04 | 0.15 | 0.42 | 0.05 | 0.07 | 0.08 |
| Ammonia - Unionized | mg/L | - | - | - | | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 312 | 309 | 315 | 291 | 286 | 282 | 276 | 277 | 264 | 271 | 248 | 246 | 262 | 235 |
| BOD | mg/L | - | - | - | 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | <3 | <3 | <3 | <3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| TSS | mg/L | - | - | - | 110 | 75 | 170 | 50 | 106 | 80 | 66 | 39 | 23 | 13 | 7 | 23 | 7 | 36 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.06 | 0.06 | 0.08 | 0.05 | 0.06 | 0.06 | 0.06 | 0.05 | 0.03 | 0.02 | 0.07 | 0.05 | 0.02 | 0.02 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | 0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.138 | 0.132 | 0.136 | 0.129 | 0.129 | 0.125 | 0.123 | 0.123 | 0.125 | 0.129 | 0.118 | 0.117 | 0.124 | 0.115 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.018 | 0.021 | 0.023 | 0.02 | 0.022 | 0.02 | 0.021 | 0.017 | 0.019 | 0.021 | 0.019 | 0.021 | 0.02 | 0.021 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | < 0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0002 | 0.0001 | 0.0002 | <0.0001 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0002 | < 0.0001 | 0.0005 | 0.0003 | 0.0011 | 0.001 | 0.0005 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00002 | < 0.00002 | 0.00006 | 0.00003 | 0.00006 | 0.00004 | < 0.00002 | 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0009 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.0002 | 0.0006 | <0.0002 | <0.0002 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 0.321 | 0.315 | 0.329 | 0.278 | 0.276 | 0.271 | 0.272 | 0.26 | 0.272 | 0.285 | 0.258 | 0.245 | 0.266 | 0.247 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | 7.8 | 8.4 | 6.9 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | 7.93 | 7.56 | 8.35 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | 54 | 279 | 545 |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW28-I 01-Oct-25 | MW28-II 21-Jan-16 | MW28-II 27-Apr-16 | MW28-II 07-Jul-16 | MW28-II 03-Oct-16 | MW28-II 22-Feb-17 | MW28-II 17-Apr-17 | MW28-II 20-Jul-17 | MW28-II 23-Oct-17 | MW28-II 25-Apr-18 | MW28-II 15-Oct-18 | MW28-II 11-Apr-19 | MW28-II 21-Oct-19 | MW28-II 22-Apr-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 222 | 211 | 215 | 216 | 212 | 217 | 222 | 217 | 242 | 225 | 223 | 210 | 209 | 206 |
| Calcium | mg/L | - | - | - | 85.1 | 79.9 | 88.5 | 95.4 | 101 | 93.4 | 99.7 | 87.2 | 98.2 | 96.6 | 94.9 | 101 | 105 | 101 |
| Chloride | mg/L | 250 | 134 | 194 | 31 | 16.6 | 16.3 | 17.3 | 18.5 | 22.5 | 21.9 | 17.2 | 18.2 | 24.6 | 27 | 30.2 | 36.3 | 39.4 |
| COD | mg/L | - | - | - | <5 | 530 | 546 | < 5 | < 5 | 185 | 179 | 245 | 86 | 15 | 5 | 66 | 170 | 138 |
| Specific Conductivity | umhos/cm | - | - | - | 544 | 489 | 497 | 495 | 510 | 526 | 526 | 524 | 526 | 514 | 532 | 548 | 574 | 561 |
| DOC | mg/L | 5 | - | - | 2.5 | 2.1 | 1.9 | 1.6 | 2.9 | 2.8 | 2.7 | 2.3 | **6.1** | 2.1 | 2.2 | 2.4 | 2.1 | 2.3 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | 0.2 | < 0.1 | < 0.1 | 0.1 | 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.421** | 0.25 | **0.323** | 0.26 | **0.636** | **0.78** | **0.41** | **0.303** | **0.368** | 0.096 | **0.331** | **0.363** | **0.418** | **0.385** |
| Magnesium | mg/L | - | - | - | 9.55 | 6.63 | 7.28 | 7.7 | 7.96 | 7.51 | 7.54 | 7.24 | 7.7 | 7.94 | 7.45 | 7.87 | 8.84 | 8.46 |
| Manganese | mg/L | 0.05 | - | - | 0.02 | 0.03 | 0.034 | 0.037 | 0.047 | 0.048 | 0.038 | 0.032 | 0.037 | 0.034 | 0.037 | 0.037 | 0.041 | 0.039 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | 0.08 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 8.05 | 8.09 | 8 | 7.93 | 8.02 | 7.95 | 8.11 | 8.01 | 8.01 | 8.06 | 8.1 | 7.84 | 8.02 | 7.85 |
| Phenols | mg/L | - | - | - | <0.001 | < 0.001 | 0.002 | 0.017 | < 0.001 | < 0.001 | < 0.001 | 0.005 | 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.002 |
| Phosphorus | mg/L | - | - | - | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 1.9 | 1.4 | 1.8 | 1.8 | 1.8 | 1.8 | 1.7 | 1.8 | 1.8 | 2.1 | 1.8 | 1.9 | 2.1 | 1.9 |
| Sodium | mg/L | 200 | 106 | 119 | 13.5 | 5.2 | 5.3 | 5.9 | 6.1 | 5.9 | 5.3 | 5.5 | 6 | 6 | 6.4 | 6.2 | 6.8 | 6.5 |
| Sulphate | mg/L | 500 | 251 | 252 | 14 | 18 | 17 | 19 | 22 | 24 | 21 | 18 | 20 | 21 | 23 | 17 | 19 | 18 |
| TDS | mg/L | 500 | 374 | 504 | 288 | 254 | 266 | 277 | 285 | 286 | 291 | 268 | 297 | 293 | 295 | 291 | 304 | 299 |
| Tot Kjel N | mg/L | - | - | - | 0.3 | 3.5 | 0.2 | 0.6 | 0.8 | 3 | 1.6 | 0.6 | 0.5 | 0.3 | 0.8 | 1 | 0.8 | 0.6 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.12 | 0.06 | 0.09 | 0.07 | 0.07 | 0.07 | 0.06 | 0.05 | 0.06 | 0.05 | 0.1 | 0.07 | 0.04 | 0.06 |
| Ammonia - Unionized | mg/L | - | - | - | <0.01 | | | | | | | | | | | <0.01 | <0.01 | < 0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 252 | 227 | 251 | 270 | 284 | 264 | 280 | 248 | 277 | 274 | 268 | 285 | 299 | 287 |
| BOD | mg/L | - | - | - | <3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | 36 | -- | -- | -- | -- | 112000 | 26 | 82000 | 89000 | 26900 | 235000 | 41600 | 935000 | 46000 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | 0.03 | 0.03 | 0.03 | **0.34** | **0.42** | 0.06 | 0.03 | 0.06 | 0.05 | 0.06 | 0.06 | 0.08 | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | <0.0001 | 0.0003 | < 0.0001 | < 0.0001 | 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | <0.0001 | 0.0001 | 0.0004 | 0.0004 | 0.0003 | 0.0018 | 0.0008 | 0.0015 | 0.0005 | 0.0002 | 0.0006 | 0.0009 | 0.0003 | 0.0008 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.118 | 0.089 | 0.09 | 0.1 | 0.124 | 0.125 | 0.121 | 0.118 | 0.11 | 0.115 | 0.112 | 0.114 | 0.111 | 0.119 |
| Beryllium | mg/L | - | - | - | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.022 | 0.012 | < 0.005 | 0.017 | 0.014 | < 0.005 | 0.038 | 0.014 | 0.018 | 0.015 | 0.014 | 0.016 | 0.02 | 0.018 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | <0.000015 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | <0.01 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0014 | < 0.001 | < 0.002 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | <0.01 | | | | | | | | | | | | | |
| Cobalt | mg/L | - | - | - | <0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.0001 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0013 | 0.0006 | < 0.0001 | < 0.0001 | 0.0002 | 0.0003 | 0.0007 | 0.0007 | 0.0002 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | <0.00002 | 0.00005 | 0.00003 | 0.00004 | 0.00039 | 0.0005 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00004 | 0.00003 | 0.00009 | 0.00004 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | <0.00002 | < 0.00002 | 0.00005 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0004 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0002 | 0.0003 |
| Nickel | mg/L | - | - | - | 0.0004 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.252 | 0.177 | 0.215 | 0.21 | 0.218 | 0.228 | 0.188 | 0.203 | 0.209 | 0.208 | 0.222 | 0.232 | 0.249 | 0.231 |
| Thallium | mg/L | - | - | - | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | <0.0001 | 0.0004 | 0.0005 | 0.0005 | 0.0012 | 0.0018 | 0.0012 | 0.0012 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | <0.005 | < 0.005 | < 0.005 | < 0.005 | 0.006 | < 0.005 | < 0.005 | 1.69 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | 8.1 | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | 7.42 | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | 606 | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW28-II 19-Oct-20 | MW28-II 19-Apr-21 | MW28-II 27-Oct-21 | MW28-II 20-Apr-22 | MW28-II 26-Oct-22 | MW28-II 19-Apr-23 | MW28-II 12-Oct-23 | MW28-II 17-Apr-24 | MW28-II 07-Oct-24 | MW28-II 23-Apr-25 | MW28-II 01-Oct-25 | MW28-III 21-Jan-16 | MW28-III 27-Apr-16 | MW28-III 07-Jul-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 218 | 204 | 228 | 241 | 230 | 234 | 244 | 235 | 228 | 235 | 239 | 216 | 220 | 218 |
| Calcium | mg/L | - | - | - | 105 | 106 | 105 | 107 | 92.8 | 104 | 91.2 | 93.7 | 99.1 | 85.7 | 93.8 | 93.9 | 104 | 111 |
| Chloride | mg/L | 250 | 134 | 194 | 40.7 | 35.7 | 37.5 | 34.3 | 31.8 | 28.9 | 32 | 28.8 | 27.4 | 28.2 | 25.9 | 33.2 | 32.1 | 34.6 |
| COD | mg/L | - | - | - | 149 | 82 | 78 | 46 | 69 | 79 | 51 | 211 | 219 | 124 | 307 | 18 | 258 | < 5 |
| Specific Conductivity | umhos/cm | - | - | - | 577 | 571 | 562 | 559 | 549 | 557 | 558 | 561 | 559 | 567 | 559 | 591 | 590 | 600 |
| DOC | mg/L | 5 | - | - | 1.9 | 2.6 | 2.1 | 2.2 | 1.3 | 1 | 3.7 | 3.1 | 3 | 2.5 | 2.7 | 2.1 | **16.2** | 1.3 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 | 0.2 | < 0.1 | 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.417** | **0.423** | **0.421** | **0.469** | **0.419** | **0.485** | **0.394** | **0.393** | **0.48** | 0.012 | **0.382** | 0.193 | **0.31** | **0.328** |
| Magnesium | mg/L | - | - | - | 8.43 | 8.52 | 8.36 | 8.28 | 8.15 | 8.6 | 7.77 | 7.62 | 8.4 | 7.65 | 7.92 | 7.21 | 8 | 8.38 |
| Manganese | mg/L | 0.05 | - | - | 0.04 | 0.041 | 0.042 | 0.046 | 0.04 | 0.049 | 0.038 | 0.039 | 0.047 | 0.036 | 0.039 | 0.042 | **0.051** | **0.052** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | < 0.05 | 0.09 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.88 | 7.98 | 8.12 | 7.95 | 7.93 | 8.05 | 7.47 | 7.98 | 8.2 | 7.85 | 8.08 | 7.96 | 7.92 | 7.88 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | < 0.001 | < 0.001 | 0.004 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 2.1 | 2 | 2.1 | 1.9 | 2.2 | 2.3 | 2.2 | 1.9 | 2.4 | 2.1 | 1.9 | 1.9 | 2.2 | 2.3 |
| Sodium | mg/L | 200 | 106 | 119 | 7.1 | 7.2 | 7.9 | 8.5 | 10.1 | 11.2 | 11.6 | 11.2 | 13 | 13.2 | 12.4 | 9.6 | 10.4 | 11.4 |
| Sulphate | mg/L | 500 | 251 | 252 | 19 | 19 | 19 | 16 | 17 | 15 | 19 | 16 | 13 | 15 | 14 | 40 | 40 | 43 |
| TDS | mg/L | 500 | 374 | 504 | 314 | 301 | 317 | 321 | 300 | 311 | 289 | 291 | 301 | 293 | 300 | 316 | 329 | 342 |
| Tot Kjel N | mg/L | - | - | - | 1.1 | 0.1 | 2.3 | 0.7 | 0.5 | 0.8 | 0.4 | 1.2 | 1.2 | 1.2 | 0.2 | 0.3 | 0.2 | 1.1 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.16 | 0.05 | 0.04 | 0.1 | 0.14 | 0.98 | 0.08 | 0.76 | 0.11 | 0.09 | 0.17 | 0.06 | 0.07 | 0.03 |
| Ammonia - Unionized | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 297 | 300 | 297 | 302 | 265 | 294 | 260 | 266 | 282 | 246 | 267 | 264 | 294 | 313 |
| BOD | mg/L | - | - | - | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | <3 | <3 | <3 | <3 | <3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | 61000 | 68800 | 44800 | 87600 | 18700 | 26500 | 72500 | 25200 | 379000 | 402000 | 147000 | -- | -- | -- |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.07 | 0.07 | 0.07 | 0.07 | 0.02 | 0.08 | 0.07 | 0.06 | **0.11** | 0.03 | 0.06 | 0.03 | 0.03 | 0.03 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0006 | 0.0006 | 0.0002 | 0.0007 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0004 | 0.0001 | 0.0003 | < 0.0001 | 0.0003 | 0.0004 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.115 | 0.12 | 0.112 | 0.128 | 0.11 | 0.126 | 0.108 | 0.109 | 0.12 | 0.1 | 0.109 | 0.101 | 0.106 | 0.119 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.021 | 0.017 | 0.019 | 0.014 | 0.018 | 0.019 | 0.017 | 0.018 | 0.018 | 0.016 | 0.017 | 0.029 | 0.012 | 0.036 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.00002 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.0002 |
| Chromium (VI) | mg/L | - | - | - | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0002 | 0.0001 | 0.0003 | <0.0001 | 0.0001 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0012 | 0.001 | 0.0006 | 0.0003 | 0.0003 | 0.0006 | 0.0005 | 0.0002 | 0.0002 | <0.0001 | 0.0002 | 0.0004 | 0.0004 | 0.0001 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00008 | 0.00006 | 0.00003 | 0.0002 | 0.00003 | 0.00011 | 0.00003 | 0.00004 | 0.00015 | <0.00002 | 0.00004 | 0.00002 | 0.00003 | 0.00002 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0005 | 0.0005 | 0.0004 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.0002 | 0.0007 | <0.0002 | <0.0002 | 0.0005 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | - | - | 0.239 | 0.246 | 0.245 | 0.239 | 0.235 | 0.262 | 0.234 | 0.224 | 0.248 | 0.224 | 0.228 | 0.176 | 0.215 | 0.202 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | 0.0002 | <0.0001 | <0.0001 | 0.0003 | <0.0001 | <0.0001 | 0.0005 | 0.0005 | 0.0005 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | 7.8 | 8.2 | 7.1 | 8.8 | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | 7.75 | 7.92 | 8.41 | 6.9 | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | 620 | 285 | 474 | 300 | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW28-III 03-Oct-16 | MW28-III 22-Feb-17 | MW28-III 17-Apr-17 | MW28-III 20-Jul-17 | MW28-III 23-Oct-17 | MW28-III 25-Apr-18 | MW28-III 15-Oct-18 | MW28-III 11-Apr-19 | MW28-III 21-Oct-19 | MW28-III 22-Apr-20 | MW28-III 19-Oct-20 | MW28-III 19-Apr-21 | MW28-III 27-Oct-21 | MW28-III 20-Apr-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 216 | 222 | 226 | 222 | 222 | 261 | 233 | 218 | 220 | 222 | 246 | 216 | 242 | 248 |
| Calcium | mg/L | - | - | - | 118 | 103 | 116 | 99.7 | 115 | 115 | 107 | 116 | 119 | 119 | 116 | 117 | 122 | 115 |
| Chloride | mg/L | 250 | 134 | 194 | 34.6 | 35.3 | 35.8 | 28.9 | 29.4 | 38.5 | 37.1 | 35.4 | 33.9 | 35.6 | 34.5 | 31.8 | 31.4 | 31 |
| COD | mg/L | - | - | - | < 5 | 82 | 57 | 98 | 66 | 15 | < 5 | 17 | 50 | 39 | 48 | 14 | < 5 | 18 |
| Specific Conductivity | umhos/cm | - | - | - | 607 | 609 | 625 | 631 | 632 | 632 | 641 | 651 | 657 | 649 | 649 | 642 | 622 | 624 |
| DOC | mg/L | 5 | - | - | 2.9 | 2.6 | 2.7 | 2.1 | 3.8 | 2.6 | 2.3 | 2.4 | 2.3 | 2.3 | 2.1 | 2.6 | 2.4 | 2.2 |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.501** | 0.275 | **0.312** | **0.34** | **0.445** | 0.138 | **0.303** | 0.295 | **0.463** | **0.357** | **0.479** | **0.358** | **0.661** | **0.388** |
| Magnesium | mg/L | - | - | - | 8.72 | 7.76 | 8.19 | 7.95 | 8.59 | 8.92 | 8.23 | 8.58 | 9.42 | 9.76 | 8.74 | 8.91 | 9.16 | 8.69 |
| Manganese | mg/L | 0.05 | - | - | **0.067** | 0.05 | **0.061** | **0.053** | **0.057** | **0.082** | **0.051** | **0.06** | **0.058** | **0.06** | **0.057** | **0.069** | **0.069** | **0.061** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.2 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.07 | 0.09 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.94 | 7.86 | 7.98 | 7.98 | 8.02 | 7.99 | 7.93 | 7.82 | 8.01 | 7.88 | 7.86 | 7.88 | 8.07 | 7.89 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.003 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | - | - | 2.3 | 2 | 2.2 | 2.1 | 2.4 | 2.8 | 2.4 | 2.2 | 2.6 | 2.4 | 2.6 | 2.4 | 2.5 | 2.2 |
| Sodium | mg/L | 200 | 106 | 119 | 11.6 | 10.9 | 10.4 | 10.9 | 11.9 | 13.6 | 12.1 | 12.5 | 13.1 | 13.3 | 13.4 | 13.7 | 13.8 | 13.3 |
| Sulphate | mg/L | 500 | 251 | 252 | 46 | 45 | 44 | 41 | 39 | 53 | 54 | 55 | 56 | 59 | 58 | 52 | 51 | 47 |
| TDS | mg/L | 500 | 374 | 504 | 352 | 337 | 352 | 324 | 341 | 388 | 361 | 361 | 366 | 372 | 381 | 356 | 376 | 366 |
| Tot Kjel N | mg/L | - | - | - | 0.5 | 1 | 0.5 | 0.4 | 0.3 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.4 | 0.2 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.05 | 0.04 | 0.04 | 0.05 | 0.04 | 0.1 | 0.05 | 0.05 | 0.03 | 0.02 | 0.1 | 0.04 | 0.04 | 0.04 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 331 | 290 | 324 | 282 | 323 | 324 | 301 | 325 | 336 | 338 | 326 | 329 | 343 | 323 |
| BOD | mg/L | - | - | - | 5 | < 3 | < 3 | < 3 | < 3 | < 3 | 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | - | -- | 55000 | 3000 | 15400 | 17100 | 17100 | 6800 | 11200 | 32000 | 6800 | 3780 | 4100 | 5700 | 10100 |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | **0.16** | 0.03 | 0.07 | 0.04 | 0.06 | 0.08 | 0.07 | 0.07 | 0.08 | 0.07 | 0.07 | 0.08 | **0.14** | 0.06 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0002 | 0.0004 | 0.0005 | 0.0004 | 0.0005 | 0.0002 | 0.0005 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.13 | 0.115 | 0.141 | 0.112 | 0.137 | 0.13 | 0.136 | 0.129 | 0.135 | 0.135 | 0.135 | 0.132 | 0.136 | 0.128 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.035 | 0.016 | 0.056 | 0.032 | 0.038 | 0.035 | 0.032 | 0.036 | 0.039 | 0.038 | 0.039 | 0.039 | 0.04 | 0.036 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.00002 | < 0.00002 | 0.000042 | < 0.000014 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.0002 | 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | | | | | | | | | | | | | | < 0.001 |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.001 | 0.0007 | 0.0009 | < 0.0001 | 0.0001 | 0.0005 | 0.0004 | 0.0005 | 0.0005 | 0.0002 | 0.0011 | 0.0011 | 0.0011 | 0.0003 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00026 | 0.00004 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00002 | 0.00002 | < 0.00002 | 0.0001 | 0.00003 | 0.00005 | 0.00006 | 0.00025 | 0.00003 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0004 | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0005 | 0.0004 | 0.0005 | 0.0004 | 0.0004 | 0.0003 | 0.0003 | 0.0004 | 0.0004 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.219 | 0.205 | 0.178 | 0.19 | 0.203 | 0.211 | 0.211 | 0.218 | 0.228 | 0.221 | 0.217 | 0.217 | 0.23 | 0.207 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 |
| Vanadium | mg/L | - | - | - | 0.001 | 0.0008 | 0.0012 | 0.0012 | 0.0005 | 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0005 | < 0.0001 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | 0.006 | 0.018 | < 0.005 | < 0.005 | < 0.005 | 0.006 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | MW28-III 26-Oct-22 | MW28-III 19-Apr-23 | MW28-III 12-Oct-23 | MW28-III 17-Apr-24 | MW28-III 07-Oct-24 | MW28-III 23-Apr-25 | MW28-III 01-Oct-25 | Office 27-Apr-16 | Office 03-Oct-16 | Office 17-Apr-17 | Office 23-Oct-17 | Office 25-Apr-18 | Office 15-Oct-18 | Office 24-Apr-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 244 | 250 | 257 | 248 | 241 | 250 | 251 | 237 | 231 | 238 | 225 | 233 | 225 | 215 |
| Calcium | mg/L | - | - | - | 107 | 114 | 104 | 107 | 107 | 99.9 | 108 | 73.4 | 71.6 | 72.2 | 69.4 | 69.4 | 67 | 66.8 |
| Chloride | mg/L | 250 | 134 | 194 | 30.8 | 29.5 | 34.1 | 32.1 | 31.1 | 34.9 | 33 | 14.2 | 11.5 | 12 | 10.8 | 11.3 | 14.4 | 14.3 |
| COD | mg/L | - | - | - | 33 | 36 | 9 | 83 | 65 | 22 | 22 | 5 | 15 | 15 | 23 | 12 | 35 | 18 |
| Specific Conductivity | umhos/cm | - | - | - | 621 | 635 | 634 | 636 | 628 | 653 | 637 | 494 | 487 | 482 | 465 | 460 | 467 | 469 |
| DOC | mg/L | 5 | - | - | 1.5 | 1 | 4.3 | 3.7 | 3.3 | 2.3 | 2.8 | **5.7** | 7 | **6.3** | **6.4** | **6.8** | 6 | **29.1** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.3 | 0.2 | 0.6 | 0.2 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | - | **0.444** | **0.33** | **0.436** | **0.307** | **0.427** | **0.333** | **0.445** | **3.69** | **3.55** | **4.61** | **4.39** | **4.58** | **3.05** | **4.49** |
| Magnesium | mg/L | - | - | - | 8.95 | 9.18 | 8.58 | 8.42 | 9.17 | 8.77 | 8.98 | 16 | 16.4 | 15.6 | 15.6 | 15.8 | 14.7 | 15.4 |
| Manganese | mg/L | 0.05 | - | - | **0.053** | **0.074** | **0.051** | **0.054** | **0.052** | **0.054** | **0.053** | 0.047 | 0.049 | **0.062** | **0.067** | **0.053** | 0.043 | **0.061** |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | < 0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | 0.2 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 7.94 | 8.02 | 7.3 | 8.04 | 8.12 | 7.82 | 8.04 | 8.11 | 8.08 | 8.19 | 8.12 | 8.07 | 8.06 | 8 |
| Phenols | mg/L | - | - | - | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | < 0.001 | 0.006 | < 0.001 | 0.004 | < 0.001 | < 0.002 | < 0.002 |
| Phosphorus | mg/L | - | - | - | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.01 |
| Potassium | mg/L | - | - | - | 2.5 | 2.6 | 2.4 | 2.1 | 2.6 | 2.2 | 2.1 | 3.6 | 3.5 | 3.6 | 3.5 | 3.9 | 3.3 | 3.4 |
| Sodium | mg/L | 200 | 106 | 119 | 13.4 | 14 | 13.6 | 12.2 | 13.8 | 13.1 | 12.3 | 12.1 | 12.1 | 10.7 | 11.3 | 11.8 | 11.3 | 11.1 |
| Sulphate | mg/L | 500 | 251 | 252 | 46 | 41 | 41 | 36 | 31 | 34 | 32 | 1 | 1 | 1 | 1 | < 1 | < 1 | < 1 |
| TDS | mg/L | 500 | 374 | 504 | 356 | 361 | 329 | 330 | 339 | 343 | 348 | 268 | 260 | 264 | 252 | 258 | 250 | 246 |
| Tot Kjel N | mg/L | - | - | - | 0.2 | 0.3 | 0.1 | 0.3 | 0.4 | 0.3 | 0.4 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.03 | 0.06 | <0.05 | <0.05 | 0.13 | 0.06 | 0.27 | 0.39 | 0.44 | 0.41 | 0.38 | 0.4 | 0.4 | 0.48 |
| Ammonia - Unionized | mg/L | - | - | - | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 305 | 324 | 295 | 302 | 305 | 286 | 307 | 249 | 246 | 245 | 238 | 238 | 228 | 230 |
| BOD | mg/L | - | - | - | < 3 | < 3 | <3 | <3 | <3 | <3 | <3 | -- | -- | -- | -- | | | |
| Cyanide (free) | mg/L | - | - | - | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | -- | -- | -- | -- | | | |
| TSS | mg/L | - | - | - | 2790 | 4170 | 1560 | 16900 | 118000 | 21800 | 7600 | -- | -- | -- | -- | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.03 | 0.03 | 0.07 | 0.07 | 0.03 | 0.03 | 0.06 | 0.02 | 0.02 | 0.05 | 0.04 | 0.05 | 0.05 | 0.05 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | 0.0003 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.134 | 0.136 | 0.127 | 0.125 | 0.132 | 0.118 | 0.123 | 0.085 | 0.091 | 0.089 | 0.088 | 0.094 | 0.096 | 0.085 |
| Beryllium | mg/L | - | - | - | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.039 | 0.042 | 0.042 | 0.043 | 0.048 | 0.048 | 0.048 | 0.06 | 0.081 | 0.087 | 0.089 | 0.087 | 0.078 | 0.084 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000010 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | - | - | - | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | |
| Cobalt | mg/L | - | - | - | < 0.005 | < 0.005 | 0.0002 | 0.0002 | 0.0003 | <0.0001 | 0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0004 | < 0.0001 | 0.0005 | 0.0002 | 0.0001 | 0.0003 | 0.0002 | 0.003 | 0.001 | 0.0027 | 0.0111 | 0.0024 | 0.0024 | 0.0013 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | < 0.00002 | < 0.00002 | 0.00002 | <0.00002 | <0.00002 | 0.00003 | 0.00003 | 0.00042 | 0.00012 | 0.00021 | 0.00138 | 0.00013 | 0.00024 | 0.0001 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | - | - | - | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | < 0.01 | <0.0002 | 0.0009 | <0.0002 | 0.0002 | 0.0007 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | - | 0.211 | 0.226 | 0.209 | 0.199 | 0.216 | 0.205 | 0.207 | 1.09 | 1.07 | 0.987 | 0.979 | 1.08 | 1.06 | 1.06 |
| Thallium | mg/L | - | - | - | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | - | - | - | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0007 | 0.0009 | 0.0009 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.006 | < 0.005 | 0.006 | 0.014 | < 0.005 | 0.006 | < 0.005 |
| Field Temp | deg C | - | - | - | | | | 7.2 | 10.2 | 6.7 | 9.2 | | | | | | | |
| Field pH | pH Unit | - | - | - | | | | 7.79 | 7.67 | 8.24 | 6.93 | | | | | | | |
| Field Conductivity | umhos/cm | - | - | - | | | | 579 | 634 | 625 | 265 | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

**Summary of Ground Water Chemistry**

| Parameters | Units | ODWQS | RUP (BR/L. OB) | RUP (S. OB) | Office 21-Oct-19 | Office 22-Apr-20 | Office 19-Oct-20 | Office 19-Apr-21 | Office 27-Oct-21 | Office 21-Apr-22 | Office 24-Oct-22 | Office 19-Apr-23 | Office 11-Oct-23 | Office 07-Oct-24 | Office 01-Oct-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | 500 | 363 | 381 | 214 | NS | 203 | 205 | 236 | 232 | NS | NS | 239 | 207 | 238 |
| Calcium | mg/L | - | - | - | 69 | | 67.3 | 67.9 | 69.4 | 68.5 | | | 52.5 | 54.6 | 66 |
| Chloride | mg/L | 250 | 134 | 194 | 12.7 | | < 0.1 | 13.9 | 14 | 13.5 | | | 32.3 | 15.3 | 13.7 |
| COD | mg/L | - | - | - | 11 | | 13 | 12 | 5 | 12 | | | 20 | 17 | <5 |
| Specific Conductivity | umhos/cm | - | - | - | 457 | | 452 | 463 | 468 | 465 | | | 471 | 455 | 475 |
| DOC | mg/L | 5 | - | - | **5.8** | | **6.2** | **7.1** | **6.3** | **5.9** | | | **8.4** | **6.1** | **6.4** |
| Fluoride | mg/L | 1.5 | 0.46 | 0.45 | 0.2 | | | 0.1 | 0.1 | < 0.1 | | | <0.1 | 0.1 | 0.2 |
| Iron | mg/L | 0.3 | - | - | **4.64** | | | **4.06** | **4.32** | **2.51** | | | **2.44** | **3.57** | **4.01** |
| Magnesium | mg/L | - | - | - | 16.1 | | 15.5 | 15.6 | 16 | 15.7 | | | 13.6 | 19 | 15.5 |
| Manganese | mg/L | 0.05 | - | - | **0.06** | | **0.066** | **0.058** | **0.054** | **0.061** | | | 0.049 | 0.05 | 0.048 |
| Nitrate | mg/L | 10 | 2.5 | 2.5 | 0.05 | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | 1 | 0.3 | 0.3 | < 0.05 | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | | <0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | - | 8.01 | | 7.9 | 8.02 | 8.14 | 7.96 | | | 7.55 | 8.06 | 8.07 |
| Phenols | mg/L | - | - | - | < 0.002 | | < 0.001 | 0.001 | < 0.002 | < 0.001 | | | <0.001 | <0.001 | <0.001 |
| Phosphorus | mg/L | - | - | - | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | | <0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | - | - | 4 | | 3.6 | 3.8 | 3.7 | 3.6 | | | 3.3 | 4.1 | 3.6 |
| Sodium | mg/L | 200 | 106 | 119 | 12.1 | | 11.1 | 11.8 | 11.7 | 10.7 | | | 9.6 | 12.7 | 10.7 |
| Sulphate | mg/L | 500 | 251 | 252 | < 1 | | < 1 | < 1 | < 1 | 2 | | | <1 | <1 | 1 |
| TDS | mg/L | 500 | 374 | 504 | 249 | | 233 | 237 | 261 | 257 | | | 244 | 235 | 258 |
| Tot Kjel N | mg/L | - | - | - | 0.5 | | 0.5 | 0.5 | 0.6 | 1 | | | 0.8 | 0.7 | 0.7 |
| Ammonia (NH3-N) | mg/L | - | - | - | 0.41 | | 0.41 | 0.39 | 0.43 | 0.68 | | | 0.58 | 0.54 | 0.46 |
| Ammonia - Unionized | mg/L | - | - | - | | | | | | | | | | | |
| Hardness (CaCO3) | mg/L | 500 | 362 | 456 | 239 | | 232 | 234 | 239 | 236 | | | 187 | 215 | 229 |
| BOD | mg/L | - | - | - | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | | | 13.6 | | | | | | | | |
| TSS | mg/L | - | - | - | | | | | | | | | | | |
| Aluminum | mg/L | 0.1 | 0.07 | 0.09 | 0.05 | | < 0.01 | 0.05 | 0.04 | 0.01 | | | 0.04 | 0.02 | 0.03 |
| Antimony | mg/L | 0.006 | 0.002 | 0.002 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | | 0.0002 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.025 | 0.006 | 0.006 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | | <0.0001 | <0.0001 | <0.0001 |
| Barium | mg/L | 1 | 0.32 | 0.28 | 0.097 | | 0.092 | 0.092 | 0.094 | 0.091 | | | 0.072 | 0.1 | 0.09 |
| Beryllium | mg/L | - | - | - | < 0.002 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 5 | 1.3 | 1.3 | 0.1 | | 0.09 | 0.087 | 0.088 | 0.088 | | | 0.079 | 0.326 | 0.086 |
| Cadmium | mg/L | 0.005 | 0.0013 | 0.0013 | < 0.000015 | | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | | | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.05 | 0.016 | 0.016 | < 0.001 | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | | <0.001 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | - | - | - | | | | | | < 0.001 | | | <0.01 | <0.01 | <0.01 |
| Cobalt | mg/L | - | - | - | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | | 0.0001 | 0.0002 | 0.0001 |
| Copper | mg/L | 1 | 0.5 | 0.5 | 0.0015 | | 0.0023 | 0.0001 | < 0.0001 | 0.0015 | | | 0.0005 | 0.0004 | 0.0011 |
| Lead | mg/L | 0.01 | 0.003 | 0.003 | 0.00011 | | 0.00013 | < 0.00002 | < 0.00002 | 0.00166 | | | <0.00002 | 0.00015 | 0.00009 |
| Mercury | mg/L | 0.001 | 0.0003 | 0.0003 | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | | 0.00004 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | - | - | - | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | | <0.0001 | 0.0003 | <0.0001 |
| Nickel | mg/L | - | - | - | < 0.01 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | | 0.0007 | 0.001 | 0.0009 |
| Selenium | mg/L | 0.01 | 0.003 | 0.004 | < 0.001 | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | - | - | - | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | - | - | 1.18 | | 1.11 | 1.1 | 1.15 | 1.03 | | | 0.956 | 1.07 | 1.06 |
| Thallium | mg/L | - | - | - | < 0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | | | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | - | - | - | 0.0001 | | 0.0002 | < 0.0001 | 0.0002 | < 0.0001 | | | 0.0001 | 0.0001 | 0.0002 |
| Zinc | mg/L | 5 | 2.5 | 2.5 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | 0.018 | | | <0.005 | 0.005 | 0.005 |
| Field Temp | deg C | - | - | - | | | | | | | | | | 21.2 | 17.5 |
| Field pH | pH Unit | - | - | - | | | | | | | | | | 7.59 | 7.3 |
| Field Conductivity | umhos/cm | - | - | - | | | | | | | | | | 403 | 522 |

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

## Wetland Perimeter Ground Water Quality - General Parameters

| Parameters | Units | PWQO | CWQG | WP1 28-Apr-16 | WP1 04-Oct-16 | WP1 18-Apr-17 | WP1 23-Oct-17 | WP1 25-Apr-18 | WP1 16-Oct-18 | WP1 11-Apr-19 | WP1 22-Oct-19 | WP1 23-Apr-20 | WP1 20-Oct-20 | WP1 20-Apr-21 | WP1 27-Oct-21 | WP1 20-Apr-22 | WP1 24-Oct-22 | WP1 19-Apr-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | - | 203 | 200 | 202 | 194 | 250 | 223 | 202 | 205 | 183 | 200 | 175 | 258 | 233 | 297 | 204 |
| Calcium | mg/L | - | - | 75.3 | 74.5 | 78.7 | 75.4 | 82.2 | 87.3 | 88.5 | 96.1 | 82.3 | 94.7 | 77.6 | 107 | 92.8 | 119 | 72.6 |
| Chloride | mg/L | - | 120 | 18.5 | 17.4 | 24.9 | 18.2 | 30.6 | 16.5 | 40.1 | 31.7 | 22.9 | 17.6 | 13.8 | 16 | 14.6 | 27.7 | 17.5 |
| COD | mg/L | - | - | 61 | 53 | 52 | 75 | 77 | 10100 | 693 | 548 | 80 | 418 | 564 | 387 | 138 | 374 | 683 |
| Specific Conductivity | umhos/cm | - | - | 460 | 449 | 468 | 454 | 521 | 501 | 535 | 561 | 451 | 513 | 411 | 521 | 472 | 640 | 474 |
| DOC | mg/L | - | - | 16.2 | 14.7 | 15.3 | 17.8 | 14 | 18.7 | 14.5 | 16.5 | 15.5 | 17 | 15.6 | 20.5 | 16.4 | 21.1 | 9.1 |
| Fluoride | mg/L | - | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | - | **1.22** | **1.83** | **2.72** | **1.95** | 0.016 | **2.69** | **1.05** | **0.88** | **0.598** | **0.552** | **0.449** | **0.516** | **0.616** | **0.648** | **0.527** |
| Magnesium | mg/L | - | - | 4.76 | 4.66 | 4.63 | 4.59 | 4.89 | 5.02 | 5.17 | 6.16 | 5.19 | 5.36 | 4.57 | 6.07 | 5.4 | 6.87 | 4.41 |
| Manganese | mg/L | - | - | 0.126 | 0.123 | 0.125 | 0.106 | 0.114 | 0.493 | 0.515 | 0.484 | 0.477 | 0.514 | 0.476 | 0.575 | 0.597 | 0.689 | 0.437 |
| Nitrate | mg/L | - | 2.9 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | 0.09 | < 0.05 | 0.09 | < 0.05 | < 0.05 | < 0.05 | 0.14 |
| Nitrite | mg/L | - | 0.06 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5-8.5 | - | 7.37 | 7.57 | 7.51 | 7.49 | 7.48 | 7.08 | 7.21 | 7.48 | 7.35 | 7.27 | 7.39 | 7.74 | 7.49 | 7.23 | 7.27 |
| Phenols | mg/L | 0.001 | - | **0.003** | < 0.001 | < 0.001 | **0.005** | **0.004** | **0.013** | < 0.002 | < 0.001 | < 0.002 | < 0.001 | **0.028** | **0.002** | < 0.001 | < 0.001 | < 0.001 |
| Phosphorus | mg/L | 0.03 | - | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | **0.1** | **0.2** | **0.1** |
| Potassium | mg/L | - | - | 2.2 | 2.3 | 2.1 | 2.3 | 2.2 | 1.3 | 1.5 | 1.9 | 1.4 | 1.6 | 1.5 | 1.8 | 1.5 | 1.9 | 1.5 |
| Sodium | mg/L | - | - | 6.4 | 7.3 | 6.1 | 8.4 | 7.6 | 8.2 | 18.5 | 14.6 | 10.9 | 10.8 | 8.7 | 9.5 | 7.9 | 8.3 | 6.9 |
| Sulphate | mg/L | - | - | 6 | 2 | 1 | 4 | < 1 | 21 | < 1 | 19 | 7 | 33 | < 1 | 3 | 1 | < 1 | 3 |
| TDS | mg/L | - | - | 237 | 232 | 243 | 232 | 279 | 278 | 278 | 295 | 242 | 285 | 213 | 300 | 266 | 344 | 229 |
| Tot Kjel N | mg/L | - | - | 1.5 | 1.5 | 1.4 | 1.6 | 2.7 | 154 | 11.2 | 8.6 | 1.6 | 6 | 7.2 | 6.9 | 2.2 | 6.1 | 10.8 |
| Ammonia (NH3-N) | mg/L | - | - | 0.77 | 0.81 | 0.82 | 0.78 | 0.9 | 1.44 | 0.61 | 0.72 | 0.39 | 0.55 | 0.44 | 0.54 | 0.69 | 0.75 | 2.09 |
| Ammonia - Unionized | mg/L | 0.02 | - | | | | | | | <0.01 | <0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.01 | < 0.01 | < 0.01 |
| Hardness (CaCO3) | mg/L | - | - | 208 | 205 | 216 | 207 | 226 | 239 | 242 | 266 | 227 | 259 | 213 | 292 | 254 | 326 | 200 |
| BOD | mg/L | - | - | < 3 | < 3 | < 3 | < 3 | < 3 | 16 | < 3 | < 3 | 3 | < 3 | 4 | < 3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.05 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | - | -- | -- | 82 | 110 | 1100 | 39000 | 1360 | 900 | 1100 | 1360 | 1620 | 1060 | 310 | 320 | 1480 |
| Aluminum | mg/L | 0.075 | - | 0.07 | 0.07 | **0.08** | 0.06 | 0.05 | 0.06 | 0.06 | **0.08** | 0.06 | 0.07 | 0.06 | **0.14** | 0.07 | **0.09** | 0.05 |
| Antimony | mg/L | 0.02 | - | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.005 | - | 0.0005 | 0.0001 | 0.0004 | 0.0004 | 0.0003 | 0.0014 | 0.0006 | 0.0003 | 0.0002 | 0.0003 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | 0.0002 |
| Barium | mg/L | - | - | 0.032 | 0.037 | 0.048 | 0.035 | 0.034 | 0.041 | 0.034 | 0.043 | 0.028 | 0.036 | 0.026 | 0.041 | 0.03 | 0.045 | 0.026 |
| Beryllium | mg/L | 1.1 | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 1.5 | < 0.005 | < 0.005 | 0.021 | < 0.005 | < 0.005 | 0.005 | < 0.005 | 0.007 | < 0.005 | 0.011 | < 0.005 | 0.006 | < 0.005 | 0.005 | < 0.005 |
| Cadmium | mg/L | 0.0005 | - | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | 0.000016 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 |
| Chromium (total) | mg/L | 0.001 | - | < 0.0002 | < 0.0002 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | - | | | | | | | | | | | | | < 0.001 | < 0.001 | < 0.001 |
| Cobalt | mg/L | 0.0009 | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0004 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 0.005 | - | 0.0005 | 0.0003 | < 0.0001 | 0.0002 | 0.0014 | 0.0001 | 0.0008 | 0.0007 | 0.0002 | 0.0013 | 0.0012 | 0.0009 | 0.0015 | 0.0006 | 0.0006 |
| Lead | mg/L | 0.005 | - | 0.00067 | 0.00023 | 0.00017 | 0.00015 | 0.0004 | 0.00006 | 0.00023 | 0.00011 | 0.00004 | 0.00012 | 0.00012 | 0.00042 | 0.00008 | 0.00004 | 0.00005 |
| Mercury | mg/L | 0.0002 | - | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | - | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | 0.025 | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | - | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | - | 0.161 | 0.155 | 0.134 | 0.153 | 0.152 | 0.193 | 0.182 | 0.216 | 0.165 | 0.202 | 0.157 | 0.232 | 0.181 | 0.25 | 0.157 |
| Thallium | mg/L | 0.0003 | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | - | 0.0013 | 0.0014 | 0.0023 | 0.0011 | 0.0006 | 0.0004 | 0.0004 | 0.0004 | 0.0007 | 0.0002 | 0.0005 | 0.0009 | 0.0007 | 0.0002 | 0.0007 |
| Zinc | mg/L | 0.02 | - | **21.8** | **20.9** | **23.3** | **24.3** | **32.5** | **9.6** | **4.33** | **2.32** | **0.967** | **0.884** | **0.406** | **0.84** | **0.444** | **0.149** | **0.354** |
| Field Temp | deg C | - | - | | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | - | | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | - | | | | | | | | | | | | | | | |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedance
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP1 12-Oct-23 | WP1 18-Apr-24 | WP1 07-Oct-24 | WP1 23-Apr-25 | WP1 30-Sep-25 | WP2 28-Apr-16 | WP2 18-Apr-17 | WP2 24-Oct-17 | WP2 24-Apr-18 | WP2 16-Oct-18 | WP2 12-Apr-19 | WP2 22-Oct-19 | WP2 23-Apr-20 | WP2 20-Oct-20 | WP2 20-Apr-21 | WP2 27-Oct-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 287 | 228 | 280 | 236 | 210 | 1300 | 1110 | 393 | 902 | 571 | ugged, No | 277 | 470 | 446 | 421 | 534 |
| Calcium | mg/L | - | 101 | 79.5 | 101 | 81.1 | 83.3 | 357 | 273 | 131 | 264 | 189 | | 178 | 177 | 171 | 147 | 173 |
| Chloride | mg/L | - | 18 | 18.8 | 11.6 | 19.8 | 20.4 | **219** | **223** | 34.5 | **205** | 75.5 | | 35.3 | 40.8 | 29.5 | 30.2 | 21.6 |
| COD | mg/L | - | 553 | 378 | 564 | 324 | 313 | 286 | 170 | 211 | 131 | 11000 | | 5100 | 682 | 1480 | 2040 | 2440 |
| Specific Conductivity | umhos/cm | - | 588 | 498 | 579 | 520 | 473 | 2800 | 2540 | 849 | 2050 | 1360 | | 1120 | 1070 | 1070 | 933 | 1010 |
| DOC | mg/L | - | 26.5 | 20.3 | 20.6 | 16.3 | 15.2 | 25 | 57.9 | 21.8 | 18.8 | 23 | | 17.7 | 18.7 | 15.5 | 22.2 | 26.7 |
| Fluoride | mg/L | - | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 | 0.5 | < 0.1 | < 0.1 | 0.2 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.1 |
| Iron | mg/L | 0.3 | **0.583** | **0.61** | **0.486** | **0.831** | **0.588** | **20.1** | **8.92** | **3.07** | **5.73** | **12.2** | | **1.01** | **6.76** | **8.08** | 0.037 | **11.4** |
| Magnesium | mg/L | - | 6.11 | 5.24 | 6.14 | 5.27 | 5.09 | 89.1 | 79 | 7.36 | 72.2 | 15.2 | | 13.7 | 13.7 | 12.2 | 11.7 | 12.5 |
| Manganese | mg/L | - | 0.522 | 0.517 | 0.426 | 0.592 | 0.438 | 0.269 | 0.13 | 0.19 | 0.062 | 0.27 | | 0.449 | 0.501 | 0.697 | 0.198 | 0.55 |
| Nitrate | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.5 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | | 1.57 | 0.48 | 0.64 | 0.17 | 0.83 |
| Nitrite | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.5 | **0.1** | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | 0.06 | 0.05 | **0.08** | 0.05 |
| pH Lab | pH unit | 6.5-8.5 | 7.06 | 7.28 | 7.72 | 7.28 | 7.47 | 7.22 | 7.4 | 7.69 | 7.83 | 7.29 | | 7.66 | 7.62 | 7.43 | 7.5 | 7.8 |
| Phenols | mg/L | 0.001 | <0.005 | <0.001 | **0.011** | **0.007** | **0.007** | **0.021** | **0.004** | **0.007** | < 0.001 | **0.03** | | < 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 |
| Phosphorus | mg/L | 0.03 | **0.2** | **0.2** | **0.3** | **0.3** | **0.2** | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | 2.2 | 1.8 | 2.6 | 2 | 2 | 4.7 | 4.2 | 0.6 | 4.5 | 25.5 | | 16.9 | 13.1 | 12.8 | 11.9 | 15.5 |
| Sodium | mg/L | - | 8.4 | 6.7 | 7.8 | 7.5 | 9.4 | 135 | 123 | 23.4 | 147 | 70.7 | | 61.5 | 51.9 | 67.6 | 42.2 | 51 |
| Sulphate | mg/L | - | 4 | <1 | <1 | <1 | <1 | 48 | 23 | 1 | < 1 | 1 | | 242 | 29 | 79 | 4 | 2 |
| TDS | mg/L | - | 305 | 258 | 299 | 259 | 248 | 1650 | 1400 | 439 | 1241 | 759 | | 718 | 622 | 649 | 504 | 616 |
| Tot Kjel N | mg/L | - | 9.2 | 5.5 | 8.9 | 5.4 | 5.6 | 4.2 | 3.3 | 2.9 | 2.9 | 201 | | 120 | 19.4 | 28.2 | 36.2 | 51.6 |
| Ammonia (NH3-N) | mg/L | - | 0.82 | 0.68 | 1.13 | 1.14 | 1.64 | 0.87 | 0.75 | 1.36 | 0.48 | 20.7 | | 2.43 | 5.67 | 2.9 | 3.65 | 5.96 |
| Ammonia - Unionized | mg/L | 0.02 | <0.01 | <0.01 | 0.01 | <0.01 | **0.13** | | | | | | | <0.01 | < 0.01 | < 0.01 | < 0.01 | **0.03** |
| Hardness (CaCO3) | mg/L | - | 278 | 220 | 279 | 224 | 229 | 1260 | 1010 | 358 | 957 | 535 | | 501 | 499 | 478 | 416 | 484 |
| BOD | mg/L | - | <3 | <3 | 3 | <3 | <3 | < 3 | 7 | < 3 | 5 | 16 | | 9 | 19 | 11 | 16 | 16 |
| Cyanide (free) | mg/L | - | <0.008 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.05 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | 750 | 1420 | 1120 | 870 | 800 | -- | 3150 | 540 | 640 | 18000 | | 7500 | 2200 | 4600 | 3350 | 3900 |
| Aluminum | mg/L | 0.075 | **0.08** | 0.05 | 0.07 | 0.06 | 0.07 | 0.07 | **0.12** | 0.07 | **0.11** | **0.09** | | **0.1** | **0.09** | **0.08** | 0.07 | **0.09** |
| Antimony | mg/L | 0.02 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0001 | < 0.0001 | 0.0002 | 0.0002 | | 0.0005 | 0.0001 | 0.0002 | 0.0001 | 0.0002 |
| Arsenic | mg/L | 0.005 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0009 | 0.0018 | 0.0006 | 0.0009 | 0.0007 | | 0.0007 | 0.0012 | 0.0009 | 0.0011 | 0.0023 |
| Barium | mg/L | - | 0.04 | 0.028 | 0.038 | 0.03 | 0.035 | 0.76 | 0.586 | 0.092 | 0.417 | 0.117 | | 0.125 | 0.08 | 0.08 | 0.062 | 0.089 |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | <0.005 | <0.005 | 0.007 | 0.007 | <0.005 | 0.024 | 0.059 | 0.008 | 0.04 | 0.145 | | 0.363 | 0.16 | 0.247 | 0.118 | 0.132 |
| Cadmium | mg/L | 0.0005 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.000020 | 0.000015 | < 0.000015 | < 0.000015 | | 0.000016 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | 0.001 | 0.001 | < 0.001 | < 0.001 | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0003 | 0.0002 | 0.0004 | 0.0001 | 0.0002 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.0011** | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 0.005 | 0.0005 | 0.0002 | 0.0003 | <0.0001 | 0.0002 | 0.0015 | 0.0021 | 0.0004 | 0.0003 | 0.0005 | | 0.0009 | 0.0007 | 0.0017 | 0.0021 | 0.001 |
| Lead | mg/L | 0.005 | 0.00006 | 0.00006 | 0.00006 | 0.00005 | <0.00002 | 0.00006 | < 0.00002 | **0.0154** | 0.00008 | 0.00003 | | 0.0001 | 0.0001 | 0.0001 | 0.00012 | 0.00007 |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0004 | 0.0001 | 0.0005 | 0.0004 | | 0.0026 | 0.0009 | 0.0007 | 0.0004 | 0.0006 |
| Nickel | mg/L | 0.025 | 0.0003 | <0.0002 | <0.0002 | <0.0002 | 0.0004 | < 0.01 | < 0.01 | < 0.01 | 0.01 | < 0.01 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | 0.001 | 0.002 | 0.003 | 0.001 | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.233 | 0.182 | 0.231 | 0.183 | 0.179 | 2.49 | 1.76 | 0.308 | 1.8 | 0.526 | | 0.6 | 0.456 | 0.448 | 0.394 | 0.459 |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 |
| Vanadium | mg/L | 0.006 | 0.0004 | 0.0008 | 0.0006 | 0.0007 | 0.0008 | **0.0074** | **0.0067** | 0.0027 | 0.0009 | 0.0004 | | 0.0004 | 0.0002 | 0.0001 | 0.0002 | 0.0003 |
| Zinc | mg/L | 0.02 | **0.201** | **0.472** | **0.243** | **0.134** | **0.051** | **13** | **14.7** | **55.6** | **18.8** | **9.72** | | **1.21** | **1.55** | **1.01** | **0.204** | **0.623** |
| Field Temp | deg C | - | | 6.7 | 9.9 | 7.6 | 12.5 | | | | | | | | | | | |
| Field pH | pH Unit | - | | 7.38 | 7.72 | 6.39 | 8.6 | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | | 423 | 540 | 372 | 377 | | | | | | | | | | | |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP2 21-Apr-22 | WP2 24-Oct-22 | WP2 19-Apr-23 | WP2 12-Oct-23 | WP2 18-Apr-24 | WP2 07-Oct-24 | WP2 23-Apr-25 | WP2 30-Sep-25 | WP3 28-Apr-16 | WP3 04-Oct-16 | WP3 18-Apr-17 | WP3 23-Oct-17 | WP3 24-Apr-18 | WP3 16-Oct-18 | WP3 12-Apr-19 | WP3 22-Oct-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 483 | 520 | 514 | 492 | 499 | 421 | 460 | Dry | 345 | 353 | 381 | 362 | 398 | 307 | 321 | 334 |
| Calcium | mg/L | - | 156 | 171 | 164 | 144 | 134 | 140 | 129 | | 116 | 117 | 114 | 115 | 125 | 108 | 114 | 130 |
| Chloride | mg/L | - | 27.9 | 29.9 | 30.9 | 19.6 | 25.5 | 16 | 24.7 | | 34.9 | **216** | 40.4 | 31.8 | 45.6 | 29.6 | 30 | 28.8 |
| COD | mg/L | - | 4520 | 620 | 1970 | 1930 | 1170 | 1160 | 582 | | 65 | 52 | 97 | 37 | 110 | 3820 | 354 | 460 |
| Specific Conductivity | umhos/cm | - | 937 | 1060 | 1070 | 947 | 1000 | 855 | 928 | | 737 | 772 | 808 | 767 | 828 | 632 | 725 | 799 |
| DOC | mg/L | - | 17.1 | 16.6 | 9.6 | 24.7 | 28.4 | 31.3 | 124 | | 17.7 | 17 | 18.1 | 19.8 | 45 | 22.8 | 19.5 | 21.5 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.7 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | **13.9** | **21** | **18.3** | **21.7** | **15.7** | **20.8** | **22.7** | | **3.88** | **3.66** | **3.49** | **0.438** | 0.01 | **1.97** | **0.933** | **0.729** |
| Magnesium | mg/L | - | 12 | 13.2 | 13.1 | 10.5 | 11.2 | 10.3 | 10.7 | | 6.7 | 6.83 | 5.96 | 6.7 | 7.09 | 7.96 | 8.67 | 10 |
| Manganese | mg/L | - | 0.476 | 0.64 | 0.601 | 0.588 | 0.43 | 0.541 | 0.482 | | 0.174 | 0.167 | 0.171 | 0.156 | 0.231 | 0.162 | 0.165 | 0.187 |
| Nitrate | mg/L | - | 0.09 | 0.85 | 0.09 | 0.29 | 0.07 | <0.05 | 0.07 | | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.08 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5-8.5 | 7.56 | 7.33 | 7.55 | 7.21 | 7.61 | 7.79 | 7.48 | | 7.68 | 7.63 | 7.74 | 7.67 | 7.46 | 7.54 | 7.5 | 7.98 |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.010 | <0.001 | <0.001 | 0.001 | | **0.022** | < 0.001 | **0.004** | **0.007** | **0.004** | **0.038** | < 0.002 | < 0.001 |
| Phosphorus | mg/L | 0.03 | **0.1** | < 0.1 | **0.2** | <0.1 | **0.2** | **0.1** | **0.2** | | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | **0.2** | **0.2** | **0.1** |
| Potassium | mg/L | - | 12.1 | 15.2 | 13.6 | 14.2 | 12.4 | 12.8 | 10.7 | | 0.9 | 0.6 | 0.4 | 0.8 | 1.1 | 10.1 | 9.5 | 12.3 |
| Sodium | mg/L | - | 41.1 | 46.7 | 43.3 | 45.5 | 40.5 | 35.7 | 41.6 | | 19.3 | 21.5 | 17.3 | 21.1 | 24.5 | 27.8 | 29.8 | 32.9 |
| Sulphate | mg/L | - | 2 | < 1 | 1 | <1 | 2 | <1 | 2 | | < 1 | 47 | < 1 | 1 | < 1 | < 1 | < 1 | 26 |
| TDS | mg/L | - | 564 | 618 | 594 | 504 | 536 | 489 | 518 | | 390 | 627 | 412 | 396 | 445 | 375 | 390 | 446 |
| Tot Kjel N | mg/L | - | 92.1 | 97.1 | 41.9 | 45 | 29.8 | 27.3 | 16.9 | | 2 | 2.1 | 2.4 | 2.2 | 4 | 65.4 | 9.8 | 11.9 |
| Ammonia (NH3-N) | mg/L | - | 6.37 | 6.78 | 8.76 | 6.69 | 7.81 | 6.74 | 6.03 | | 1.33 | 1.45 | 1.45 | 1.35 | 1.53 | 3.96 | 3.1 | 3.36 |
| Ammonia - Unionized | mg/L | 0.02 | **0.13** | 0.01 | **0.04** | <0.01 | 0.02 | **0.07** | <0.01 | | | | | | | | **0.05** | 0.02 |
| Hardness (CaCO3) | mg/L | - | 439 | 482 | 465 | 403 | 381 | 392 | 368 | | 317 | 321 | 309 | 315 | 342 | 303 | 321 | 366 |
| BOD | mg/L | - | 17 | 19 | 20 | <3 | 16 | 15 | 8 | | < 3 | < 3 | 7 | < 3 | 4 | 6 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | < 0.05 | < 0.005 | < 0.05 | <0.085 | <0.005 | <0.005 | <0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.05 | < 0.005 | < 0.005 |
| TSS | mg/L | - | 11100 | 7400 | 4280 | 3060 | 2540 | 2360 | 1760 | | -- | -- | 4500 | 2900 | 1350 | 5000 | 160 | 920 |
| Aluminum | mg/L | 0.075 | **0.09** | **0.08** | 0.06 | **0.1** | 0.05 | 0.05 | 0.06 | | 0.05 | 0.05 | 0.07 | **0.2** | 0.07 | 0.07 | 0.06 | **0.08** |
| Antimony | mg/L | 0.02 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | <0.0001 | 0.0002 | <0.0001 | | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 |
| Arsenic | mg/L | 0.005 | 0.0017 | 0.0015 | 0.0013 | 0.0012 | 0.0007 | 0.001 | 0.0006 | | 0.0007 | 0.0003 | 0.0004 | 0.0004 | < 0.0001 | 0.0003 | 0.0003 | 0.0004 |
| Barium | mg/L | - | 0.076 | 0.095 | 0.081 | 0.078 | 0.066 | 0.071 | 0.062 | | 0.05 | 0.057 | 0.076 | 0.093 | 0.128 | 0.044 | 0.042 | 0.05 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.076 | 0.11 | 0.089 | 0.135 | 0.092 | 0.15 | 0.092 | | < 0.005 | < 0.005 | 0.029 | 0.009 | 0.005 | 0.03 | 0.026 | 0.071 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000012 | < 0.000010 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | | < 0.00002 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.01 | <0.01 | <0.01 | | < 0.0002 | < 0.0002 | **0.002** | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | < 0.005 | < 0.005 | < 0.005 | **0.0019** | **0.0015** | **0.0017** | **0.0012** | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.006** | 0.0004 | < 0.005 | < 0.005 |
| Copper | mg/L | 0.005 | 0.0007 | 0.0005 | 0.0003 | 0.0008 | 0.0004 | 0.0005 | 0.0001 | | 0.0009 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0009 | 0.0015 |
| Lead | mg/L | 0.005 | 0.0001 | 0.00007 | 0.00006 | 0.00012 | 0.00007 | 0.00008 | 0.00012 | | **0.0391** | **0.00761** | **0.00759** | **0.00878** | **0.00759** | 0.00077 | 0.00036 | 0.00037 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0004 | 0.0008 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | 0.0002 | | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | 0.0019 | 0.0019 | 0.0015 | 0.0016 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | 0.002 | 0.002 | 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | < 0.00002 | 0.00002 | 0.00004 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.389 | 0.447 | 0.438 | 0.402 | 0.377 | 0.393 | 0.354 | | 0.291 | 0.285 | 0.229 | 0.276 | 0.311 | 0.279 | 0.274 | 0.336 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | | 0.0031 | 0.0029 | 0.0035 | 0.0013 | 0.0018 | < 0.0001 | < 0.0001 | < 0.0001 |
| Zinc | mg/L | 0.02 | **0.627** | **0.532** | **0.479** | **0.31** | **0.501** | **0.354** | **0.351** | | **37.9** | **61.3** | **76.4** | **37.3** | **112** | **7.26** | **4.75** | **3.11** |
| Field Temp | deg C | - | | | | | 6 | 11.7 | 8.5 | | | | | | | | | |
| Field pH | pH Unit | - | | | | | 7.26 | 7.67 | 6.72 | | | | | | | | | |
| Field Conductivity | umhos/cm | - | | | | | 1012 | 876 | 545 | | | | | | | | | |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP3 23-Apr-20 | WP3 20-Oct-20 | WP3 20-Apr-21 | WP3 27-Oct-21 | WP3 21-Apr-22 | WP3 24-Oct-22 | WP3 19-Apr-23 | WP3 12-Oct-23 | WP3 18-Apr-24 | WP3 07-Oct-24 | WP3 23-Apr-25 | WP3 30-Sep-25 | WP4 28-Apr-16 | WP4 04-Oct-16 | WP4 18-Apr-17 | WP4 24-Apr-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 336 | 313 | 339 | 387 | 415 | 377 | 356 | 2950 | 374 | 371 | 375 | 386 | 1530 | 1510 | 1550 | 478 |
| Calcium | mg/L | - | 132 | 121 | 127 | 135 | 127 | 128 | 133 | 392 | 107 | 123 | 109 | 129 | 291 | 289 | 311 | 140 |
| Chloride | mg/L | - | 36.4 | 32.4 | 35.8 | 31.8 | 31.5 | 36.4 | 26 | 93.4 | 25.5 | 21.9 | 26 | 28 | **178** | **175** | **265** | 20.4 |
| COD | mg/L | - | 74 | 694 | 393 | 521 | 148 | 624 | 223 | 697 | 268 | 265 | 316 | 246 | 234 | 251 | 248 | 89 |
| Specific Conductivity | umhos/cm | - | 804 | 762 | 816 | 788 | 829 | 805 | 761 | 8450 | 786 | 780 | 788 | 791 | 3260 | 3410 | 3470 | 912 |
| DOC | mg/L | - | 18.5 | 17.5 | 19.7 | 25 | 16.7 | 19.9 | 18.5 | 107 | 22.1 | 28.1 | 11.3 | 20.4 | 72 | 31.8 | 79.1 | 26.1 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | 0.2 | 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | **0.674** | **2.01** | **1.28** | **0.684** | **2.27** | **1.29** | **1.4** | **1.98** | 0.069 | **0.667** | **2.8** | **1.4** | **6.17** | **2.08** | **4.6** | 0.04 |
| Magnesium | mg/L | - | 11.1 | 9.52 | 10.4 | 9.76 | 10.5 | 9.79 | 10.8 | 74.7 | 9.15 | 9.45 | 9.32 | 10.1 | 56.6 | 52.4 | 44.3 | 20.7 |
| Manganese | mg/L | - | 0.174 | 0.198 | 0.215 | 0.202 | 0.22 | 0.221 | 0.235 | 1.39 | 0.18 | 0.23 | 0.245 | 0.198 | 0.189 | 0.135 | 0.191 | 0.001 |
| Nitrate | mg/L | - | 0.07 | < 0.05 | 0.05 | < 0.05 | < 0.05 | 0.14 | 0.13 | <0.05 | <0.05 | <0.05 | 0.06 | <0.05 | 0.1 | < 0.1 | < 0.1 | 0.17 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.05 |
| pH Lab | pH unit | 6.5-8.5 | 7.72 | 7.63 | 7.65 | 7.91 | 7.75 | 7.53 | 7.74 | 7.34 | 7.78 | 7.97 | 7.81 | 8.24 | 7.57 | 7.52 | 7.57 | 7.84 |
| Phenols | mg/L | 0.001 | < 0.002 | < 0.001 | **0.006** | < 0.002 | 0.001 | < 0.001 | < 0.001 | <0.020 | <0.001 | <0.001 | **0.002** | **0.002** | **0.024** | **0.02** | **0.007** | 0.001 |
| Phosphorus | mg/L | 0.03 | **0.1** | **0.1** | < 0.1 | < 0.1 | **0.1** | **0.2** | **0.2** | **0.1** | <0.1 | **0.3** | **0.8** | **0.3** | < 0.1 | < 0.1 | <0.1 | < 0.1 |
| Potassium | mg/L | - | 11.2 | 12 | 12.3 | 12.8 | 11.3 | 11.3 | 11.5 | 294 | 9.9 | 12.1 | 9.8 | 11.8 | 165 | 174 | 177 | 26.6 |
| Sodium | mg/L | - | 34.9 | 32.6 | 43.6 | 34.4 | 36.7 | 27.1 | 29.6 | 780 | 23.3 | 23.7 | 25.2 | 24.8 | 118 | 144 | 148 | 25.8 |
| Sulphate | mg/L | - | 43 | 33 | 15 | 2 | 1 | < 1 | < 1 | <1 | <1 | <1 | <1 | <1 | 69 | 11 | 37 | 4 |
| TDS | mg/L | - | 475 | 431 | 452 | 462 | 473 | 444 | 426 | 4840 | 412 | 414 | 408 | 438 | 1940 | 1890 | 2060 | 530 |
| Tot Kjel N | mg/L | - | 3.8 | 13.5 | 5.7 | 13.4 | 11.7 | 13.1 | 5.6 | 525 | 7.7 | 8.4 | 8.8 | 7.7 | 139 | 108 | 102 | 13.2 |
| Ammonia (NH3-N) | mg/L | - | 2.66 | 2.44 | 2.09 | 2.16 | 2.71 | 2.45 | 2.64 | 437 | 2.59 | 3.11 | 2.94 | 3.5 | 104 | 108 | 105 | 4.51 |
| Ammonia - Unionized | mg/L | 0.02 | < 0.01 | < 0.01 | < 0.01 | 0.02 | **0.08** | < 0.01 | 0.01 | <0.01 | 0.01 | <0.01 | <0.01 | **0.21** | | | | |
| Hardness (CaCO3) | mg/L | - | 376 | 342 | 360 | 378 | 361 | 360 | 376 | 1290 | 306 | 346 | 310 | 364 | 960 | 939 | 960 | 435 |
| BOD | mg/L | - | < 3 | < 3 | < 3 | < 3 | 5 | 4 | 5 | 22 | 4 | 4 | 3 | 8 | 4 | < 3 | 5 | 4 |
| Cyanide (free) | mg/L | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.017 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | 68 | 3200 | 1640 | 1340 | 3550 | 1420 | 465 | 2640 | 505 | 1080 | 390 | 2030 | -- | -- | 105 | 760 |
| Aluminum | mg/L | 0.075 | **0.09** | 0.07 | **0.11** | **0.1** | **0.09** | 0.05 | **0.08** | **0.19** | 0.04 | 0.06 | 0.06 | **0.08** | **0.11** | **0.09** | **0.08** | 0.07 |
| Antimony | mg/L | 0.02 | < 0.0001 | 0.0001 | 0.0002 | 0.0004 | 0.0001 | < 0.0001 | < 0.0001 | 0.0014 | <0.0001 | 0.0001 | 0.0004 | <0.0001 | 0.0007 | 0.0006 | 0.0003 | 0.0002 |
| Arsenic | mg/L | 0.005 | 0.0002 | 0.0004 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0035 | 0.0003 | 0.0004 | 0.0003 | 0.0004 | 0.0017 | 0.0024 | 0.0026 | 0.002 |
| Barium | mg/L | - | 0.044 | 0.047 | 0.044 | 0.05 | 0.045 | 0.05 | 0.047 | 0.322 | 0.038 | 0.046 | 0.048 | 0.047 | 1.14 | 1.11 | 1.31 | 0.048 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.048 | 0.108 | 0.07 | 0.092 | 0.05 | 0.083 | 0.051 | **3.26** | 0.046 | 0.109 | 0.057 | 0.066 | 0.567 | 0.635 | 0.594 | 0.309 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | <0.000030 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | 0.00025 | 0.00005 | 0.000061 | 0.000198 |
| Chromium (total) | mg/L | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | **0.007** | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 | < 0.0002 | **0.003** | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | |
| Cobalt | mg/L | 0.0009 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.0163** | 0.0005 | 0.0007 | 0.0005 | 0.0007 | < 0.005 | < 0.005 | **0.008** | < 0.005 |
| Copper | mg/L | 0.005 | 0.0005 | 0.0018 | 0.0006 | 0.0009 | 0.0015 | 0.0007 | 0.0003 | 0.0008 | 0.0004 | 0.0005 | <0.0001 | 0.0003 | 0.0018 | 0.0013 | 0.0027 | **0.0062** |
| Lead | mg/L | 0.005 | 0.00008 | 0.00021 | 0.00019 | 0.00028 | 0.00036 | 0.00011 | 0.00011 | 0.00012 | 0.00021 | 0.00007 | 0.0001 | 0.00014 | 0.00184 | 0.00048 | 0.00077 | **0.0116** |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00008 |
| Molybdenum | mg/L | 0.04 | < 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0003 | 0.0001 | < 0.0001 | 0.0008 | <0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | < 0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | **0.0434** | 0.001 | 0.0009 | 0.001 | 0.0016 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | 0.008 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | 0.006 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | 0.00004 | 0.00005 | < 0.0001 |
| Strontium | mg/L | - | 0.311 | 0.315 | 0.332 | 0.342 | 0.333 | 0.333 | 0.345 | 1.82 | 0.298 | 0.346 | 0.308 | 0.328 | 0.764 | 0.75 | 0.662 | 0.426 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0022 | <0.0001 | <0.0001 | 0.0004 | 0.0004 | **0.0126** | **0.0096** | **0.0122** | 0.0045 |
| Zinc | mg/L | 0.02 | **2.44** | **1.54** | **1.34** | **1.42** | **1.02** | **0.565** | **1.02** | **0.049** | **0.558** | **0.669** | **0.687** | **0.744** | **13.2** | **108** | **116** | 0.008 |
| Field Temp | deg C | - | | | | | | | | | 6.3 | 12.5 | 8.7 | 15.9 | | | | |
| Field pH | pH Unit | - | | | | | | | | | 7.57 | 7.15 | 6.99 | 8.35 | | | | |
| Field Conductivity | umhos/cm | - | | | | | | | | | 766 | 700 | 587 | 284 | | | | |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP4 16-Oct-18 | WP4 12-Apr-19 | WP4 22-Oct-19 | WP4 23-Apr-20 | WP4 20-Oct-20 | WP4 20-Apr-21 | WP4 27-Oct-21 | WP4 21-Apr-22 | WP4 24-Oct-22 | WP4 19-Apr-23 | WP4 12-Oct-23 | WP4 18-Apr-24 | WP4 07-Oct-24 | WP4 23-Apr-25 | WP4 30-Sep-25 | WP5 27-Apr-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 515 | 600 | 1090 | 1100 | 925 | 778 | 548 | 990 | 557 | 911 | 663 | 850 | 547 | 892 | 1270 | 245 |
| Calcium | mg/L | - | 121 | 170 | 235 | 258 | 192 | 184 | 155 | 183 | 152 | 206 | 143 | 156 | 146 | 176 | 248 | 87.5 |
| Chloride | mg/L | - | 54.1 | 75.8 | **163** | **174** | **134** | 94.6 | 26.5 | 104 | 33.6 | **131** | 51.8 | 91.4 | 26.9 | **121** | **198** | 27.5 |
| COD | mg/L | - | 2200 | 1180 | 650 | 253 | 2810 | 1100 | 308 | 656 | 391 | 487 | 226 | 456 | 226 | 383 | 686 | 181 |
| Specific Conductivity | umhos/cm | - | 1230 | 1480 | 2630 | 2610 | 2200 | 1870 | 1090 | 2060 | 1120 | 2120 | 1360 | 1880 | 1120 | 2040 | 2910 | 613 |
| DOC | mg/L | - | 57.4 | 29.8 | 37.4 | 31.2 | 23.4 | 48.9 | 42.6 | 18.5 | 25.4 | 22.3 | 57.8 | 43.2 | 33.5 | 38.1 | 32.3 | 2.4 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.7 | <0.7 | < 0.1 |
| Iron | mg/L | 0.3 | **22.2** | | **1.92** | **1.85** | **1.11** | **2.24** | **1.18** | **1.75** | **1.22** | 0.22 | **0.932** | 0.196 | **0.745** | **1.95** | **6.5** | **1.71** |
| Magnesium | mg/L | - | 16 | 22.2 | 38.9 | 44.3 | 30.2 | 26.3 | 20.4 | 29.5 | 20.5 | 34.6 | 21 | 28.2 | 21.4 | 29.7 | 46.6 | 8.69 |
| Manganese | mg/L | - | 0.308 | 0.291 | 0.241 | 0.241 | 0.205 | 0.252 | 0.237 | 0.194 | 0.232 | 0.242 | 0.202 | 0.152 | 0.213 | 0.265 | 0.573 | 0.637 |
| Nitrate | mg/L | - | < 0.05 | < 0.05 | 0.16 | < 0.5 | 0.24 | 0.05 | 0.23 | < 0.3 | 0.28 | < 0.05 | <0.40 | <0.05 | 0.12 | <0.40 | <0.40 | 0.2 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.5 | < 0.05 | **0.07** | < 0.05 | < 0.3 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.40 | <0.40 | < 0.1 |
| pH Lab | pH unit | 6.5-8.5 | 7.47 | 7.32 | 7.83 | 7.58 | 7.46 | 7.47 | 7.78 | 7.63 | 7.36 | 7.68 | 7.51 | 7.77 | 7.85 | 7.68 | 7.64 | 7.73 |
| Phenols | mg/L | 0.001 | < 0.01 | **0.03** | < 0.001 | < 0.002 | **0.033** | **0.039** | **0.003** | **0.007** | < 0.001 | **0.004** | **0.006** | <0.001 | <0.001 | **0.013** | **0.023** | **0.002** |
| Phosphorus | mg/L | 0.03 | < 0.1 | < 0.1 | < 0.1 | **0.1** | < 0.1 | < 0.1 | < 0.1 | **0.1** | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | **0.1** | **0.1** | < 0.1 |
| Potassium | mg/L | - | 53.5 | 74.9 | 120 | 125 | 87 | 60.1 | 39.1 | 76.9 | 33.1 | 83.8 | 45.2 | 73.6 | 36.1 | 64.7 | 113 | 16.2 |
| Sodium | mg/L | - | 55.5 | 74.9 | 163 | 167 | 101 | 84.5 | 41 | 106 | 33.2 | 106 | 47.2 | 95.4 | 33.1 | 81.3 | 158 | 26.6 |
| Sulphate | mg/L | - | 19 | 21 | 11 | < 10 | 22 | 19 | 23 | < 5 | 5 | < 1 | 2 | <1 | <1 | 6 | 8 | 31 |
| TDS | mg/L | - | 689 | 839 | 1487 | 1518 | 1122 | 976 | 649 | 1154 | 623 | 1108 | 739 | 1040 | 594 | 1020 | 1540 | 348 |
| Tot Kjel N | mg/L | - | 383 | 50.9 | 92.9 | 76.3 | 96.8 | 40 | 13.1 | 53.1 | 15.3 | 47.2 | 19.7 | 37.2 | 12.9 | 58.6 | 130 | 3.3 |
| Ammonia (NH3-N) | mg/L | - | 29.7 | 30.8 | 76.6 | 67.2 | 53.8 | 30 | 10.4 | 45 | 7.91 | 48.5 | 20 | 39.6 | 9.9 | 43.7 | 105 | 0.28 |
| Ammonia - Unionized | mg/L | 0.02 | | **0.36** | **0.25** | **0.18** | **0.11** | **0.03** | 0.02 | **1.06** | 0.02 | **0.11** | <0.01 | **0.09** | 0.02 | <0.01 | **0.74** | |
| Hardness (CaCO3) | mg/L | - | 368 | 516 | 747 | 827 | 604 | 568 | 471 | 579 | 464 | 522 | 444 | 451 | 454 | 561 | 812 | 254 |
| BOD | mg/L | - | 14 | < 3 | 5 | 10 | 10 | 7 | < 3 | 8 | 9 | 7 | <3 | 7 | 6 | 8 | 14 | < 3 |
| Cyanide (free) | mg/L | - | < 0.05 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.05 | < 0.005 | < 0.005 | <0.017 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 |
| TSS | mg/L | - | 29000 | 10500 | 22000 | 3900 | 36200 | 14600 | 1400 | 53400 | 2730 | 715 | 660 | 2380 | 880 | 4500 | 2540 | -- |
| Aluminum | mg/L | 0.075 | **0.08** | **0.1** | **0.13** | **0.14** | **0.1** | **0.1** | **0.14** | **0.1** | **0.09** | **0.09** | **0.1** | **0.09** | 0.07 | **0.18** | **0.16** | 0.06 |
| Antimony | mg/L | 0.02 | 0.0005 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0005 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0005 | 0.0002 | 0.0002 |
| Arsenic | mg/L | 0.005 | 0.0016 | 0.0012 | 0.0007 | 0.0006 | 0.0006 | 0.0004 | 0.0003 | 0.0005 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0003 | 0.0007 | 0.0006 | 0.0006 |
| Barium | mg/L | - | 0.131 | 0.225 | 0.84 | 1.02 | 0.621 | 0.483 | 0.26 | 0.479 | 0.214 | 0.561 | 0.284 | 0.422 | 0.229 | 0.44 | 0.98 | 0.026 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 |
| Boron | mg/L | - | 0.369 | 0.323 | 0.81 | 0.736 | 0.708 | 0.403 | 0.451 | 0.442 | 0.383 | 0.655 | 0.489 | 0.552 | 0.466 | 0.597 | 1.05 | 0.146 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000015 | < 0.000029 | < 0.000029 | < 0.000029 | < 0.000029 | < 0.000015 | < 0.000029 | < 0.000012 | < 0.000012 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | 0.00008 |
| Chromium (total) | mg/L | 0.001 | < 0.001 | < 0.001 | **0.003** | **0.003** | 0.001 | 0.001 | < 0.001 | 0.001 | < 0.001 | **0.002** | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.0002 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | |
| Cobalt | mg/L | 0.0009 | **0.0012** | < 0.005 | **0.005** | **0.005** | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.006** | **0.0016** | **0.0014** | 0.0009 | **0.0027** | **0.0045** | < 0.005 |
| Copper | mg/L | 0.005 | 0.0014 | 0.0008 | 0.0017 | 0.002 | 0.0012 | 0.0013 | 0.0011 | 0.0004 | 0.0004 | 0.0003 | 0.001 | 0.0006 | 0.0004 | <0.0001 | 0.0007 | 0.0019 |
| Lead | mg/L | 0.005 | 0.00009 | 0.00008 | 0.00014 | 0.00011 | 0.0001 | 0.00011 | 0.00018 | < 0.00009 | 0.00008 | < 0.00004 | 0.00006 | <0.00004 | 0.00006 | <0.00002 | <0.00004 | **0.0125** |
| Mercury | mg/L | 0.0002 | **0.00112** | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | 0.00015 |
| Molybdenum | mg/L | 0.04 | 0.001 | 0.0005 | 0.0003 | 0.0003 | 0.0005 | 0.0004 | 0.0002 | < 0.0002 | 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0003 | 0.0001 | 0.0008 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0022 | 0.0026 | 0.0014 | 0.0047 | 0.0073 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | 0.002 | 0.002 | 0.002 | 0.001 | < 0.001 | < 0.001 | 0.003 | 0.002 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00005 |
| Strontium | mg/L | - | 0.347 | 0.455 | 0.642 | 0.656 | 0.501 | 0.477 | 0.42 | 0.455 | 0.405 | 0.53 | 0.402 | 0.413 | 0.424 | 0.494 | 0.773 | 0.254 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | 0.00005 | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0001 | 0.0013 | 0.0023 | 0.0042 | 0.0013 | 0.001 | 0.0005 | 0.0017 | 0.0003 | 0.0023 | 0.0005 | 0.0011 | 0.0003 | **0.0067** | **0.0083** | 0.0025 |
| Zinc | mg/L | 0.02 | **6.86** | **4.94** | **0.557** | **0.206** | **0.591** | **1.12** | **1.61** | **0.151** | **0.835** | **0.177** | **0.428** | **0.147** | **0.423** | **0.268** | **0.041** | **2.62** |
| Field Temp | deg C | - | | | | | | | | | | | | 6.5 | 12.6 | 6.7 | 13.1 | |
| Field pH | pH Unit | - | | | | | | | | | | | | 7.22 | 6.93 | 6.66 | 7.48 | |
| Field Conductivity | umhos/cm | - | | | | | | | | | | | | 1670 | 935 | 934 | 383 | |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP5 04-Oct-16 | WP5 18-Apr-17 | WP5 24-Oct-17 | WP5 23-Apr-18 | WP5 15-Oct-18 | WP5 12-Apr-19 | WP5 22-Oct-19 | WP5 22-Apr-20 | WP5 19-Oct-20 | WP5 20-Apr-21 | WP5 27-Oct-21 | WP5 21-Apr-22 | WP5 26-Oct-22 | WP5 19-Apr-23 | WP5 12-Oct-23 | WP5 18-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | -- | -- | -- | 246 | -- | | Dry | 150 | | | 254 | 320 | 313 | 272 | 320 | 272 |
| Calcium | mg/L | - | 59.7 | 91.3 | 105 | 78.8 | 76.3 | 417 | | 65 | 231 | 85.3 | 72 | 70.2 | 72.6 | 56.8 | 81.6 | 64.4 |
| Chloride | mg/L | - | -- | -- | -- | 15.7 | -- | | | 15.6 | | | 12.7 | 11.6 | 9.4 | 9.8 | 9.4 | 9.1 |
| COD | mg/L | - | -- | 172 | -- | 52 | -- | 7000 | | 2790 | | 250 | 70 | 140 | 113 | 97 | 123 | 97 |
| Specific Conductivity | umhos/cm | - | -- | -- | -- | 805 | -- | | | 489 | | | 568 | 660 | 609 | 570 | 610 | 549 |
| DOC | mg/L | - | -- | | 22.2 | 16.3 | -- | 17.9 | | 32.4 | | 32.3 | 15.9 | 15.8 | 15.2 | 12.8 | 21.7 | 22.8 |
| Fluoride | mg/L | - | -- | -- | -- | < 0.1 | -- | | | < 0.1 | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 |
| Iron | mg/L | 0.3 | **6.15** | **9.22** | **151** | **16.8** | **0.454** | **391** | | 0.047 | **95.7** | **31.6** | **1.57** | **12.8** | **1.73** | **14.9** | 0.207 | 0.037 |
| Magnesium | mg/L | - | 4.51 | 7.97 | 8.74 | 7.34 | 6.77 | 19.6 | | 6.28 | 22.7 | 8.1 | 6.97 | 7.12 | 9.27 | 7.11 | 7.78 | 6.68 |
| Manganese | mg/L | - | 2.68 | 0.977 | 1.31 | 0.554 | 0.007 | 3.89 | | 0.411 | 1.4 | 1.01 | 1.03 | 1.3 | 0.731 | 0.963 | 0.624 | 0.724 |
| Nitrate | mg/L | - | -- | -- | -- | 0.05 | -- | | | 0.3 | | | 0.68 | 0.25 | 0.16 | 0.23 | 0.14 | 0.17 |
| Nitrite | mg/L | - | -- | -- | -- | < 0.05 | -- | | | < 0.05 | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5-8.5 | -- | -- | -- | 7.97 | -- | | | 7.25 | | | 8.04 | 7.57 | 7.81 | 7.61 | 7.09 | 7.82 |
| Phenols | mg/L | 0.001 | -- | < 0.001 | -- | < 0.001 | -- | < 0.02 | | < 0.002 | 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | **0.004** | <0.001 | <0.001 |
| Phosphorus | mg/L | 0.03 | < 0.1 | <0.1 | **0.6** | < 0.1 | < 0.1 | **1.21** | | < 0.1 | **2.4** | **0.8** | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | 8.3 | 16.5 | 16.4 | 14.1 | 17.3 | 16.2 | | 12.7 | 18.7 | 14.6 | 15.5 | 13.6 | 16.7 | 15.4 | 16.2 | 11.9 |
| Sodium | mg/L | - | 16.4 | 24 | 23.1 | 19.4 | 26.7 | 40.8 | | 27.1 | 55.5 | 40.5 | 39.1 | 41.1 | 44.1 | 37.4 | 33.9 | 24.7 |
| Sulphate | mg/L | - | -- | -- | -- | 7 | -- | | | 66 | | | 31 | 22 | 7 | 6 | 4 | 1 |
| TDS | mg/L | - | -- | -- | -- | 308 | -- | | | 284 | | | 333 | 373 | 350 | 311 | 317 | 285 |
| Tot Kjel N | mg/L | - | -- | 2.3 | 7.5 | 1.5 | -- | 22.4 | | 34.8 | 9.6 | 2.3 | 2.8 | 2.6 | 2.3 | 2.4 | 2.8 | 2.2 |
| Ammonia (NH3-N) | mg/L | - | -- | 0.62 | 0.35 | 0.37 | -- | 1.1 | | 0.76 | 1.52 | 0.55 | 0.44 | 0.81 | 0.26 | 1.2 | 0.28 | 0.79 |
| Ammonia - Unionized | mg/L | 0.02 | | | | | | <0.01 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.02 | < 0.01 | < 0.01 | <0.01 | <0.01 |
| Hardness (CaCO3) | mg/L | - | 168 | 261 | 298 | 227 | 219 | | | 188 | 671 | 247 | 209 | 205 | 220 | 171 | 236 | 189 |
| BOD | mg/L | - | -- | -- | -- | < 3 | -- | | | 11 | | | 3 | < 3 | 5 | 5 | 4 | 4 |
| Cyanide (free) | mg/L | - | -- | < 0.005 | -- | < 0.005 | -- | 1120 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 |
| TSS | mg/L | - | -- | -- | -- | 160 | -- | < 0.01 | | 20000 | | | 500 | 600 | 1600 | 810 | 385 | 260 |
| Aluminum | mg/L | 0.075 | 0.03 | 0.07 | **1.86** | 0.06 | 0.07 | **40.6** | | 0.04 | **23.9** | **3.51** | 0.05 | 0.04 | 0.03 | 0.02 | 0.06 | 0.02 |
| Antimony | mg/L | 0.02 | < 0.0001 | < 0.0001 | 0.0002 | 0.0001 | 0.0002 | < 0.01 | | 0.0006 | 0.0002 | 0.0026 | 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | 0.0004 | 0.0002 |
| Arsenic | mg/L | 0.005 | 0.0002 | 0.0005 | 0.001 | 0.0005 | 0.0002 | **0.0235** | | 0.0002 | 0.0033 | **0.0085** | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0013 | 0.0002 |
| Barium | mg/L | - | 0.041 | 0.032 | 0.087 | 0.023 | 0.026 | 0.79 | | 0.024 | 0.529 | 0.08 | 0.04 | 0.038 | 0.035 | 0.035 | 0.041 | 0.026 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.02 | | < 0.002 | 0.014 | < 0.02 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 |
| Boron | mg/L | - | 0.369 | 0.194 | 0.312 | 0.112 | 0.246 | 0.76 | | 0.269 | 0.496 | 0.18 | 0.239 | 0.093 | 0.201 | 0.087 | 0.174 | 0.08 |
| Cadmium | mg/L | 0.0005 | 0.00042 | 0.000027 | **0.00321** | 0.000024 | < 0.000015 | **0.0177** | | < 0.000015 | 0.000086 | 0.000439 | < 0.000015 | < 0.000015 | < 0.000010 | < 0.000010 | 0.000112 | <0.000015 |
| Chromium (total) | mg/L | 0.001 | < 0.0002 | **0.002** | **0.016** | < 0.001 | < 0.001 | **0.08** | | < 0.001 | **0.01** | < 0.01 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | <0.01 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 |
| Cobalt | mg/L | 0.0009 | **0.006** | < 0.005 | **0.008** | < 0.005 | 0.0001 | **0.0193** | | < 0.005 | **0.008** | < 0.05 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0009 | 0.0004 |
| Copper | mg/L | 0.005 | 0.0005 | 0.0008 | **0.0162** | 0.0016 | 0.0006 | **0.202** | | 0.0007 | 0.0018 | **0.0079** | 0.0012 | 0.0004 | 0.0008 | 0.0004 | 0.0021 | 0.0002 |
| Lead | mg/L | 0.005 | 0.00153 | 0.00343 | **0.712** | 0.00112 | 0.00039 | **0.441** | | < 0.00002 | **0.0144** | **0.0427** | 0.0001 | 0.00003 | 0.00009 | < 0.00002 | 0.00336 | <0.00002 |
| Mercury | mg/L | 0.0002 | -- | < 0.00002 | 0.0001 | < 0.00002 | 0 | **0.00183** | | **0.0003** | | 0.00008 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | < 0.0001 | 0.0002 | < 0.0001 | 0.0003 | 0.0007 | < 0.01 | | 0.0008 | 0.0006 | 0.0034 | 0.0003 | 0.0009 | 0.0003 | 0.0007 | 0.0006 | 0.0003 |
| Nickel | mg/L | 0.025 | 0.01 | < 0.01 | 0.01 | < 0.01 | < 0.01 | < 0.1 | | < 0.01 | 0.02 | < 0.1 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.002 | 0.001 |
| Selenium | mg/L | 0.1 | 0.002 | 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.1 | | < 0.001 | < 0.001 | < 0.004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | 0.00002 | 0.00005 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.002 | | < 0.0001 | < 0.0001 | **0.001** | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | 0.168 | 0.204 | 0.303 | 0.197 | 0.224 | 1.3 | | 0.181 | 1.5 | 0.26 | 0.221 | 0.192 | 0.226 | 0.174 | 0.246 | 0.193 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.005 | | < 0.00005 | 0.00006 | **0.00036** | < 0.05 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.006 | 0.0006 | 0.0033 | 0.0035 | 0.0001 | 0.0002 | **0.0886** | | 0.0001 | 0.0006 | 0.0036 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0008 | <0.0001 |
| Zinc | mg/L | 0.02 | **45.3** | **9.89** | **31.5** | **4.91** | **0.614** | **113** | | **1.19** | **13.7** | **5.15** | **1.53** | **1.73** | **1.12** | **1.23** | **1.38** | **0.489** |
| Field Temp | deg C | - | | | | | | | | | | | | | | | | 6.4 |
| Field pH | pH Unit | - | | | | | | | | | | | | | | | | 7.7 |
| Field Conductivity | umhos/cm | - | | | | | | | | | | | | | | | | 537 |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP5 07-Oct-24 | WP5 23-Apr-25 | WP5 30-Sep-25 | WP6 28-Apr-16 | WP6 28-Apr-16 | WP6 04-Oct-16 | WP6 04-Oct-16 | WP6 18-Apr-17 | WP6 24-Oct-17 | WP6 24-Apr-18 | WP6 16-Oct-18 | WP6 16-Oct-18 | WP6 12-Apr-19 | WP6 22-Oct-19 | WP6 23-Apr-20 | WP6 20-Oct-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 266 | 259 | Dry | | 297 | 296 | -- | 298 | 297 | 298 | 291 | | 296 | 286 | 288 | 300 |
| Calcium | mg/L | - | 83.1 | 54.6 | | 974 | 119 | 865 | 122 | 130 | 121 | 123 | 111 | 117 | 797 | 960 | 123 | 132 |
| Chloride | mg/L | - | 9.8 | 10.9 | | | 21.1 | 21.3 | -- | 22.3 | 17.8 | 23.6 | 23.3 | | 22.3 | 22.7 | 24.5 | 25.4 |
| COD | mg/L | - | 113 | 132 | | | 365 | 11 | -- | 140 | 127 | 22 | 193 | | 103 | 260 | 73 | 129 |
| Specific Conductivity | umhos/cm | - | 552 | 534 | | | 620 | 629 | -- | 625 | 621 | 613 | 631 | | 645 | 637 | 640 | 657 |
| DOC | mg/L | - | 26.2 | 12.4 | | | 6.9 | 8.3 | -- | 8.3 | 10.7 | 7.9 | 8.1 | | 6.8 | 10.1 | 11.1 | 8.4 |
| Fluoride | mg/L | - | <0.1 | <0.1 | | | < 0.1 | 0.1 | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | **6.79** | **21.1** | | **1.4** | **1.88** | **4.67** | **1.41** | **2.14** | **0.975** | **1.13** | 0.109 | **1.58** | **49.3** | **55.3** | 0.008 | 0.008 |
| Magnesium | mg/L | - | 6.89 | 6.76 | | 18.8 | 10.2 | 17.1 | 10.1 | 10 | 10 | 10.3 | 9.76 | 9.51 | 35.7 | 37.8 | 10.8 | 11.1 |
| Manganese | mg/L | - | 0.974 | 0.832 | | 1.16 | 0.079 | 0.744 | 0.068 | 0.075 | 0.054 | 0.069 | 0.003 | 0.062 | 1.01 | 1.15 | 0.055 | 0.033 |
| Nitrate | mg/L | - | 0.2 | 0.12 | | | 0.1 | < 0.1 | -- | < 0.1 | 0.12 | 0.07 | < 0.05 | | < 0.05 | 0.14 | 0.09 | < 0.05 |
| Nitrite | mg/L | - | <0.05 | <0.05 | | | < 0.1 | < 0.1 | -- | < 0.1 | **0.07** | < 0.05 | < 0.05 | | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5-8.5 | 8.11 | 7.78 | | | 7.95 | 8.09 | -- | 8.02 | 7.98 | 8.04 | 8.01 | | 7.99 | 8.12 | 7.91 | 7.85 |
| Phenols | mg/L | 0.001 | <0.001 | **0.002** | | | **0.028** | **0.025** | -- | < 0.001 | **0.006** | < 0.001 | **0.01** | | < 0.02 | < 0.001 | < 0.002 | < 0.001 |
| Phosphorus | mg/L | 0.03 | <0.1 | <0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | **4.1** | 3 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | 12.5 | 15.6 | | 3.2 | 1.9 | 2.2 | 1.9 | 1.6 | 2.2 | 1.7 | 2.4 | 2 | 6.6 | 8.1 | 1.7 | 2.5 |
| Sodium | mg/L | - | 23.6 | 23.7 | | 5.3 | 5.1 | 6 | 5.8 | 4.9 | 5.7 | 5.6 | 6.5 | 6.1 | 7.3 | 8.7 | 6.1 | 7.3 |
| Sulphate | mg/L | - | <1 | <1 | | -- | 3 | 3 | -- | 3 | 4 | 3 | 5 | | 4 | 4 | 4 | 4 |
| TDS | mg/L | - | 304 | 290 | | -- | 341 | 1100 | -- | 354 | 340 | 348 | 333 | | 1102 | 1270 | 343 | 363 |
| Tot Kjel N | mg/L | - | 2.6 | 2.8 | | 1.2 | 0.5 | 4.4 | -- | 4.9 | 1.5 | 1.5 | 2.7 | | 1.9 | 3.9 | 0.9 | 2.1 |
| Ammonia (NH3-N) | mg/L | - | 0.7 | 0.71 | | 0.37 | 0.29 | 0.71 | -- | 0.27 | 0.23 | 0.27 | 0.24 | | 0.26 | 0.24 | 0.2 | 0.25 |
| Ammonia - Unionized | mg/L | 0.02 | <0.01 | <0.01 | | | | | | | | | | | <0.01 | <0.01 | < 0.01 | 0.02 |
| Hardness (CaCO3) | mg/L | - | 236 | 164 | | 2510 | 339 | 2550 | 346 | 366 | 344 | 350 | 318 | 332 | 2140 | 2560 | 352 | 376 |
| BOD | mg/L | - | 5 | 5 | | -- | < 3 | < 3 | -- | < 3 | 4 | < 3 | 5 | | <3 | < 3 | < 3 | < 3 |
| Cyanide (free) | mg/L | - | <0.005 | <0.005 | | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | <0.005 | < 0.005 | < 0.005 | < 0.005 |
| TSS | mg/L | - | 500 | 640 | | -- | -- | -- | -- | 35400 | 16800 | 2440 | 77000 | | 14800 | 11700 | 20300 | 4860 |
| Aluminum | mg/L | 0.075 | 0.03 | 0.02 | | **0.12** | 0.04 | **0.26** | **0.08** | 0.07 | 0.06 | **0.08** | **0.11** | 0.07 | **20.2** | **25.2** | 0.07 | 0.07 |
| Antimony | mg/L | 0.02 | 0.0001 | <0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.001 | 0.0002 | 0.0005 |
| Arsenic | mg/L | 0.005 | 0.0004 | 0.0003 | | 0.0007 | 0.0003 | 0.0003 | < 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | < 0.0001 | 0.0039 | 0.0045 | < 0.0001 | 0.0001 |
| Barium | mg/L | - | 0.047 | 0.034 | | 1.22 | 0.224 | 0.474 | 0.223 | 0.249 | 0.243 | 0.187 | 0.191 | 0.239 | 0.622 | 0.687 | 0.201 | 0.217 |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.125 | 0.066 | | < 0.005 | < 0.005 | 0.025 | 0.018 | 0.036 | 0.022 | 0.016 | 0.021 | 0.018 | 0.074 | 0.082 | 0.02 | 0.024 |
| Cadmium | mg/L | 0.0005 | <0.000015 | <0.000015 | | 0.00012 | < 0.00002 | 0.00012 | < 0.00002 | < 0.000020 | < 0.000014 | < 0.000015 | 0.000084 | < 0.000015 | 0.000309 | 0.000354 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.001 | <0.01 | <0.01 | | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | **0.044** | **0.053** | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | <0.01 | <0.01 | | | | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0008 | 0.0005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.0019** | < 0.0001 | **0.014** | **0.0224** | < 0.005 | < 0.005 |
| Copper | mg/L | 0.005 | 0.0005 | 0.0001 | | 0.0008 | 0.0005 | 0.0008 | 0.0002 | 0.0007 | 0.0002 | 0.0002 | 0.0003 | 0.0004 | **0.069** | **0.103** | 0.0015 | 0.0011 |
| Lead | mg/L | 0.005 | <0.00002 | <0.00002 | | 0.00007 | 0.00005 | 0.0001 | 0.00008 | < 0.00002 | < 0.00002 | 0.00002 | < 0.00002 | 0.00002 | **0.0216** | **0.028** | 0.00003 | < 0.00002 |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | -- | < 0.00002 | 0.00004 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0005 | 0.0006 | | 0.0002 | < 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | 0.0002 | < 0.001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | 0.025 | 0.001 | 0.0009 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | **0.04** | **0.05** | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.003 | < 0.01 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | **0.0002** | **0.0007** | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.248 | 0.172 | | 1.77 | 0.441 | 1.58 | 0.433 | 0.377 | 0.422 | 0.414 | 0.408 | 0.441 | 1.5 | 1.86 | 0.43 | 0.473 |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | **0.00034** | < 0.0005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | <0.0001 | <0.0001 | | **0.0061** | 0.0013 | **0.0064** | 0.0016 | 0.002 | 0.0018 | 0.0004 | 0.0001 | 0.0007 | **0.058** | **0.0813** | 0.0007 | 0.0008 |
| Zinc | mg/L | 0.02 | **0.866** | **1.14** | | < 0.005 | 0.007 | 0.006 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.114** | **0.123** | < 0.005 | < 0.005 |
| Field Temp | deg C | - | 13.6 | 8.8 | | | | | | | | | | | | | | |
| Field pH | pH Unit | - | 7.1 | 7.09 | | | | | | | | | | | | | | |
| Field Conductivity | umhos/cm | - | 577 | 449 | | | | | | | | | | | | | | |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP6 20-Apr-21 | WP6 27-Oct-21 | WP6 21-Apr-22 | WP6 24-Oct-22 | WP6 19-Apr-23 | WP6 12-Oct-23 | WP6 18-Apr-24 | WP6 07-Oct-24 | WP6 23-Apr-25 | WP6 30-Sep-25 | WP6 (DUP) 30-Sep-25 | WP6-F 12-Apr-19 | WP6-F 22-Oct-19 | WP6-F 23-Apr-20 | WP6-F 20-Oct-20 | WP6-F 20-Apr-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 289 | 317 | 325 | 316 | 320 | 338 | 328 | 320 | 341 | 333 | 331 | 286 | | 292 | | 287 |
| Calcium | mg/L | - | 122 | 130 | 129 | 130 | 479 | 118 | 108 | 119 | 112 | 121 | 120 | 124 | 131 | 130 | 127 | 130 |
| Chloride | mg/L | - | 25.2 | 25.8 | 25.9 | 38 | 28.9 | 30 | 28.2 | 28.3 | 30.8 | 29.1 | 28.8 | 22.1 | | 24.5 | 25.8 | 25.1 |
| COD | mg/L | - | 117 | 112 | 72 | 94 | 117 | 78 | 115 | 143 | 168 | 100 | 88 | 20 | | 17 | | 18 |
| Specific Conductivity | umhos/cm | - | 665 | 645 | 665 | 703 | 702 | 698 | 709 | 706 | 714 | 718 | 712 | 641 | | 643 | | 659 |
| DOC | mg/L | - | 8.6 | 11.5 | 8.1 | 8.7 | 8.7 | 12.3 | 10.9 | 11.7 | 6.4 | 8.8 | 8.1 | 8.4 | 7.6 | 8.5 | | 9.5 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 | <0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 |
| Iron | mg/L | 0.3 | 0.008 | 0.066 | **1.78** | 0.039 | **37.6** | **1.24** | **0.962** | 0.017 | <0.005 | **2.09** | **2.15** | **1.9** | **1.2** | **1.81** | **1.79** | **2.01** |
| Magnesium | mg/L | - | 10.2 | 10.6 | 10.6 | 10.8 | 25.5 | 10.6 | 10.5 | 10.8 | 10.1 | 11 | 10.9 | 9.92 | 11.1 | 11.4 | 10.2 | 10.7 |
| Manganese | mg/L | - | 0.033 | 0.04 | 0.092 | 0.022 | 0.611 | 0.051 | 0.265 | 0.064 | 0.074 | 0.087 | 0.088 | 0.069 | 0.068 | 0.075 | 0.07 | 0.084 |
| Nitrate | mg/L | - | < 0.05 | < 0.05 | < 0.05 | 0.07 | < 0.05 | 0.26 | <0.05 | <0.05 | 0.07 | <0.05 | <0.05 | < 0.05 | | 0.07 | < 0.05 | < 0.05 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.05 | | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5-8.5 | 7.89 | 8.13 | 7.91 | 7.76 | 7.93 | 7.53 | 7.99 | 8.04 | 8.04 | 8.02 | 8.06 | 8.08 | | 7.93 | | 7.94 |
| Phenols | mg/L | 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.002 | | | | < 0.002 |
| Phosphorus | mg/L | 0.03 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | **2.2** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | 1.9 | 2.5 | 1.8 | 2.3 | 4.7 | 2.2 | 1.8 | 2.6 | 1.8 | 2.1 | 2 | 1.7 | 2.3 | 1.7 | 2.2 | 1.8 |
| Sodium | mg/L | - | 6.4 | 7.5 | 6.8 | 7.7 | 8.3 | 8.5 | 7.9 | 8.3 | 7.9 | 8.6 | 8.5 | 5.8 | 7.5 | 6.4 | 6.8 | 6.5 |
| Sulphate | mg/L | - | 4 | 5 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 4 | 4 | 4 | | 4 | 4 | 4 |
| TDS | mg/L | - | 343 | 373 | 378 | 384 | 781 | 363 | 368 | 366 | 372 | 378 | 375 | 341 | | 355 | | 353 |
| Tot Kjel N | mg/L | - | 2.4 | 3.5 | 4.5 | 3.5 | 0.9 | 1.3 | 1.6 | 2.2 | 2.6 | 2.6 | 1.6 | 0.4 | | 0.5 | 0.5 | 0.4 |
| Ammonia (NH3-N) | mg/L | - | 0.14 | 0.42 | 1.83 | 0.32 | 0.02 | 0.28 | 0.21 | 0.26 | 0.38 | 0.99 | 0.83 | 0.22 | | 0.16 | 0.15 | 0.14 |
| Ammonia - Unionized | mg/L | 0.02 | < 0.01 | < 0.01 | **0.08** | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.02 | 0.01 | <0.01 | <0.01 | < 0.01 | 0.01 | < 0.01 |
| Hardness (CaCO3) | mg/L | - | 347 | 369 | 366 | 369 | 1300 | 339 | 313 | 342 | 321 | 348 | 345 | 351 | 373 | 372 | 359 | 369 |
| BOD | mg/L | - | < 3 | < 3 | < 3 | < 3 | < 3 | <3 | <3 | 3 | <3 | 4 | <3 | <3 | | < 3 | | < 3 |
| Cyanide (free) | mg/L | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | | | | < 0.005 |
| TSS | mg/L | - | 23300 | 22500 | 28600 | 10800 | 10000 | 7290 | 8900 | 40400 | 7200 | 4620 | 4280 | 3 | | 14 | | < 3 |
| Aluminum | mg/L | 0.075 | 0.06 | **0.11** | **0.09** | 0.07 | **11.7** | 0.07 | 0.04 | 0.06 | 0.04 | 0.06 | **0.08** | **0.08** | **0.09** | 0.07 | 0.07 | **0.08** |
| Antimony | mg/L | 0.02 | 0.0008 | 0.0005 | < 0.0001 | 0.0004 | 0.0003 | <0.0001 | <0.0001 | <0.0001 | 0.0005 | <0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.005 | 0.0022 | < 0.0001 | < 0.0001 | 0.0001 | 0.0022 | <0.0001 | <0.0001 | 0.0004 | 0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Barium | mg/L | - | 0.211 | 0.237 | 0.209 | 0.261 | 0.435 | 0.204 | 0.176 | 0.22 | 0.214 | 0.202 | 0.205 | 0.227 | 0.23 | 0.194 | 0.208 | 0.218 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | 0.0002 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.018 | 0.023 | 0.017 | 0.022 | 0.047 | 0.019 | 0.019 | 0.02 | 0.018 | 0.024 | 0.024 | 0.019 | 0.021 | 0.021 | 0.025 | 0.02 |
| Cadmium | mg/L | 0.0005 | 0.000225 | < 0.000015 | < 0.000015 | < 0.000010 | 0.000154 | <0.000015 | <0.000015 | 0.00013 | <0.000015 | <0.000015 | <0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | **0.023** | <0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | < 0.001 | < 0.001 | < 0.001 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | |
| Cobalt | mg/L | 0.0009 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.0122** | 0.0004 | 0.0004 | **0.0042** | 0.0004 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | < 0.005 | < 0.005 | < 0.005 |
| Copper | mg/L | 0.005 | **0.0686** | 0.0039 | 0.0005 | 0.0011 | **0.0506** | 0.0007 | 0.0005 | 0.0005 | 0.0013 | 0.0005 | 0.0004 | 0.0005 | 0.0006 | 0.0005 | 0.0031 | 0.0002 |
| Lead | mg/L | 0.005 | **0.0168** | 0.00005 | 0.00003 | < 0.00002 | **0.0141** | 0.00003 | <0.00002 | 0.00014 | <0.00002 | <0.00002 | <0.00002 | 0.00006 | 0.0001 | < 0.00002 | 0.00011 | < 0.00002 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | | | < 0.00002 |
| Molybdenum | mg/L | 0.04 | < 0.0009 | 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.02 | 0.0006 | 0.0005 | 0.0039 | 0.001 | 0.0009 | 0.0009 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.004 | < 0.001 | < 0.001 | < 0.001 | 0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | **0.0009** | < 0.0001 | < 0.0001 | < 0.0001 | **0.0002** | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.432 | 0.475 | 0.45 | 0.463 | 1.02 | 0.456 | 0.444 | 0.442 | 0.427 | 0.454 | 0.452 | 0.428 | 0.506 | 0.449 | 0.453 | 0.461 |
| Thallium | mg/L | 0.0003 | **0.0004** | < 0.05 | < 0.00005 | < 0.00005 | **0.973** | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | **0.0629** | 0.0007 | 0.0006 | 0.0012 | **0.0467** | 0.0006 | 0.0005 | 0.0052 | 0.0005 | 0.0006 | 0.0006 | 0.0006 | 0.0008 | 0.0006 | 0.0007 | 0.0006 |
| Zinc | mg/L | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | **0.057** | <0.005 | <0.005 | **0.085** | <0.005 | <0.005 | <0.005 | **0.021** | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Field Temp | deg C | - | | | | | | | 7.1 | 14 | 10.5 | 14.6 | 14.6 | | | | | |
| Field pH | pH Unit | - | | | | | | | 7.96 | 7.56 | 7.27 | 7.8 | 7.8 | | | | | |
| Field Conductivity | umhos/cm | - | | | | | | | 716 | 635 | 715 | 247 | 247 | | | | | |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Wetland Perimeter Ground Wate
## Quality - General Parameters

| Parameters | Units | PWQO | WP6-F 27-Oct-21 | WP6-F 21-Apr-22 | WP6-F 24-Oct-22 | WP6-F 19-Apr-23 | WP6-F 07-Oct-24 | WP6-F 23-Apr-25 |
|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 315 | 317 | 317 | 323 | 319 | 331 |
| Calcium | mg/L | - | 126 | 128 | 128 | 124 | 129 | 120 |
| Chloride | mg/L | - | 24.8 | 38 | 38 | 28.8 | 26.5 | 30.6 |
| COD | mg/L | - | 13 | 12 | 12 | 17 | 20 | 16 |
| Specific Conductivity | umhos/cm | - | 635 | 702 | 702 | 704 | 702 | 717 |
| DOC | mg/L | - | 8.1 | 8 | 8 | 8.8 | 9.6 | 7.9 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | <0.1 | < 0.1 | <0.1 | <0.1 |
| Iron | mg/L | 0.3 | **1.16** | **0.512** | **0.512** | **2.04** | **1.94** | **2.35** |
| Magnesium | mg/L | - | 10.5 | 10.8 | 10.8 | 10.3 | 11.3 | 11.1 |
| Manganese | mg/L | - | 0.055 | 0.041 | 0.041 | 0.083 | 0.076 | 0.107 |
| Nitrate | mg/L | - | < 0.05 | 0.07 | 0.07 | < 0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | <0.05 | < 0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5-8.5 | 8.13 | 7.82 | 7.82 | 7.95 | 8.16 | 8.01 |
| Phenols | mg/L | 0.001 | | < 0.001 | < 0.001 | 0.001 | 0.001 | 0.001 |
| Phosphorus | mg/L | 0.03 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 |
| Potassium | mg/L | - | 2.1 | 2.1 | 2.1 | 1.9 | 2.5 | 1.9 |
| Sodium | mg/L | - | 7.2 | 7.6 | 7.6 | 7.6 | 9.1 | 8.7 |
| Sulphate | mg/L | - | 5 | 5 | 5 | 5 | 4 | 5 |
| TDS | mg/L | - | 365 | 382 | 382 | 373 | 376 | 378 |
| Tot Kjel N | mg/L | - | 0.5 | 0.5 | 0.5 | 0.6 | <0.1 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | 0.14 | 0.21 | 0.21 | 0.31 | 0.18 | 0.16 |
| Ammonia - Unionized | mg/L | 0.02 | < 0.01 | < 0.01 | <0.01 | 0.01 | 0.01 | <0.01 |
| Hardness (CaCO3) | mg/L | - | 358 | 364 | 364 | 352 | 369 | 345 |
| BOD | mg/L | - | < 3 | < 3 | <3 | < 3 | <3 | <3 |
| Cyanide (free) | mg/L | - | | < 0.005 | <0.005 | < 0.005 | <0.005 | <0.005 |
| TSS | mg/L | - | < 3 | 9 | 9 | 222 | 5 | 6 |
| Aluminum | mg/L | 0.075 | **0.08** | **0.08** | **0.08** | 0.04 | 0.04 | **0.08** |
| Antimony | mg/L | 0.02 | < 0.0001 | < 0.0001 | <0.0001 | 0.0002 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.005 | < 0.0001 | < 0.0001 | <0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Barium | mg/L | - | 0.213 | 0.202 | 0.202 | 0.185 | 0.209 | 0.19 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | <0.002 | < 0.002 | <0.0001 | <0.0001 |
| Boron | mg/L | - | 0.023 | 0.02 | 0.02 | 0.018 | 0.024 | 0.019 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000010 | <0.00001 | < 0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.001 | < 0.001 | < 0.001 | <0.001 | < 0.001 | <0.01 | <0.01 |
| Chromium (VI) | mg/L | 0.001 | | < 0.001 | <0.001 | < 0.001 | <0.01 | <0.01 |
| Cobalt | mg/L | 0.0009 | < 0.005 | < 0.005 | <0.005 | 0.0002 | 0.0004 | 0.0002 |
| Copper | mg/L | 0.005 | 0.0005 | 0.0005 | 0.00005 | 0.0002 | <0.0001 | 0.0004 |
| Lead | mg/L | 0.005 | < 0.00002 | < 0.00002 | <0.00002 | < 0.00002 | <0.00002 | 0.0001 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0003 | 0.0005 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | 0.465 | 0.46 | 0.46 | 0.439 | 0.492 | 0.466 |
| Thallium | mg/L | 0.0003 | < 0.05 | < 0.00005 | < 0.00005 | < 0.005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.006 | 0.0006 | 0.0004 | 0.0004 | 0.0006 | 0.0007 | 0.0008 |
| Zinc | mg/L | 0.02 | < 0.005 | < 0.005 | < 0.005 | 0.008 | <0.005 | <0.005 |
| Field Temp | deg C | - | | | | | 0 | 10.5 |
| Field pH | pH Unit | - | | | | | 0 | 7.27 |
| Field Conductivity | umhos/cm | - | | | | | 635 | 715 |

PWQO - Provincial Water Quality Objectives
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates PWQO exceedanc
Red Bold indicates CWQG exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | CWQG | SW2 29-Apr-16 | SW2-F 29-Apr-16 | SW2 24-Aug-16 | SW2-F 24-Aug-16 | SW2 04-Oct-16 | SW2-F 04-Oct-16 | SW2 18-Apr-17 | SW2-F 18-Apr-17 | SW2 20-Jul-17 | SW2-F 20-Jul-17 | SW2 24-Oct-17 | SW2 23-Apr-18 | SW2 18-Jul-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | - | 140 | -- | 185 | 187 | 187 | -- | 133 | | 183 | | 154 | 120 | 177 |
| BOD | mg/L | - | - | < 3 | -- | < 3 | < 3 | < 3 | -- | < 3 | | < 3 | | < 3 | < 3 | < 2 |
| Calcium | mg/L | - | - | 56.6 | 55.2 | 73.8 | 75.9 | 77.4 | 80.8 | 48.6 | 49 | 64.8 | 60.9 | 62.3 | 45.7 | 63.5 |
| Chloride | mg/L | - | 120 | 8.8 | -- | 10.8 | 10.4 | 11.1 | -- | 8.5 | | 7.1 | | 10.8 | 7.3 | 13.8 |
| COD | mg/L | - | - | 25 | -- | 21 | 15 | 7 | -- | 27 | | 48 | | 39 | 16 | < 5 |
| Colour | colour unit | - | - | 41 | -- | 27 | 27 | 10 | -- | 51 | | 110 | | 64 | 26 | 21 |
| Specific Conductivity | umhos/cm | - | - | 313 | -- | 425 | 427 | 438 | -- | 301 | | 388 | | 352 | 269 | 437 |
| DOC | mg/L | - | - | 9.9 | -- | 7.1 | 6.7 | 2.2 | -- | 11.7 | | 19.7 | | 18.2 | 7.1 | 4.2 |
| Fluoride | mg/L | - | - | < 0.1 | -- | < 0.1 | 0.1 | < 0.1 | -- | < 0.1 | | < 0.1 | | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | - | < 5 | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | - | 0.007 | 0.007 | 0.039 | 0.011 | 0.01 | 0.007 | 0.008 | 0.007 | 0.288 | 0.117 | 0.066 | 0.029 | 0.024 |
| Magnesium | mg/L | - | - | 4.71 | 4.57 | 5.83 | 5.96 | 6.06 | 6.32 | 3.88 | 3.8 | 5.06 | 4.73 | 5.62 | 3.66 | 4.88 |
| Manganese | mg/L | - | - | 0.004 | 0.004 | 0.032 | 0.015 | 0.019 | 0.019 | 0.003 | 0.004 | 0.65 | 0.568 | 0.042 | 0.043 | 0.034 |
| Nitrate | mg/L | - | 2.9 | 0.2 | -- | 0.4 | 0.5 | 0.6 | -- | < 0.1 | | 0.09 | | 0.22 | 0.14 | 0.4 |
| Nitrite | mg/L | - | 0.06 | < 0.1 | -- | < 0.1 | < 0.1 | < 0.1 | -- | < 0.1 | -- | < 0.05 | -- | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | - | 8.05 | -- | 8.21 | 8.23 | 8.2 | -- | 7.97 | -- | 8.24 | -- | 8.03 | 8.04 | 8.08 |
| Phenols | mg/L | 0.001 | - | 0.001 | -- | < 0.001 | < 0.001 | < 0.001 | -- | < 0.001 | -- | **0.004** | -- | **0.005** | < 0.001 | < 0.001 |
| Total Phosphorus | mg/L | 0.03 | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | **0.09** | 0.02 |
| Potassium | mg/L | - | - | 0.6 | 0.6 | 0.7 | 0.8 | 0.8 | 0.8 | 0.6 | 0.6 | 0.8 | 0.8 | 0.9 | 1 | 0.6 |
| Sodium | mg/L | - | - | 5.2 | 5 | 5.5 | 5.7 | 5.8 | 6.1 | 4.4 | 3 | 4.8 | 4.5 | 6.4 | 3.7 | 5 |
| Sulphate | mg/L | - | - | 7 | -- | 17 | 17 | 15 | -- | 10 | -- | 3 | -- | 5 | 3 | 14 |
| TDS | mg/L | - | - | 168 | -- | 226 | 230 | 232 | -- | 156 | -- | 201 | -- | 183 | 143 | 208 |
| TKN | mg/L | - | - | 0.5 | 0.6 | 0.5 | 0.4 | 0.4 | -- | 0.4 | -- | 0.7 | -- | 0.7 | 0.3 | 0.3 |
| Ammonia (NH3-N) | mg/L | - | - | 0.03 | 0.09 | 0.04 | 0.03 | 0.08 | -- | 0.02 | -- | 0.05 | -- | 0.04 | 0.03 | 0.05 |
| Total Suspended Solids | mg/L | - | - | < 3 | -- | 8 | < 3 | < 3 | -- | < 3 | -- | 10 | -- | < 3 | < 3 | < 3 |
| Turbidity | ntu | - | - | 0.3 | -- | 3.7 | 0.5 | 0.7 | -- | 0.3 | -- | 2.2 | -- | 1.3 | 0.6 | 1.1 |
| Hardness (CaCO3) | mg/L | - | - | 161 | 157 | 208 | 214 | 224 | 224 | 161 | -- | 183 | 172 | 173 | 129 | 179 |
| Unionized Ammonia | mg/L | 0.02 | - | 0.0018772 | 0.0056 | 0.0008 | 0.0006 | 0.0021 | - | 0.0001 | - | 0.0017 | - | 0.0004 | 0.0006 | 0.0001 |
| Aluminum | mg/L | 0.075 | - | 0.02 | 0.02 | 0.03 | 0.02 | 0.04 | 0.02 | -- | 0.02 | -- | 0.04 | 0.04 | 0.03 | 0.05 |
| Antimony | mg/L | 0.02 | - | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 |
| Arsenic | mg/L | 0.005 | - | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | < 0.0001 | 0.0002 | 0.001 | 0.001 | 0.0002 | 0.0003 | 0.0004 | 0.0002 |
| Barium | mg/L | - | - | 0.016 | 0.016 | 0.043 | 0.044 | 0.046 | 0.047 | 0.018 | 0.033 | 0.032 | 0.016 | 0.043 | 0.015 | 0.035 |
| Beryllium | mg/L | 1.1 | - | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 1.5 | < 0.005 | < 0.005 | 0.008 | 0.008 | < 0.005 | < 0.005 | 0.008 | 0.006 | 0.007 | 0.007 | 0.009 | < 0.005 | 0.007 |
| Cadmium | mg/L | 0.0005 | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00002 | < 0.000014 | < 0.000014 | 0.000085 | < 0.000014 | 0.000023 | < 0.000014 | < 0.000015 |
| Chromium (total) | mg/L | 0.002 | - | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0004 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | - | | | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 |
| Copper | mg/L | 0.005 | - | 0.0001 | 0.0004 | 0.0002 | 0.0004 | < 0.0001 | 0.0001 | 0.0009 | < 0.0001 | **0.0081** | < 0.0001 | 0.0032 | 0.0006 | 0.0006 |
| Lead | mg/L | 0.005 | - | < 0.00002 | < 0.00002 | 0.00006 | < 0.00002 | < 0.00002 | 0.00006 | < 0.00002 | 0.00006 | 0.00069 | < 0.00002 | 0.00024 | 0.00004 | 0.0002 |
| Mercury | mg/L | 0.0002 | - | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | -- | -- | < 0.00002 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | - | < 0.0001 | < 0.0001 | 0.0002 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | 0.0002 | 0.0003 | < 0.0001 | 0.0001 | 0.0001 | 0.0002 |
| Nickel | mg/L | 0.025 | - | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | - | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | - | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00004 | < 0.00002 | < 0.00002 | < 0.0001 |
| Strontium | mg/L | - | - | 0.145 | 0.141 | 0.177 | 0.178 | 0.183 | 0.192 | 0.113 | 0.176 | 0.166 | 0.111 | 0.17 | 0.102 | 0.137 |
| Thallium | mg/L | 0.0003 | - | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | - | 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | < 0.0001 | 0.0002 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 |
| Zinc | mg/L | 0.02 | - | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.007 | < 0.005 | < 0.005 | **0.056** | 0.005 | 0.005 |
| Field pH | pH unit | - | - | 8.66 | 8.66 | 7.6 | 7.6 | 8.08 | 8.08 | 7.34 | 7.34 | 7.87 | 7.87 | 7.64 | 8.25 | 6.57 |
| Field Temp | deg C | - | - | 6.9 | 6.9 | 23.2 | 23.2 | 12.4 | 12.4 | 6.9 | 6.9 | 22.5 | 22.5 | 13.4 | 3 | 21.6 |
| Field Conductivity | us/cm | - | - | 260 | 260 | 398.4 | 398.4 | 410 | 410 | 305 | 305 | 370 | 370 | 246 | 280 | 392 |
| Dissolved Oxygen | mg/L | - | - | 8.8 | 8.8 | 7.92 | 7.92 | 6.73 | 6.73 | 9.04 | 9.04 | 4.24 | 4.24 | 6.87 | 5.28 | 3.23 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW2-F 18-Jul-18 | SW2 16-Oct-18 | SW2-F 16-Oct-18 | SW2 12-Apr-19 | SW2 08-Jul-19 | SW2 22-Oct-19 | SW2 23-Apr-20 | SW2 20-Jul-20 | SW2 20-Oct-20 | SW2 20-Apr-21 | SW2 19-Jul-21 | SW2 28-Oct-21 | SW2 21-Apr-22 | SW2 20-Jul-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | | 175 | | 129 | 182 | 164 | 140 | 176 | 162 | 138 | 179 | 152 | 129 | 185 |
| BOD | mg/L | - | | 3 | | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Calcium | mg/L | - | 73.8 | 74.5 | 72.3 | 56.9 | 77 | 71.3 | 64.2 | 80.7 | 72.9 | 56.6 | 69.7 | 66 | 46.9 | 70.8 |
| Chloride | mg/L | - | | 12.9 | | 8.5 | 10.5 | 11.8 | 9.1 | 10.9 | 12.3 | 11.2 | 11.6 | 13.7 | 9.2 | 9.5 |
| COD | mg/L | - | | 22 | | 22 | 30 | 9 | 23 | 22 | 35 | 28 | 50 | 44 | 15 | 28 |
| Colour | colour unit | - | | 24 | | 31 | 48 | 24 | 32 | 41 | 41 | 51 | 80 | 61 | 37 | 54 |
| Specific Conductivity | umhos/cm | - | | 412 | | 305 | 400 | 396 | 307 | 397 | 367 | 308 | 369 | 351 | 299 | 375 |
| DOC | mg/L | - | | 7 | | 9.7 | 10.2 | 6.4 | 8.6 | 8.2 | 10.2 | 16.1 | 21.7 | 19 | 11 | 15.6 |
| Fluoride | mg/L | - | | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | 0.019 | 0.092 | 0.073 | 0.052 | 0.041 | 0.034 | 0.048 | 0.072 | 0.272 | 0.027 | 0.046 | 0.03 | 0.009 | 0.049 |
| Magnesium | mg/L | - | 5.45 | 7.3 | 6.89 | 4.46 | 5.78 | 5.56 | 5.89 | 6.91 | 5.34 | 4.51 | 5.3 | 5.21 | 3.97 | 5.3 |
| Manganese | mg/L | - | 0.037 | 0.033 | 0.017 | 0.024 | 0.026 | 0.018 | 0.019 | 0.046 | 0.061 | 0.008 | 0.03 | 0.003 | 0.004 | 0.027 |
| Nitrate | mg/L | - | | 0.54 | | 0.19 | 0.43 | 0.56 | 0.33 | 0.09 | 0.14 | < 0.05 | 0.12 | < 0.05 | 0.11 | 0.17 |
| Nitrite | mg/L | - | | < 0.05 | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | | 8.07 | | 7.97 | 8.16 | 8.04 | 7.8 | 8.16 | 7.91 | 8.01 | 8.03 | 7.74 | 7.31 | 8.01 |
| Phenols | mg/L | 0.001 | | < 0.002 | | < 0.002 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Total Phosphorus | mg/L | 0.03 | | 0.01 | | < 0.01 | 0.02 | 0.03 | 0.01 | **0.04** | 0.01 | **0.05** | 0.02 | 0.02 | 0.01 | 0.02 |
| Potassium | mg/L | - | 0.7 | 1.1 | 1 | 1.2 | 0.7 | 1.2 | 0.9 | 1.1 | 1 | 0.6 | 0.5 | 0.9 | 0.7 | 0.5 |
| Sodium | mg/L | - | 5.5 | 7.6 | 6.9 | 5.6 | 4.8 | 5.4 | 5.3 | 6.3 | 7.6 | 5.5 | 5.3 | 6 | 3.4 | 5.2 |
| Sulphate | mg/L | - | | 11 | | 6 | 7 | 16 | 11 | 9 | 8 | 6 | 3 | 2 | 6 | 6 |
| TDS | mg/L | - | | 219 | | 160 | 215 | 219 | 181 | 220 | 200 | 167 | 204 | 185 | 148 | 212 |
| TKN | mg/L | - | | 0.4 | | 0.4 | 0.3 | 0.3 | 0.3 | 0.6 | 0.8 | 0.4 | 0.7 | 0.6 | 0.4 | 1.1 |
| Ammonia (NH3-N) | mg/L | - | | 0.05 | | 0.08 | 0.08 | 0.03 | 0.01 | 0.04 | 0.02 | 0.03 | 0.04 | 0.08 | 0.22 | 0.53 |
| Total Suspended Solids | mg/L | - | | 3 | | < 3 | 3 | < 3 | < 3 | 14 | 21 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Turbidity | ntu | - | | 1.4 | | 1.1 | 1.4 | 9 | 0.9 | 1.9 | 1.7 | 1 | 0.7 | 0.5 | 0.3 | 1.5 |
| Hardness (CaCO3) | mg/L | - | 207 | 216 | 209 | 161 | 219 | 201 | 164 | 213 | 204 | 160 | 199 | 192 | 134 | 199 |
| Unionized Ammonia | mg/L | 0.02 | | 0.0006 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0100 |
| Aluminum | mg/L | 0.075 | 0.05 | 0.06 | 0.05 | 0.04 | 0.05 | 0.06 | 0.03 | 0.05 | 0.01 | < 0.01 | 0.04 | 0.04 | < 0.01 | 0.04 |
| Antimony | mg/L | 0.02 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 0.0004 | 0.0003 | 0.0002 | 0.0002 | < 0.0001 | 0.0002 | 0.0005 | < 0.0001 | 0.0002 | 0.0003 |
| Arsenic | mg/L | 0.005 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0003 | 0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0002 |
| Barium | mg/L | - | 0.041 | 0.059 | 0.05 | 0.02 | 0.042 | 0.04 | 0.035 | 0.057 | 0.039 | 0.019 | 0.036 | 0.024 | 0.016 | 0.039 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.007 | 0.012 | 0.009 | 0.007 | 0.01 | 0.01 | 0.006 | 0.012 | 0.006 | 0.005 | 0.01 | 0.008 | < 0.005 | < 0.005 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | 0.000024 | 0.000036 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.002 | < 0.001 | 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | | | | < 0.001 | < 0.001 |
| Cobalt | mg/L | 0.0009 | 0.0003 | < 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Copper | mg/L | 0.005 | 0.0001 | **0.0052** | 0.0049 | 0.0006 | 0.0006 | 0.0003 | 0.0002 | 0.0002 | 0.0009 | 0.0002 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 |
| Lead | mg/L | 0.005 | < 0.00002 | 0.00032 | 0.00025 | 0.00009 | 0.00003 | 0.00006 | < 0.00002 | 0.00012 | 0.0004 | < 0.00002 | 0.00002 | < 0.00002 | 0.00002 | 0.00002 |
| Mercury | mg/L | 0.0002 | | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0022 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.153 | 0.217 | 0.201 | 0.13 | 0.18 | 0.17 | 0.165 | 0.204 | 0.148 | 0.133 | 0.175 | 0.153 | 0.112 | 0.173 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | < 0.0001 | 0.0003 | 0.0002 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | 0.0001 |
| Zinc | mg/L | 0.02 | < 0.005 | **0.028** | 0.01 | 0.008 | **0.04** | 0.01 | 0.014 | 0.007 | **0.021** | 0.012 | < 0.005 | 0.008 | < 0.005 | 0.006 |
| Field pH | pH unit | - | | 7.79 | | 7.4 | 7.46 | 7.98 | 7.84 | 7.56 | 7.85 | 7.15 | 6.96 | 8.1 | 8.26 | 7.7 |
| Field Temp | deg C | - | | 10.6 | | 4.3 | 19.5 | 9.8 | 5 | 28 | 7.5 | 5.8 | 23 | 6.2 | 6.3 | 25 |
| Field Conductivity | us/cm | - | | 365 | | 310 | 359 | 340 | 330 | 414 | 325 | 410 | 358 | 335 | 260 | 320 |
| Dissolved Oxygen | mg/L | - | | 11.25 | | 13 | 10.76 | 7.8 | 9.82 | 4.9 | 7.63 | 16.22 | 4.22 | 6.21 | 8.82 | 2.92 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW2 24-Oct-22 | SW2 20-Apr-23 | SW2 30-Aug-23 | SW2 12-Oct-23 | SW2 18-Apr-24 | SW2 11-Jul-24 | SW2 07-Oct-24 | SW2 22-Apr-25 | SW2 30-Sep-25 | SW3 29-Apr-16 | SW3-F 29-Apr-16 | SW3 24-Aug-16 | SW3-F 24-Aug-16 | SW3 04-Oct-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 164 | 139 | 191 | 159 | 161 | 137 | 191 | 134 | 199 | 140 | -- | 185 | 186 | 200 |
| BOD | mg/L | - | < 3 | < 3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | < 3 | -- | < 3 | < 3 | < 3 |
| Calcium | mg/L | - | 65.5 | 53.6 | 68.1 | 57.7 | 57.9 | 48.8 | 70.4 | 52.4 | 77.9 | 57.5 | 56.6 | 74.7 | 73.1 | 82 |
| Chloride | mg/L | - | 18.3 | 8 | 11.2 | 9.5 | 8.1 | 6.2 | 10.8 | 10.1 | 11.2 | 10 | -- | 10.4 | 10.3 | 12.6 |
| COD | mg/L | - | 23 | 20 | 37 | 47 | 32 | 54 | 24 | 25 | <5 | 26 | -- | 28 | 36 | 28 |
| Colour | colour unit | - | 39 | 41 | 51 | 67 | 43 | 100 | 31 | 34 | 5 | 45 | -- | 54 | 50 | 38 |
| Specific Conductivity | umhos/cm | - | 376 | 317 | 406 | 330 | 324 | 281 | 398 | 294 | 443 | 317 | -- | 419 | 421 | 450 |
| DOC | mg/L | - | 16.2 | 6.6 | 13.5 | 22.9 | 13 | 19.8 | 10.7 | 9.4 | 2.1 | 11.3 | -- | 14.7 | 14.2 | 8.8 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | -- | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 5 | -- | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | 0.028 | 0.019 | 0.119 | 0.036 | 0.019 | 0.07 | 0.019 | 0.036 | 0.011 | 0.041 | 0.032 | 0.141 | 0.109 | **0.461** |
| Magnesium | mg/L | - | 5.44 | 4.14 | 5.52 | 4.75 | 4.47 | 3.58 | 5.71 | 4.39 | 6.19 | 4.21 | 4.15 | 5.62 | 5.56 | 6.33 |
| Manganese | mg/L | - | 0.005 | 0.008 | 0.198 | 0.012 | 0.007 | 0.026 | 0.014 | 0.013 | 0.015 | 0.011 | 0.011 | 0.062 | 0.066 | 0.21 |
| Nitrate | mg/L | - | 0.4 | 0.12 | <0.05 | 0.09 | 0.26 | <0.05 | 0.25 | 0.13 | 0.82 | 0.1 | -- | < 0.1 | 0.1 | < 0.1 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | -- | < 0.1 | < 0.1 | < 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | 8 | 7.78 | 7.9 | 8.08 | 7.98 | 7.08 | 8.07 | 8.01 | 8.03 | 8.02 | -- | 8.08 | 8.14 | 7.95 |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | **0.002** | -- | < 0.001 | < 0.001 | 0.001 |
| Total Phosphorus | mg/L | 0.03 | < 0.01 | < 0.01 | <0.1 | <0.1 | 0.03 | **0.04** | 0.01 | 0.02 | 0.02 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | 0.7 | 0.9 | 1.6 | 1.6 | 1 | 1 | 1.1 | 1.2 | 0.8 | 0.7 | 0.7 | 0.4 | 0.4 | 1 |
| Sodium | mg/L | - | 5.1 | 3.6 | 5.4 | 4.6 | 3.5 | 3.3 | 4.7 | 4.6 | 5.1 | 6.6 | 6.6 | 5.8 | 5.7 | 7 |
| Sulphate | mg/L | - | 10 | 6 | 8 | 4 | 7 | 1 | 7 | 6 | 14 | 7 | -- | 17 | 16 | 10 |
| TDS | mg/L | - | 204 | 160 | 215 | 180 | 180 | 147 | 217 | 160 | 238 | 170 | -- | 225 | 224 | 239 |
| TKN | mg/L | - | 0.4 | 0.5 | 3 | 1.6 | 0.5 | 0.7 | 1 | 0.6 | 0.4 | 0.5 | 0.6 | 0.7 | 0.6 | 0.6 |
| Ammonia (NH3-N) | mg/L | - | 0.05 | 0.1 | 0.06 | 1.31 | 0.07 | <0.05 | 0.5 | 0.07 | 0.3 | 0.03 | 0.04 | 0.04 | 0.03 | 0.04 |
| Total Suspended Solids | mg/L | - | 4 | < 3 | <3 | 7 | 3 | 4 | <3 | 4 | 4 | 3 | -- | 16 | < 3 | 4 |
| Turbidity | ntu | - | 0.4 | 0.4 | 0.7 | 0.4 | 0.5 | 1.1 | 0.7 | 0.4 | 0.8 | 1 | -- | 2.4 | 0.6 | 2.3 |
| Hardness (CaCO3) | mg/L | - | 200 | 156 | 193 | 164 | 163 | 137 | 199 | 149 | 220 | 161 | 159 | 210 | 206 | 232 |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | < 0.01 | <0.01 | 0.0100 | <0.01 | <0.01 | <0.01 | <0.01 | **0.0500** | 0.0010 | 0.0013 | 0.0003 | 0.0002 | 0.0004 |
| Aluminum | mg/L | 0.075 | 0.04 | 0.01 | 0.02 | 0.04 | 0.03 | 0.03 | 0.05 | 0.02 | 0.04 | 0.02 | 0.02 | 0.03 | 0.02 | 0.03 |
| Antimony | mg/L | 0.02 | 0.0003 | 0.0003 | 0.0004 | <0.0001 | <0.0001 | 0.0006 | 0.0004 | 0.0002 | 0.0004 | < 0.0001 | < 0.0001 | 0.0006 | 0.0003 | < 0.0001 |
| Arsenic | mg/L | 0.005 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0001 | <0.0001 | 0.0002 | 0.0002 | 0.0004 | 0.0004 | 0.0003 |
| Barium | mg/L | - | 0.029 | 0.021 | 0.038 | 0.026 | 0.022 | 0.023 | 0.033 | 0.02 | 0.048 | 0.019 | 0.018 | 0.04 | 0.04 | 0.046 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | < 0.005 | 0.006 | 0.007 | 0.007 | 0.009 | 0.011 | 0.006 | 0.008 | 0.012 | < 0.005 | < 0.005 | 0.009 | 0.009 | < 0.005 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Chromium (total) | mg/L | 0.002 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0004 |
| Chromium (VI) | mg/L | 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | | | | |
| Cobalt | mg/L | 0.0009 | < 0.0001 | < 0.0001 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0003 | <0.0001 | 0.0001 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.0001 |
| Copper | mg/L | 0.005 | 0.0002 | 0.0001 | 0.0003 | 0.0004 | 0.0005 | 0.0003 | <0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0004 | 0.0002 | 0.0003 | < 0.0001 |
| Lead | mg/L | 0.005 | 0.00004 | 0.00004 | 0.00005 | 0.00005 | 0.00004 | 0.00004 | <0.00002 | <0.00002 | 0.00006 | 0.00002 | < 0.00002 | 0.00003 | 0.00002 | 0.00014 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | < 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | <0.0001 | 0.0001 | <0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | < 0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | <0.0002 | 0.0005 | 0.0007 | 0.0006 | <0.0002 | 0.0006 | 0.0005 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | 0.16 | 0.127 | 0.167 | 0.141 | 0.139 | 0.124 | 0.168 | 0.125 | 0.171 | 0.147 | 0.141 | 0.192 | 0.186 | 0.229 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | < 0.0001 | < 0.0001 | <0.0001 | 0.0001 | <0.0001 | 0.0001 | 0.0001 | <0.0001 | 0.0003 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 |
| Zinc | mg/L | 0.02 | 0.008 | < 0.005 | 0.013 | <0.005 | 0.01 | <0.005 | <0.005 | 0.02 | <0.005 | < 0.005 | < 0.005 | 0.011 | < 0.005 | < 0.005 |
| Field pH | pH unit | - | 8 | 7.9 | 7.28 | 7.68 | 8.14 | 7.65 | 7.74 | 7.15 | 8.78 | 8.39 | 8.39 | 7.18 | 7.18 | 7.64 |
| Field Temp | deg C | - | 9.8 | 10.4 | 17.7 | 11.6 | 7.8 | 20.1 | 14 | 10.9 | 16.2 | 6 | 6 | 20.6 | 20.6 | 14.3 |
| Field Conductivity | us/cm | - | 320 | 260 | 408 | 301 | 327 | 315 | 400 | 250 | 188 | 265 | 265 | 400.3 | 400.3 | 425 |
| Dissolved Oxygen | mg/L | - | 5.6 | 8.65 | 1.82 | 4.3 | 2.4 | 1.5 | 6.17 | 6.29 | 3.99 | 8.27 | 8.27 | 2.4 | 2.4 | 2.97 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW3-F 04-Oct-16 | SW3 18-Apr-17 | SW3-F 18-Apr-17 | SW3 20-Jul-17 | SW3-F 20-Jul-17 | SW3 24-Oct-17 | SW3 24-Apr-18 | SW3 18-Jul-18 | SW3-F 18-Jul-18 | SW3 16-Oct-18 | SW3-F 16-Oct-18 | SW3 12-Apr-19 | SW3 08-Jul-19 | SW3 22-Oct-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | -- | 146 | | 201 | | 178 | 113 | 187 | | 171 | | 125 | 183 | 157 |
| BOD | mg/L | - | -- | < 3 | | < 3 | | 4 | < 3 | < 2 | | 3 | | < 3 | < 3 | < 3 |
| Calcium | mg/L | - | 79.2 | 53.7 | 53.8 | 77.5 | 72.6 | 70.8 | 45.8 | 81.1 | 77.3 | 70.1 | 74.3 | 54.8 | 80 | 66.9 |
| Chloride | mg/L | - | -- | 12.5 | | 8.7 | | 11.4 | 8.5 | 14 | | 13.5 | | 11 | 11 | 13.2 |
| COD | mg/L | - | -- | 31 | | 61 | | 129 | 19 | 17 | | 22 | | 32 | 45 | 28 |
| Colour | colour unit | - | -- | 60 | | 80 | | 68 | 32 | 44 | | 36 | | 43 | 74 | 37 |
| Specific Conductivity | umhos/cm | - | -- | 336 | | 428 | | 394 | 254 | 434 | | 409 | | 300 | 404 | 389 |
| DOC | mg/L | - | -- | 14.2 | | 22.3 | | 22 | 7 | 8.5 | | 9.4 | | 10.8 | 16.4 | 9.4 |
| Fluoride | mg/L | - | -- | < 0.1 | | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | 0.244 | 0.058 | 0.052 | **0.772** | **0.447** | **0.401** | 0.059 | **0.6** | 0.245 | 0.195 | 0.162 | 0.177 | 0.298 | 0.229 |
| Magnesium | mg/L | - | 6.17 | 3.55 | 3.55 | 6.11 | 5.08 | 5.93 | 3.23 | 6.28 | 5.69 | 7.12 | 7.4 | 3.68 | 5.92 | 5.34 |
| Manganese | mg/L | - | 0.195 | 0.007 | 0.007 | 0.509 | 0.428 | 0.122 | 0.015 | 0.26 | 0.165 | 0.035 | 0.042 | 0.021 | 0.065 | 0.035 |
| Nitrate | mg/L | - | -- | < 0.1 | | < 0.05 | | 0.1 | 0.21 | < 0.05 | | 0.27 | | 0.06 | 0.14 | 0.29 |
| Nitrite | mg/L | - | -- | < 0.1 | -- | < 0.05 | -- | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | -- | 7.95 | -- | 8.05 | -- | 7.79 | 8 | 8 | | 8 | | 7.98 | 7.97 | 7.99 |
| Phenols | mg/L | 0.001 | -- | < 0.001 | -- | **0.006** | -- | **0.005** | < 0.001 | < 0.001 | | **0.002** | | < 0.002 | < 0.002 | < 0.001 |
| Total Phosphorus | mg/L | 0.03 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | **0.1** | 0.02 | **0.08** | | 0.01 | | 0.02 | **0.06** | **0.07** |
| Potassium | mg/L | - | 1 | 0.8 | 0.8 | 1 | 0.9 | 1.7 | 1 | 0.8 | 0.7 | 1.3 | 1.3 | 1.4 | 0.7 | 2 |
| Sodium | mg/L | - | 6.9 | 6.4 | 6.4 | 7.3 | 6.3 | 7.6 | 4.8 | 6.3 | 6 | 7.5 | 7.9 | 6.7 | 6.2 | 5.7 |
| Sulphate | mg/L | - | -- | 9 | -- | 2 | -- | 4 | 3 | 7 | | 10 | | 5 | 3 | 16 |
| TDS | mg/L | - | -- | 174 | -- | 219 | -- | 209 | 137 | 229 | | 212 | | 158 | 218 | 211 |
| TKN | mg/L | - | -- | 0.6 | -- | 0.9 | -- | 1.1 | 0.4 | 0.7 | | 0.4 | | 0.6 | 0.9 | 0.6 |
| Ammonia (NH3-N) | mg/L | - | -- | 0.03 | -- | 0.09 | -- | 0.03 | 0.02 | 0.07 | | 0.05 | | 0.07 | 0.1 | 0.05 |
| Total Suspended Solids | mg/L | - | -- | < 3 | -- | 10 | -- | 100 | < 3 | < 3 | | 3 | | < 3 | 4 | 104 |
| Turbidity | ntu | - | -- | 0.4 | -- | 2.3 | -- | 17.5 | 1.3 | 2.8 | | 2.9 | | 0.8 | 2.4 | 2.9 |
| Hardness (CaCO3) | mg/L | - | 232 | 172 | -- | 219 | 202 | 192 | 128 | 229 | 217 | 205 | 216 | 150 | 218 | 189 |
| Unionized Ammonia | mg/L | 0.02 | -- | 0.0001 | -- | 0.0019 | - | 0.0001 | 0.0003 | 0.0001 | | 0.0003 | | < 0.01 | < 0.01 | < 0.01 |
| Aluminum | mg/L | 0.075 | 0.02 | 0.04 | -- | 0.03 | -- | 0.05 | 0.04 | 0.06 | 0.05 | 0.05 | 0.05 | 0.04 | 0.06 | 0.05 |
| Antimony | mg/L | 0.02 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | 0.0003 | < 0.0001 |
| Arsenic | mg/L | 0.005 | 0.0003 | 0.0003 | 0.0002 | 0.001 | 0.001 | 0.0005 | 0.0003 | 0.0006 | 0.0005 | 0.0002 | 0.0002 | 0.0002 | 0.0005 | 0.0002 |
| Barium | mg/L | - | 0.044 | 0.019 | 0.02 | 0.052 | 0.041 | 0.073 | 0.018 | 0.052 | 0.041 | 0.045 | 0.048 | 0.019 | 0.042 | 0.036 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | < 0.005 | 0.012 | 0.014 | 0.009 | 0.009 | 0.011 | < 0.005 | 0.018 | 0.011 | 0.01 | 0.01 | 0.008 | 0.011 | 0.011 |
| Cadmium | mg/L | 0.0005 | 0.00002 | < 0.000014 | < 0.000014 | < 0.000014 | 0.000083 | 0.000014 | < 0.000014 | 0.000107 | < 0.000015 | 0.000032 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Chromium (total) | mg/L | 0.002 | 0.0009 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 0.0003 | < 0.0001 | < 0.0001 | 0.0004 | 0.0003 | < 0.0001 | < 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| Copper | mg/L | 0.005 | < 0.0001 | < 0.0001 | 0.0016 | 0.0002 | **0.0063** | 0.0025 | 0.0006 | 0.0026 | 0.0003 | 0.0041 | 0.0006 | 0.0024 | 0.0003 | 0.0009 |
| Lead | mg/L | 0.005 | 0.00008 | < 0.00002 | 0.00002 | 0.00006 | 0.00038 | 0.00028 | 0.00009 | 0.00092 | 0.00008 | 0.00025 | 0.00002 | 0.00088 | 0.00002 | 0.00029 |
| Mercury | mg/L | 0.0002 | -- | < 0.00002 | -- | < 0.00002 | -- | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0001 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.00002 | 0.00003 | < 0.00002 | 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.223 | 0.125 | 0.124 | 0.23 | 0.197 | 0.204 | 0.103 | 0.201 | 0.188 | 0.218 | 0.229 | 0.123 | 0.209 | 0.172 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0002 | 0.0001 | 0.0003 | 0.0002 | 0.0002 | < 0.0001 | 0.0003 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0003 |
| Zinc | mg/L | 0.02 | < 0.005 | < 0.005 | < 0.005 | **0.037** | < 0.005 | **0.025** | 0.009 | **0.04** | < 0.005 | 0.016 | 0.01 | 0.009 | 0.011 | 0.008 |
| Field pH | pH unit | - | 7.64 | 7.24 | 7.24 | 7.7 | 7.7 | 7.06 | 8.17 | 6.36 | | 7.55 | | 7.46 | 7.48 | 7.85 |
| Field Temp | deg C | - | 14.3 | 6.1 | 6.1 | 21.5 | 21.5 | 14 | 3.7 | 21.5 | | 7 | | 2.5 | 19.1 | 9.8 |
| Field Conductivity | us/cm | - | 425 | 267 | 267 | 339 | 339 | 356 | 272 | 405 | | 350 | | 300 | 362 | 330 |
| Dissolved Oxygen | mg/L | - | 2.97 | 6.15 | 6.15 | 0.193 | 0.193 | 1.97 | 6.24 | 0.56 | | 5.23 | | 15.27 | 6.06 | 5.51 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW3 23-Apr-20 | SW3 20-Jul-20 | SW3 20-Oct-20 | SW3 20-Apr-21 | SW3 19-Jul-21 | SW3 28-Oct-21 | SW3 21-Apr-22 | SW3 21-Apr-22 | SW3 20-Jul-22 | SW3 24-Oct-22 | SW3 20-Apr-23 | SW3 30-Aug-23 | SW3 12-Oct-23 | SW3 18-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 124 | 144 | 159 | 147 | 178 | 171 | 157 | 155 | 180 | 165 | 160 | 215 | 164 | 181 |
| BOD | mg/L | - | < 3 | 4 | < 3 | < 3 | < 6 | < 6 | < 3 | < 3 | < 3 | < 3 | < 3 | <3 | <3 | <3 |
| Calcium | mg/L | - | 64.2 | 84.6 | 78.4 | 60.7 | 74.3 | 76.8 | 60.2 | 58 | 70.1 | 64.6 | 61.8 | 70.6 | 55.5 | 71.2 |
| Chloride | mg/L | - | 13.5 | 11.4 | 15.8 | 15.7 | 12.5 | 19.9 | 17.3 | 16.4 | 13.5 | 25.5 | 12.9 | 13.3 | 12.9 | 14.8 |
| COD | mg/L | - | 28 | 36 | 31 | 37 | 63 | 56 | 21 | 28 | 38 | 38 | 156 | 54 | 58 | 33 |
| Colour | colour unit | - | 44 | 55 | 46 | 68 | 106 | 81 | 49 | 49 | 70 | 53 | 63 | 88 | 68 | 56 |
| Specific Conductivity | umhos/cm | - | 315 | 448 | 375 | 342 | 366 | 406 | 360 | 359 | 382 | 387 | 361 | 443 | 351 | 390 |
| DOC | mg/L | - | 10.9 | 13.3 | 14.6 | 18.2 | 25.3 | 23.9 | 14 | 13.7 | 19.7 | 18.3 | 16.9 | 24.8 | 23.1 | 13.8 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 |
| Iron | mg/L | 0.3 | 0.149 | **1.81** | **2.95** | 0.188 | **0.488** | **0.609** | 0.093 | 0.1 | 0.169 | 0.17 | 0.066 | **0.397** | 0.121 | 0.086 |
| Magnesium | mg/L | - | 5.21 | 6.67 | 5.65 | 4.22 | 5.23 | 5.5 | 4.39 | 4.26 | 4.95 | 5.01 | 4.28 | 5.29 | 4.39 | 4.72 |
| Manganese | mg/L | - | 0.024 | 1.02 | 1.55 | 0.018 | 0.138 | 0.18 | 0.01 | 0.009 | 0.029 | 0.033 | 0.008 | 0.124 | 0.019 | 0.009 |
| Nitrate | mg/L | - | 0.19 | **12.9** | < 0.05 | < 0.05 | 0.08 | < 0.05 | < 0.05 | < 0.05 | 0.06 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.84 | 7.46 | 7.91 | 8.02 | 7.98 | 7.61 | 7.58 | 7.59 | 7.97 | 8.04 | 7.88 | 7.42 | 8.02 | 8.05 |
| Phenols | mg/L | 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Total Phosphorus | mg/L | 0.03 | **0.06** | **0.24** | 0.02 | **0.17** | **0.06** | **0.1** | **0.05** | 0.03 | 0.03 | 0.02 | < 0.01 | <0.1 | <0.1 | 0.01 |
| Potassium | mg/L | - | 0.8 | 1 | 1.6 | 0.8 | 0.5 | 2 | 1.3 | 1.2 | 0.4 | 0.9 | 1.3 | 1.6 | 1.8 | 1.2 |
| Sodium | mg/L | - | 8 | 6.1 | 6 | 7.8 | 7.3 | 9.1 | 7.3 | 7 | 7.1 | 7.6 | 7 | 7 | 6 | 8.2 |
| Sulphate | mg/L | - | 10 | 4 | 8 | 7 | 2 | < 1 | 4 | 4 | 5 | 4 | 3 | 3 | 4 | 4 |
| TDS | mg/L | - | 176 | 203 | 204 | 185 | 204 | 217 | 189 | 184 | 213 | 206 | 186 | 230 | 183 | 213 |
| TKN | mg/L | - | 0.8 | 1.7 | 0.7 | 2.2 | 1 | 1.2 | 0.7 | 0.5 | 1.2 | 0.7 | 0.8 | 0.8 | 0.6 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | 0.03 | 0.09 | 0.03 | 0.03 | 0.05 | 0.07 | 0.08 | 0.07 | 0.5 | 0.03 | 0.27 | <0.05 | 0.09 | 0.05 |
| Total Suspended Solids | mg/L | - | 9 | 8 | 13 | < 3 | 18 | 17 | 33 | 6 | 3 | 5 | < 3 | <3 | 7 | <3 |
| Turbidity | ntu | - | 2.1 | 5.7 | 1.8 | 1.7 | 5.1 | 1.4 | 1 | 0.7 | 1.7 | 1.4 | 1.2 | 0.9 | 1.1 | 0.8 |
| Hardness (CaCO3) | mg/L | - | 160 | 221 | 219 | 169 | 196 | 213 | 169 | 163 | 196 | 196 | 172 | 198 | 157 | 197 |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.01 | <0.01 | <0.01 |
| Aluminum | mg/L | 0.075 | 0.03 | 0.05 | 0.02 | < 0.01 | 0.05 | 0.06 | 0.02 | 0.01 | 0.04 | 0.04 | 0.02 | 0.03 | 0.04 | 0.06 |
| Antimony | mg/L | 0.02 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0005 | 0.0004 | 0.0003 | 0.0002 | 0.0004 | 0.0002 | 0.0005 | 0.0004 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.005 | 0.0002 | 0.0011 | 0.0008 | 0.0003 | 0.0007 | 0.0004 | 0.0002 | 0.0002 | 0.0004 | 0.0003 | 0.0002 | 0.0007 | 0.0003 | 0.0002 |
| Barium | mg/L | - | 0.031 | 0.068 | 0.106 | 0.022 | 0.044 | 0.032 | 0.021 | 0.02 | 0.039 | 0.04 | 0.022 | 0.04 | 0.024 | 0.026 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | - | 0.008 | 0.013 | 0.011 | 0.008 | 0.013 | 0.037 | < 0.005 | < 0.005 | 0.006 | < 0.005 | 0.005 | 0.007 | 0.008 | 0.005 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000015 | 0.000023 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | <0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.002 | 0.001 | < 0.001 | 0.002 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0009 | < 0.0001 | 0.0003 | 0.0008 | 0.0003 | 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0003 | 0.0002 | 0.0001 |
| Copper | mg/L | 0.005 | 0.0004 | 0.0003 | 0.0016 | 0.0004 | 0.0005 | 0.0004 | 0.0005 | 0.0004 | 0.0002 | 0.0003 | 0.0004 | 0.0001 | 0.0004 | 0.0006 |
| Lead | mg/L | 0.005 | 0.00012 | 0.00026 | 0.00048 | 0.00008 | 0.00024 | 0.00011 | 0.00005 | 0.00005 | 0.00004 | 0.00002 | 0.00006 | 0.00003 | 0.00009 | 0.00004 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0003 | 0.0002 | 0.0002 | 0.0016 | 0.0002 | 0.0001 | 0.0003 | 0.0002 | 0.0002 | < 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.0002 | 0.0009 | 0.0009 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | 0.162 | 0.22 | 0.166 | 0.144 | 0.19 | 0.185 | 0.147 | 0.141 | 0.182 | 0.171 | 0.15 | 0.19 | 0.142 | 0.173 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0003 | 0.0009 | 0.0002 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | < 0.0001 | 0.0001 | <0.0001 | 0.0001 | 0.0001 |
| Zinc | mg/L | 0.02 | 0.013 | 0.007 | 0.008 | 0.009 | **0.032** | 0.015 | 0.009 | < 0.005 | 0.006 | 0.017 | < 0.005 | 0.018 | 0.009 | 0.007 |
| Field pH | pH unit | - | 7.73 | 7.56 | 7.89 | 7.1 | 6.7 | 7.95 | 8.36 | 8.36 | 7.4 | 7.88 | 7.85 | 7.29 | 7.7 | 8.18 |
| Field Temp | deg C | - | 3.6 | 23.6 | 7.8 | 7.3 | 21.5 | 6.6 | 7 | 7 | 26.1 | 10.2 | 8.4 | 17.8 | 10 | 7.8 |
| Field Conductivity | us/cm | - | 360 | 424 | 333 | 420 | 368 | 390 | 300 | 300 | 340 | 320 | 230 | 454 | 329 | 297 |
| Dissolved Oxygen | mg/L | - | 8.11 | 1.3 | 7.29 | 13.15 | 1.14 | 5.9 | 8.86 | 8.86 | 2.31 | 5.86 | 9.05 | 1.15 | 3.92 | 2.08 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW3 11-Jul-24 | SW3 07-Oct-24 | SW3 22-Apr-25 | SW3 30-Sep-25 | SW4 29-Apr-16 | SW4 24-Aug-16 | SW4 04-Oct-16 | SW4 18-Apr-17 | SW4 20-Jul-17 | SW4 24-Oct-17 | SW4 24-Apr-18 | SW4 18-Jul-18 | SW4 16-Oct-18 | SW4 12-Apr-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 162 | 203 | 154 | 210 | 131 | 175 | 205 | 123 | 194 | 151 | 113 | 190 | 165 | 91 |
| BOD | mg/L | - | <3 | <3 | <3 | <3 | < 3 | < 3 | < 3 | < 3 | < 3 | 4 | < 3 | < 2 | 3 | < 3 |
| Calcium | mg/L | - | 63 | 68.1 | 59.2 | 77.1 | 51.3 | 71.1 | 84.7 | 45.5 | 70.8 | 59.8 | 44.8 | 81.2 | 73.4 | 40.8 |
| Chloride | mg/L | - | 10.4 | 13 | 12.6 | 13.5 | 10.5 | 9.6 | 12.9 | 11.4 | 7.8 | 11.4 | 8.5 | 14 | 15.7 | 14.9 |
| COD | mg/L | - | 56 | 48 | 26 | <5 | 30 | 54 | 44 | 31 | 74 | 60 | 15 | 33 | 39 | 23 |
| Colour | colour unit | - | 129 | 60 | 44 | 26 | 50 | 87 | 51 | 59 | 125 | 66 | 31 | 70 | 52 | 36 |
| Specific Conductivity | umhos/cm | - | 350 | 415 | 338 | 454 | 299 | 384 | 454 | 291 | 406 | 347 | 233 | 438 | 395 | 243 |
| DOC | mg/L | - | 16.9 | 17.4 | 11.8 | 6.5 | 12 | 20.7 | 15.9 | 13.7 | 26.2 | 22 | 7.5 | 14.3 | 16 | 8.9 |
| Fluoride | mg/L | - | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.00 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | **0.631** | **0.314** | 0.079 | 0.113 | 0.05 | 0.183 | 0.21 | 0.049 | **0.331** | 0.223 | 0.032 | **0.465** | 0.146 | 0.065 |
| Magnesium | mg/L | - | 3.88 | 5.27 | 4.31 | 6.61 | 3.68 | 5.05 | 6.45 | 2.97 | 3.24 | 5.24 | 2.33 | 6.51 | 6.88 | 2.51 |
| Manganese | mg/L | - | 0.033 | 0.163 | 0.01 | 0.051 | 0.013 | 0.056 | 0.08 | 0.009 | 0.356 | 0.049 | 0.038 | 0.473 | 0.018 | 0.014 |
| Nitrate | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrite | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.33 | 8 | 8.13 | 7.99 | 8 | 7.7 | 7.95 | 7.9 | 7.91 | 7.89 | 7.87 | 7.86 | 7.95 | 7.84 |
| Phenols | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | **0.003** | < 0.001 | **0.003** | 0.001 | **0.014** | **0.005** | < 0.001 | < 0.001 | **0.002** | < 0.002 |
| Total Phosphorus | mg/L | 0.03 | **0.08** | 0.03 | 0.02 | 0.03 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.02 | **0.05** | 0.01 | 0.02 |
| Potassium | mg/L | - | 2.1 | 1.5 | 1.4 | 1.7 | 0.6 | 0.2 | 1.2 | 0.7 | 1.1 | 1.2 | 1 | 0.5 | 1.4 | 1.3 |
| Sodium | mg/L | - | 5.9 | 5.7 | 6.6 | 6.3 | 6.5 | 5.9 | 7.7 | 5.4 | 4.6 | 7.3 | 4.4 | 7.2 | 8.8 | 7.9 |
| Sulphate | mg/L | - | <1 | 2 | 5 | 7 | 5 | 6 | 5 | 7 | 1 | 3 | 2 | 2 | 5 | 3 |
| TDS | mg/L | - | 184 | 219 | 181 | 238 | 157 | 203 | 241 | 147 | 212 | 179 | 134 | 227 | 210 | 124 |
| TKN | mg/L | - | 1 | 0.8 | 0.5 | 0.6 | 0.5 | 1 | 0.8 | 0.6 | 1.1 | 1 | 0.4 | 0.7 | 0.6 | 0.5 |
| Ammonia (NH3-N) | mg/L | - | <0.05 | 0.23 | 0.07 | 0.21 | 0.09 | 0.04 | 0.03 | 0.03 | 0.05 | 0.03 | 0.03 | 0.03 | 0.04 | 0.03 |
| Total Suspended Solids | mg/L | - | 3 | 104 | <3 | 6 | < 3 | < 3 | 11 | < 3 | 10 | < 3 | < 3 | 4 | < 3 | < 3 |
| Turbidity | ntu | - | 1.8 | 8.2 | 0.6 | 2.1 | 0.5 | 0.6 | 1.8 | 0.6 | 1.3 | 0.5 | 0.5 | 1.2 | 2.7 | 0.8 |
| Hardness (CaCO3) | mg/L | - | 173 | 192 | 166 | 220 | 143 | 199 | 237 | 145 | 190 | 169 | 122 | 230 | 212 | 110 |
| Unionized Ammonia | mg/L | 0.02 | <0.01 | <0.01 | <0.01 | 0.0100 | 0.0029 | 0.0001 | 0.0006 | 0.0001 | 0.0012 | 0.0001 | 0.0005 | 0.0001 | 0.0004 | < 0.01 |
| Aluminum | mg/L | 0.075 | 0.03 | 0.04 | 0.03 | 0.05 | 0.04 | 0.03 | 0.02 | 0.05 | 0.03 | 0.04 | 0.03 | 0.06 | 0.05 | 0.03 |
| Antimony | mg/L | 0.02 | 0.0005 | 0.0003 | 0.0005 | 0.0009 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 |
| Arsenic | mg/L | 0.005 | 0.0006 | 0.0003 | 0.0002 | 0.0002 | 0.0005 | 0.0003 | 0.0002 | 0.0003 | 0.0011 | 0.0004 | 0.0003 | 0.0005 | 0.0003 | 0.0002 |
| Barium | mg/L | - | 0.027 | 0.034 | 0.023 | 0.041 | 0.047 | 0.051 | 0.016 | 0.019 | 0.028 | 0.044 | 0.013 | 0.065 | 0.046 | 0.015 |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.012 | 0.005 | 0.006 | 0.012 | 0.011 | < 0.005 | < 0.005 | 0.013 | 0.008 | 0.011 | < 0.005 | 0.016 | 0.01 | 0.007 |
| Cadmium | mg/L | 0.0005 | <0.000015 | <0.000015 | <0.000015 | <0.000015 | < 0.00002 | 0.00003 | < 0.00002 | < 0.000014 | < 0.000014 | 0.000018 | < 0.000014 | < 0.000015 | 0.000041 | < 0.000015 |
| Chromium (total) | mg/L | 0.002 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.0002 | 0.0005 | < 0.0002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0002 | 0.0003 | 0.0002 | 0.0001 | < 0.005 | < 0.0001 | < 0.005 | < 0.0001 | 0.0005 | < 0.0001 | < 0.0001 | 0.0003 | < 0.0001 | 0.0002 |
| Copper | mg/L | 0.005 | 0.0008 | 0.0001 | 0.0003 | 0.0001 | 0.0004 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0026 | 0.0002 | < 0.0001 | **0.0077** | 0.0004 |
| Lead | mg/L | 0.005 | 0.00005 | 0.00005 | <0.00002 | 0.00002 | 0.00003 | 0.0001 | < 0.00002 | < 0.00002 | 0.00002 | 0.00021 | < 0.00002 | < 0.00002 | 0.00031 | 0.00008 |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0002 | <0.0001 | 0.0001 | <0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0001 |
| Nickel | mg/L | 0.025 | 0.0008 | <0.0002 | 0.0006 | 0.0005 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.17 | 0.179 | 0.14 | 0.209 | 0.191 | 0.234 | 0.13 | 0.103 | 0.159 | 0.178 | 0.087 | 0.223 | 0.22 | 0.084 |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0004 | 0.0001 | 0.0001 | <0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 |
| Zinc | mg/L | 0.02 | <0.005 | <0.005 | 0.017 | <0.005 | **0.061** | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.018 | < 0.005 | **0.036** | **0.022** | 0.008 |
| Field pH | pH unit | - | 7.46 | 7.82 | 7 | 8.35 | 8.39 | 6.86 | 7.89 | 7.25 | 7.68 | 7.02 | 8.16 | 6.83 | 7.84 | 7.48 |
| Field Temp | deg C | - | 19.4 | 12.9 | 9.9 | 17.1 | 5.8 | 20.6 | 15.5 | 7.5 | 23 | 15.1 | 4.6 | 22.8 | 7.9 | 4 |
| Field Conductivity | us/cm | - | 380 | 418 | 241 | 264 | 235 | 375.5 | 420 | 242 | 314 | 313 | 268 | 395 | 343 | 290 |
| Dissolved Oxygen | mg/L | - | 1.56 | 5.91 | 7.2 | 4.21 | 6.35 | 1.98 | 3.02 | 6.47 | 0.6 | 5.27 | 4.87 | 2.11 | 8.77 | 13.39 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW4 08-Jul-19 | SW4 22-Oct-19 | SW4 23-Apr-20 | SW4 20-Jul-20 | SW4 20-Oct-20 | SW4 20-Apr-21 | SW4 19-Jul-21 | SW4 28-Oct-21 | SW4 21-Apr-22 | SW4 20-Jul-22 | SW4 24-Oct-22 | SW4 20-Apr-23 | SW4 30-Aug-23 | SW4 12-Oct-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 158 | 155 | 111 | 169 | 149 | 132 | 161 | 119 | 140 | 152 | 145 | 139 | 207 | 152 |
| BOD | mg/L | - | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | 5 | 7 | < 3 | < 3 | < 3 | < 3 | <3 | <3 |
| Calcium | mg/L | - | 72.1 | 62.6 | 52 | 78.7 | 68.3 | 55 | 64.1 | 53.6 | 47.6 | 60.7 | 56.1 | 54.8 | 68.2 | 55.7 |
| Chloride | mg/L | - | 6.5 | 16.9 | 12 | 10.6 | 23.1 | 13.2 | 10.1 | 12.9 | 12.6 | 11.1 | 20 | 12 | 15 | 11.5 |
| COD | mg/L | - | 58 | 39 | 25 | 48 | 54 | 38 | 73 | 74 | 22 | 64 | 39 | 30 | 61 | 58 |
| Colour | colour unit | - | 130 | 44 | 47 | 62 | 92 | 67 | 150 | 109 | 46 | 114 | 64 | 58 | 91 | 79 |
| Specific Conductivity | umhos/cm | - | 334 | 393 | 275 | 376 | 368 | 310 | 331 | 282 | 309 | 319 | 341 | 319 | 426 | 326 |
| DOC | mg/L | - | 24.3 | 11.5 | 11.1 | 18 | 19.2 | 18.3 | 26.7 | 29.3 | 13.5 | 29.2 | 19.8 | 9.5 | 27.1 | 25.5 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 |
| Iron | mg/L | 0.3 | **0.876** | 0.107 | 0.026 | **0.472** | 0.169 | 0.094 | **1.19** | 0.183 | 0.036 | 0.104 | 0.098 | 0.083 | **0.753** | **0.357** |
| Magnesium | mg/L | - | 5.06 | 4.9 | 3.63 | 6.73 | 4.46 | 3.86 | 4.17 | 3.11 | 3.59 | 3.61 | 4.3 | 3.73 | 4.86 | 4.38 |
| Manganese | mg/L | - | 0.288 | 0.023 | 0.007 | 0.213 | 0.053 | 0.013 | 0.312 | 0.023 | 0.004 | 0.019 | 0.009 | 0.009 | 0.363 | 0.105 |
| Nitrate | mg/L | - | < 0.05 | < 0.05 | 0.1 | < 0.05 | < 0.05 | < 0.05 | 0.06 | < 0.05 | < 0.05 | 0.1 | 0.06 | 0.1 | 0.1 | <0.05 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.67 | 7.98 | 7.2 | 7.84 | 7.83 | 7.99 | 7.69 | 7.04 | 7.37 | 8.13 | 7.93 | 7.65 | 7.06 | 7.75 |
| Phenols | mg/L | 0.001 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 |
| Total Phosphorus | mg/L | 0.03 | 0.02 | **0.08** | 0.01 | **0.08** | 0.01 | **0.06** | **0.14** | **0.13** | 0.02 | 0.03 | 0.01 | 0.01 | <0.1 | <0.1 |
| Potassium | mg/L | - | 0.2 | 2 | 0.7 | 0.4 | 2.6 | 0.8 | 0.7 | 1 | 1 | 0.1 | 0.5 | 1.2 | 1.2 | 1.3 |
| Sodium | mg/L | - | 5.2 | 7.2 | 6.3 | 6.3 | 8.4 | 7 | 5.3 | 5.1 | 5.8 | 5.7 | 6.3 | 6.5 | 6.9 | 5.8 |
| Sulphate | mg/L | - | < 1 | 13 | 7 | 2 | 2 | 6 | < 1 | < 1 | 3 | 1 | 3 | 3 | <1 | 1 |
| TDS | mg/L | - | 185 | 211 | 149 | 207 | 198 | 167 | 182 | 148 | 158 | 178 | 177 | 165 | 222 | 172 |
| TKN | mg/L | - | 0.8 | 0.9 | 0.4 | 1.1 | 0.9 | 0.5 | 2.1 | 1.3 | 0.5 | 1.4 | 0.6 | 0.7 | 1 | 0.7 |
| Ammonia (NH3-N) | mg/L | - | 0.06 | 0.02 | 0.01 | 0.03 | 0.02 | 0.01 | 0.04 | 0.08 | 0.05 | 0.24 | 0.05 | 0.19 | <0.05 | 0.06 |
| Total Suspended Solids | mg/L | - | 6 | 10 | < 3 | 12 | 7 | < 3 | 6 | 43 | < 3 | 10 | 40 | < 3 | 6 | 6 |
| Turbidity | ntu | - | 1.4 | 2.6 | 1 | 4.1 | 1 | 0.9 | 8.6 | 0.8 | 0.7 | 1.7 | 0.7 | 0.6 | 1.4 | 1.4 |
| Hardness (CaCO3) | mg/L | - | 189 | 177 | 139 | 203 | 189 | 153 | 178 | 154 | 134 | 167 | 175 | 154 | 190 | 157 |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0100 | < 0.01 | < 0.01 | <0.01 | <0.01 |
| Aluminum | mg/L | 0.075 | 0.06 | 0.06 | 0.03 | 0.04 | 0.01 | < 0.01 | 0.05 | 0.03 | < 0.01 | 0.03 | 0.03 | 0.01 | 0.03 | 0.04 |
| Antimony | mg/L | 0.02 | 0.0004 | 0.0001 | 0.0003 | 0.0002 | 0.0001 | 0.0003 | 0.0005 | < 0.0001 | 0.0003 | 0.0004 | 0.0004 | 0.0006 | 0.0004 | <0.0001 |
| Arsenic | mg/L | 0.005 | 0.0006 | 0.0002 | 0.0002 | 0.0004 | 0.0004 | 0.0003 | 0.0007 | 0.0005 | 0.0002 | 0.0005 | 0.0002 | 0.0002 | 0.0005 | 0.0002 |
| Barium | mg/L | - | 0.077 | 0.035 | 0.019 | 0.064 | 0.029 | 0.023 | 0.048 | 0.017 | 0.017 | 0.023 | 0.029 | 0.022 | 0.045 | 0.052 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 |
| Boron | mg/L | - | 0.011 | 0.007 | 0.005 | 0.016 | 0.018 | 0.006 | 0.011 | 0.009 | < 0.005 | < 0.005 | < 0.005 | 0.006 | 0.007 | 0.008 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.002 | <0.001 | <0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0009 | 0.0002 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 0.0002 |
| Copper | mg/L | 0.005 | 0.0003 | 0.0008 | 0.0002 | 0.0001 | 0.0005 | 0.0002 | 0.0007 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0003 | 0.0002 | 0.0003 |
| Lead | mg/L | 0.005 | 0.00003 | 0.00015 | < 0.00002 | 0.00004 | 0.00006 | < 0.00002 | 0.00079 | 0.00004 | 0.00002 | < 0.00002 | < 0.00002 | 0.00005 | 0.00004 | 0.00005 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | < 0.0001 | 0.0002 | 0.0002 | < 0.0001 | 0.0001 | 0.0002 | 0.0003 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | <0.0001 | <0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.0002 | 0.0005 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | 0.183 | 0.168 | 0.114 | 0.232 | 0.142 | 0.129 | 0.162 | 0.118 | 0.115 | 0.154 | 0.144 | 0.131 | 0.181 | 0.145 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.006 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Zinc | mg/L | 0.02 | **0.026** | 0.006 | < 0.005 | 0.01 | < 0.005 | 0.01 | **0.023** | 0.01 | < 0.005 | < 0.005 | 0.006 | 0.007 | **0.04** | 0.009 |
| Field pH | pH unit | - | 7.34 | 7.55 | 7.83 | 7.03 | 8.87 | 7.05 | 6.54 | 8.15 | 8 | 7.95 | 8.04 | 7.81 | 6.93 | 7.23 |
| Field Temp | deg C | - | 19.7 | 10.3 | 5.7 | 20.8 | 7.7 | 6.8 | 22.2 | 6.2 | 7.5 | 27.8 | 12.8 | 11.8 | 17.6 | 13.6 |
| Field Conductivity | us/cm | - | 343 | 320 | 295 | 470 | 320 | 410 | 315 | 285 | 265 | 280 | 290 | 230 | 429 | 320 |
| Dissolved Oxygen | mg/L | - | 1.07 | 3.4 | 6.38 | 20.8 | 4.71 | 10.43 | 0.83 | 3.23 | 6.23 | 1.93 | 2.85 | 7.81 | 0.4 | 1.64 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW4 18-Apr-24 | SW4 11-Jul-24 | SW4 07-Oct-24 | SW4 22-Apr-25 | SW4 30-Sep-25 | SW12 29-Apr-16 | SW12 (10m) 18-Apr-17 | SW12 (10m) 20-Jul-17 | SW12 (10m) 23-Oct-17 | SW12 (10m) 24-Apr-18 | SW12 (10m) 12-Apr-19 | SW12 (10m) 20-Oct-20 | SW12 (10m) 20-Apr-21 | SW12 (10m) 19-Jul-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 125 | 107 | 173 | 129 | 218 | 134 | 122 | 210 | 180 | 227 | 108 | Dry | Dry | Dry |
| BOD | mg/L | - | <3 | <3 | 7 | <3 | <3 | < 3 | < 3 | 5 | < 3 | < 3 | < 3 | | | |
| Calcium | mg/L | - | 42.3 | 39.1 | 63.4 | 50 | 78.4 | 52 | 44 | 79.8 | 77.9 | 85.8 | 52.1 | | | |
| Chloride | mg/L | - | 7.9 | 4.8 | 10.9 | 9.4 | 16 | 7.9 | 7.1 | 9.1 | 10.7 | 13 | 5.3 | | | |
| COD | mg/L | - | 31 | 118 | 123 | 32 | 14 | 43 | 53 | 73 | 57 | 41 | 77 | | | |
| Colour | colour unit | - | 52 | 62 | 71 | 37 | 34 | 72 | 112 | 120 | 80 | 60 | 72 | | | |
| Specific Conductivity | umhos/cm | - | 258 | 232 | 358 | 279 | 471 | 292 | 266 | 442 | 388 | 476 | 243 | | | |
| DOC | mg/L | - | 11.2 | 13.4 | 23.3 | 5.8 | 10.1 | 15.6 | 19.8 | 25.4 | 26 | 13.8 | 13.6 | | | |
| Fluoride | mg/L | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | | |
| Cyanide (free) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | | |
| Iron | mg/L | 0.3 | 0.065 | **1.06** | **1.24** | 0.073 | 0.236 | 0.063 | 0.047 | **2.96** | **3.21** | **2.79** | **0.903** | | | |
| Magnesium | mg/L | - | 3.24 | 2.28 | 4.77 | 3.9 | 6.58 | 3.31 | 2.67 | 5.61 | 5.92 | 6.98 | 3.18 | | | |
| Manganese | mg/L | - | 0.004 | 0.062 | 0.061 | 0.008 | 0.101 | 0.02 | 0.004 | 0.36 | 0.153 | 0.294 | 0.135 | | | |
| Nitrate | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | < 0.05 | 0.09 | < 0.05 | < 0.05 | | | |
| Nitrite | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | < 0.1 | < 0.1 | 0.05 | < 0.05 | < 0.05 | < 0.05 | | | |
| pH Lab | pH unit | 6.5 - 8.5 | 7.75 | 6.83 | 7.79 | 8.04 | 7.89 | 7.7 | 7.82 | 7.84 | 7.86 | 7.87 | 7.93 | | | |
| Phenols | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | **0.008** | **0.002** | **0.009** | **0.006** | < 0.001 | < 0.002 | | | |
| Total Phosphorus | mg/L | 0.03 | 0.02 | **0.04** | **0.24** | 0.02 | **0.04** | <0.1 | < 0.1 | **0.2** | **0.4** | **0.06** | **0.16** | | | |
| Potassium | mg/L | - | 0.6 | 1.1 | 0.9 | 1.2 | 2.3 | 1.4 | 1.2 | 2.5 | 3.9 | 5.8 | 3.1 | | | |
| Sodium | mg/L | - | 4.7 | 3.4 | 5.4 | 5.2 | 7.5 | 5.2 | 3.5 | 8.4 | 7.2 | 13.7 | 3.9 | | | |
| Sulphate | mg/L | - | 4 | <1 | <1 | 4 | 4 | 4 | 4 | 1 | < 1 | < 1 | 1 | | | |
| TDS | mg/L | - | 137 | 116 | 191 | 151 | 246 | 154 | 135 | 234 | 218 | 265 | 135 | | | |
| TKN | mg/L | - | 0.5 | 0.6 | 3.8 | 0.5 | 1.6 | 0.9 | 0.7 | 1.5 | 8 | 2.1 | 1.1 | | | |
| Ammonia (NH3-N) | mg/L | - | 0.06 | <0.05 | 0.2 | 0.09 | 1.06 | 0.05 | 0.04 | 0.14 | 0.08 | 1.59 | 0.05 | | | |
| Total Suspended Solids | mg/L | - | <3 | 37 | 124 | <3 | 5 | 98 | < 3 | 88 | 190 | 8 | 26 | | | |
| Turbidity | ntu | - | 0.9 | 7.8 | 26.4 | 0.5 | 3.7 | 11.4 | 0.8 | 32.7 | 75.2 | 12.6 | 9.1 | | | |
| Hardness (CaCO3) | mg/L | - | 119 | 107 | 178 | 141 | 223 | 144 | 144 | 222 | 193 | 243 | 121 | | | |
| Unionized Ammonia | mg/L | 0.02 | <0.01 | <0.01 | <0.01 | <0.01 | **0.1200** | 0.0053 | 0.0001 | 0.0017 | 0.0003 | 0.0158 | < 0.01 | | | |
| Aluminum | mg/L | 0.075 | 0.03 | 0.05 | **0.1** | 0.03 | 0.05 | 0.03 | 0.05 | 0.03 | 0.05 | 0.05 | **0.36** | | | |
| Antimony | mg/L | 0.02 | <0.0001 | 0.0004 | 0.0003 | 0.0004 | 0.0007 | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | | | |
| Arsenic | mg/L | 0.005 | 0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0023 | 0.0014 | 0.0007 | 0.0006 | | | |
| Barium | mg/L | - | 0.031 | 0.034 | 0.053 | 0.03 | 0.051 | 0.013 | 0.012 | 0.043 | 0.064 | 0.046 | 0.024 | | | |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | | |
| Boron | mg/L | - | <0.005 | 0.007 | 0.005 | 0.006 | 0.012 | < 0.005 | 0.009 | 0.026 | 0.023 | 0.054 | 0.019 | | | |
| Cadmium | mg/L | 0.0005 | 0.000015 | <0.000015 | 0.000015 | <0.000015 | <0.000015 | < 0.00002 | < 0.000014 | 0.00007 | 0.000191 | 0.000014 | 0.000068 | | | |
| Chromium (total) | mg/L | 0.002 | **0.004** | <0.001 | <0.001 | <0.001 | <0.001 | <0.0002 | < 0.001 | < 0.001 | < 0.001 | 0.001 | 0.001 | | | |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | <0.0001 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | < 0.005 | < 0.0001 | 0.0009 | 0.0009 | **0.001** | 0.0007 | | | |
| Copper | mg/L | 0.005 | 0.0007 | 0.0007 | 0.0006 | 0.0006 | 0.0014 | 0.0003 | < 0.0001 | **0.0074** | **0.0079** | 0.0012 | **0.0067** | | | |
| Lead | mg/L | 0.005 | 0.00003 | 0.00015 | 0.00052 | 0.00003 | 0.00028 | 0.00007 | < 0.00002 | 0.00064 | **0.0072** | 0.00021 | 0.00146 | | | |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 | < 0.00002 | 0.00006 | < 0.00002 | < 0.00002 | | | |
| Molybdenum | mg/L | 0.04 | 0.0002 | <0.0001 | <0.0001 | <0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0003 | 0.0003 | 0.0002 | 0.0003 | | | |
| Nickel | mg/L | 0.025 | 0.0007 | 0.0005 | 0.0003 | 0.0005 | 0.0005 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | | |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | | |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | 0.00004 | < 0.00002 | < 0.00002 | < 0.0001 | | | |
| Strontium | mg/L | - | 0.098 | 0.094 | 0.161 | 0.114 | 0.217 | 0.115 | 0.089 | 0.223 | 0.206 | 0.233 | 0.108 | | | |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | | |
| Vanadium | mg/L | 0.006 | <0.0001 | 0.0002 | 0.0004 | <0.0001 | <0.0001 | 0.0001 | 0.0002 | 0.0006 | 0.0017 | 0.0004 | 0.0009 | | | |
| Zinc | mg/L | 0.02 | 0.01 | <0.005 | 0.005 | 0.01 | <0.005 | <0.005 | < 0.005 | **0.03** | **0.073** | **0.027** | 0.009 | | | |
| Field pH | pH unit | - | 8.03 | 7.45 | 7.68 | 7.07 | 8.55 | 8.96 | 7.37 | 7.52 | 7.18 | 7.85 | 7.92 | | | |
| Field Temp | deg C | - | 8.8 | 20.9 | 16.1 | 11 | 18.4 | 5.5 | 4.2 | 18.8 | 12.8 | 6.5 | 1 | | | |
| Field Conductivity | us/cm | - | 252 | 282 | 355 | 251 | 108 | 250 | 218 | 407 | 343 | 471 | 230 | | | |
| Dissolved Oxygen | mg/L | - | 1.97 | 0.44 | 5.27 | 6.35 | 4.4 | 5.96 | 4.93 | 0.99 | 3.4 | 2.74 | 16.62 | | | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW12 (10m) 28-Oct-21 | SW12 (10m) 21-Apr-22 | SW12 (10m) 20-Jul-22 | SW12 (10m) 24-Oct-22 | SW12 (10m) 19-Apr-23 | SW12 (10m) 30-Aug-23 | SW12 (10m) 12-Oct-23 | SW12 (10m) 18-Apr-24 | SW12 (10m) 11-Jul-24 | SW12 (10m) 07-Oct-24 | SW12 (10m) 22-Apr-25 | SW12 (10m)-F 22-Apr-25 | SW12 (10m) 22-Jul-25 | SW12 (10m) 30-Sep-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | 304 | | Dry | Dry |
| BOD | mg/L | - | | | | | | | | | | | 4 | | | |
| Calcium | mg/L | - | | | | | | | | | | | 117 | 112 | | |
| Chloride | mg/L | - | | | | | | | | | | | 17.6 | | | |
| COD | mg/L | - | | | | | | | | | | | 108 | 63 | | |
| Colour | colour unit | - | | | | | | | | | | | 53 | | | |
| Specific Conductivity | umhos/cm | - | | | | | | | | | | | 620 | | | |
| DOC | mg/L | - | | | | | | | | | | | 8.8 | | | |
| Fluoride | mg/L | - | | | | | | | | | | | <0.1 | | | |
| Cyanide (free) | mg/L | 0.005 | | | | | | | | | | | <0.005 | | | |
| Iron | mg/L | 0.3 | | | | | | | | | | | **2.19** | **0.325** | | |
| Magnesium | mg/L | - | | | | | | | | | | | 8.46 | 8.46 | | |
| Manganese | mg/L | - | | | | | | | | | | | 0.127 | 0.099 | | |
| Nitrate | mg/L | - | | | | | | | | | | | 0.64 | | | |
| Nitrite | mg/L | - | | | | | | | | | | | <0.05 | | | |
| pH Lab | pH unit | 6.5 - 8.5 | | | | | | | | | | | 8.14 | | | |
| Phenols | mg/L | 0.001 | | | | | | | | | | | **0.002** | | | |
| Total Phosphorus | mg/L | 0.03 | | | | | | | | | | | **0.56** | **0.04** | | |
| Potassium | mg/L | - | | | | | | | | | | | 8.8 | 8.4 | | |
| Sodium | mg/L | - | | | | | | | | | | | 18.4 | 18.2 | | |
| Sulphate | mg/L | - | | | | | | | | | | | 3 | | | |
| TDS | mg/L | - | | | | | | | | | | | 361 | | | |
| TKN | mg/L | - | | | | | | | | | | | 5.8 | 1.4 | | |
| Ammonia (NH3-N) | mg/L | - | | | | | | | | | | | 1.05 | 0.72 | | |
| Total Suspended Solids | mg/L | - | | | | | | | | | | | 68 | | | |
| Turbidity | ntu | - | | | | | | | | | | | 127 | | | |
| Hardness (CaCO3) | mg/L | - | | | | | | | | | | | 328 | 315 | | |
| Unionized Ammonia | mg/L | 0.02 | | | | | | | | | | | <0.01 | | | |
| Aluminum | mg/L | 0.075 | | | | | | | | | | | **0.39** | 0.04 | | |
| Antimony | mg/L | 0.02 | | | | | | | | | | | 0.0004 | 0.0006 | | |
| Arsenic | mg/L | 0.005 | | | | | | | | | | | 0.0005 | 0.0003 | | |
| Barium | mg/L | - | | | | | | | | | | | 0.049 | 0.039 | | |
| Beryllium | mg/L | 1.1 | | | | | | | | | | | <0.0001 | <0.0001 | | |
| Boron | mg/L | - | | | | | | | | | | | 0.101 | 0.1 | | |
| Cadmium | mg/L | 0.0005 | | | | | | | | | | | 0.000023 | <0.000015 | | |
| Chromium (total) | mg/L | 0.002 | | | | | | | | | | | <0.001 | <0.001 | | |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | | <0.001 | <0.001 | | |
| Cobalt | mg/L | 0.0009 | | | | | | | | | | | **0.001** | 0.0007 | | |
| Copper | mg/L | 0.005 | | | | | | | | | | | 0.0017 | 0.0006 | | |
| Lead | mg/L | 0.005 | | | | | | | | | | | 0.00113 | 0.00003 | | |
| Mercury | mg/L | 0.0002 | | | | | | | | | | | <0.00002 | <0.00002 | | |
| Molybdenum | mg/L | 0.04 | | | | | | | | | | | 0.0001 | 0.0001 | | |
| Nickel | mg/L | 0.025 | | | | | | | | | | | 0.0017 | 0.0019 | | |
| Selenium | mg/L | 0.1 | | | | | | | | | | | <0.001 | <0.001 | | |
| Silver | mg/L | 0.0001 | | | | | | | | | | | <0.0001 | <0.0001 | | |
| Strontium | mg/L | - | | | | | | | | | | | 0.296 | 0.291 | | |
| Thallium | mg/L | 0.0003 | | | | | | | | | | | <0.00005 | <0.00005 | | |
| Vanadium | mg/L | 0.006 | | | | | | | | | | | 0.0007 | 0.0001 | | |
| Zinc | mg/L | 0.02 | | | | | | | | | | | 0.016 | 0.008 | | |
| Field pH | pH unit | - | | | | | | | | | | | 7.25 | | | |
| Field Temp | deg C | - | | | | | | | | | | | 7.1 | | | |
| Field Conductivity | us/cm | - | | | | | | | | | | | 438 | 438 | | |
| Dissolved Oxygen | mg/L | - | | | | | | | | | | | 8.11 | 8.11 | | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW12 (15m) 02-May-17 | SW12 (15m) 21-Jun-17 | SW12 (15m) 24-Apr-18 | SW12 (15m) 24-Apr-19 | SW12 (15m) 18-Apr-24 | SW12 (20m) 21-Jun-17 | SW12 (20m) 11-May-20 | SW12 (25m) 24-Apr-18 | SW12 (25m) 28-Apr-22 | SW12 (30m) 02-May-17 | SW12 (30m) 24-Apr-19 | SW12 (30m) 11-May-20 | SW12 (30m) 26-Apr-21 | SW12 (30m) 28-Apr-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 212 | 224 | 153 | 197 | 405 | 175 | 216 | 106 | 308 | 140 | 77 | 129 | 251 | 205 |
| BOD | mg/L | - | < 3 | < 3 | < 3 | < 3 | 4 | < 3 | < 3 | < 3 | 10 | < 3 | < 3 | 4 | 10 | < 3 |
| Calcium | mg/L | - | 79.5 | 80.2 | 55.7 | 74.3 | 130 | 66.7 | 89.3 | 48.2 | 101 | 52.5 | 32.1 | 54.2 | 99 | 71 |
| Chloride | mg/L | - | 10.5 | 9.8 | 7.7 | 11.2 | 14.6 | 7.6 | 17.9 | 5.1 | 16.3 | 7.3 | 3.9 | 9.4 | 17.1 | 11.9 |
| COD | mg/L | - | 43 | 60 | 35 | 52 | 64 | 61 | 48 | 551 | 40 | 46 | 55 | 123 | 121 | 38 |
| Colour | colour unit | - | 64 | 95 | 64 | 58 | 62 | 130 | 61 | 160 | 53 | 108 | 100 | 69 | 70 | 66 |
| Specific Conductivity | umhos/cm | - | 471 | 461 | 296 | 429 | 799 | 364 | 489 | 211 | 605 | 299 | 178 | 293 | 514 | 416 |
| DOC | mg/L | - | 10.4 | 20.8 | 11.8 | 18.4 | 22 | 21.2 | 17 | 13.9 | 19.8 | 11.9 | 18.2 | 16.5 | 20.3 | 19.1 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | **1.26** | **1.05** | **0.994** | **1.48** | **5.47** | **0.406** | **0.367** | **3.19** | **0.549** | 0.237 | 0.081 | 0.16 | **1.72** | **0.4** |
| Magnesium | mg/L | - | 5.44 | 4.99 | 4.27 | 4.85 | 9.68 | 4.41 | 5.23 | 4.08 | 7.39 | 3.04 | 1.97 | 3.12 | 6.15 | 4.63 |
| Manganese | mg/L | - | 0.064 | 0.085 | 0.121 | 0.071 | 0.976 | 0.033 | 0.051 | 0.208 | 0.063 | 0.01 | 0.007 | 0.035 | 0.155 | 0.041 |
| Nitrate | mg/L | - | 0.2 | 0.08 | 0.09 | < 0.05 | 0.06 | < 0.05 | 0.22 | 0.05 | 0.37 | < 0.1 | < 0.05 | < 0.05 | 0.1 | 0.22 |
| Nitrite | mg/L | - | < 0.1 | < 0.05 | < 0.05 | < 0.05 | <0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 8 | 7.89 | 7.76 | 7.63 | 7.94 | 7.9 | 7.95 | 7.6 | 8 | 8.01 | 7.37 | 7.76 | 8.09 | 7.93 |
| Phenols | mg/L | 0.001 | **0.005** | **0.009** | < 0.001 | < 0.002 | <0.001 | **0.005** | < 0.002 | < 0.001 | < 0.001 | **0.004** | < 0.002 | < 0.002 | < 0.002 | 0.001 |
| Total Phosphorus | mg/L | 0.03 | < 0.1 | < 0.1 | **0.29** | **0.1** | **0.1** | < 0.1 | **0.04** | **0.42** | **0.06** | < 0.1 | 0.03 | **0.09** | **0.24** | 0.03 |
| Potassium | mg/L | - | 4 | 2.9 | 2.8 | 4.3 | 8.6 | 1.6 | 3.4 | 2.5 | 5.6 | 1.4 | 1.7 | 1.4 | 3.9 | 3.3 |
| Sodium | mg/L | - | 11.1 | 10.1 | 6.4 | 9.8 | 17.3 | 6.5 | 13.3 | 4 | 15.9 | 4.7 | 2.6 | 5.1 | 14.1 | 9.6 |
| Sulphate | mg/L | - | 10 | < 1 | 1 | < 1 | 1 | < 1 | 6 | 1 | < 1 | 3 | < 1 | 2 | 2 | 1 |
| TDS | mg/L | - | 251 | 245 | 172 | 226 | 431 | 192 | 265 | 132 | 332 | 156 | 90 | 157 | 294 | 226 |
| TKN | mg/L | - | 1.1 | 1 | 1.4 | 1.4 | 5.5 | 1.2 | 0.7 | 5.6 | 1.3 | 0.6 | 0.6 | 1.9 | 2.8 | 1 |
| Ammonia (NH3-N) | mg/L | - | 0.23 | 0.5 | 0.35 | 0.47 | 4.72 | 0.02 | 0.04 | 0.04 | 0.38 | 0.01 | 0.04 | 0.03 | 0.05 | 0.68 |
| Total Suspended Solids | mg/L | - | 25 | 24 | 348 | 50 | 62 | 21 | 8 | 500 | 230 | 5 | 8 | 85 | 390 | 25 |
| Turbidity | ntu | - | 32.2 | 23.2 | 326 | 14.4 | 36.4 | 15.7 | 6.6 | 481 | 18.1 | 4.6 | 0.7 | 31.9 | 214 | 1 |
| Hardness (CaCO3) | mg/L | - | | 246 | 157 | 205 | 364 | 198 | 245 | 137 | 283 | | 90 | 148 | 265 | 196 |
| Unionized Ammonia | mg/L | 0.02 | -- | 0.0025 | 0.0012 | < 0.01 | **0.1500** | 0.0001 | < 0.01 | 0.0002 | < 0.01 | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aluminum | mg/L | 0.075 | 0.06 | **0.11** | **0.2** | 0.05 | **0.1** | 0.06 | 0.04 | **1.1** | 0.04 | 0.04 | 0.03 | 0.03 | 0.06 | 0.03 |
| Antimony | mg/L | 0.02 | 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 0.0001 | 0.0001 | < 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0004 | 0.0003 |
| Arsenic | mg/L | 0.005 | 0.0008 | 0.0013 | 0.0005 | 0.0009 | 0.0011 | 0.0011 | 0.0005 | 0.0012 | 0.0004 | 0.0006 | 0.0005 | 0.0005 | 0.0007 | 0.0004 |
| Barium | mg/L | - | 0.044 | 0.033 | 0.029 | 0.027 | 0.055 | 0.029 | 0.029 | 0.043 | 0.032 | 0.018 | 0.01 | 0.017 | 0.037 | 0.022 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.082 | 0.053 | 0.016 | 0.049 | 0.102 | 0.016 | 0.055 | 0.012 | 0.071 | 0.006 | 0.01 | < 0.005 | 0.051 | 0.026 |
| Cadmium | mg/L | 0.0005 | 0.000032 | < 0.000014 | 0.000044 | < 0.000015 | 0.000022 | < 0.000014 | < 0.000015 | 0.000223 | < 0.000015 | < 0.000014 | < 0.000015 | 0.000016 | 0.000046 | < 0.000015 |
| Chromium (total) | mg/L | 0.002 | 0.001 | < 0.001 | < 0.001 | 0.001 | <0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 | 0.001 | < 0.001 | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | <0.001 | | | | < 0.001 | | | | | < 0.001 |
| Cobalt | mg/L | 0.0009 | 0.0006 | 0.0004 | 0.0004 | 0.0005 | **0.0032** | 0.0001 | 0.0003 | 0.0009 | 0.0005 | < 0.0001 | < 0.0001 | 0.0001 | 0.0007 | 0.0003 |
| Copper | mg/L | 0.005 | 0.0021 | 0.0006 | **0.0084** | 0.0012 | 0.001 | 0.0003 | 0.001 | **0.0089** | 0.0006 | 0.0005 | 0.001 | 0.0013 | 0.0014 | 0.0004 |
| Lead | mg/L | 0.005 | 0.0008 | 0.00033 | 0.00142 | 0.00019 | 0.00016 | 0.00023 | 0.00019 | **0.00729** | 0.00016 | 0.00017 | 0.00021 | 0.00052 | 0.00185 | 0.00014 |
| Mercury | mg/L | 0.0002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0003 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0003 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0033 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | <0.0001 | < 0.00002 | < 0.0001 | 0.00002 | < 0.0001 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.209 | 0.218 | 0.141 | 0.179 | 0.379 | 0.17 | 0.196 | 0.122 | 0.256 | 0.113 | 0.067 | 0.11 | 0.234 | 0.157 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0014 | 0.0007 | 0.0005 | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0025 | 0.0002 | 0.0004 | 0.0001 | 0.0004 | 0.0011 | 0.0002 |
| Zinc | mg/L | 0.02 | 0.011 | 0.009 | 0.019 | 0.011 | <0.005 | **0.033** | **0.026** | **0.048** | < 0.005 | < 0.005 | 0.013 | 0.008 | **0.025** | < 0.005 |
| Field pH | pH unit | - | -- | 7.22 | 7.54 | 8.14 | 8.35 | 7.36 | 7.2 | 7.72 | 7.88 | -- | 8.23 | 7.33 | 7.12 | 7.96 |
| Field Temp | deg C | - | -- | 16.4 | 1.9 | 1.9 | 6.9 | 16.6 | 5.2 | 0.5 | 5.8 | -- | 2.4 | 4.7 | 4.2 | 5.4 |
| Field Conductivity | us/cm | - | -- | 362 | 330.3 | 460 | 728 | 297 | 441 | 240.8 | 496 | -- | 175 | 283 | 467 | 357 |
| Dissolved Oxygen | mg/L | - | -- | 2.22 | 4.31 | 4 | 3.25 | 2.85 | 4.01 | 12.51 | 5.11 | -- | 4.13 | 5.7 | 4.51 | 6.12 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW12 (30m) 18-Apr-24 | SW12 (30m) 22-Apr-25 | SW12 (30m)-F 22-Apr-25 | SW13 29-Apr-16 | SW13 24-Aug-16 | SW13 04-Oct-16 | SW13 (10m) 20-Jul-17 | SW13 (10m) 23-Oct-17 | SW13 (10m) 24-Apr-18 | SW13 (10m) 12-Apr-19 | SW13 (10m) 24-Apr-19 | SW13 (10m) 22-Oct-19 | SW13 (10m) 23-Apr-20 | SW13 (10m) 11-May-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 180 | 198 | | Dry | Dry | Dry | 159 | 172 | 120 | 69 | 162 | Dry | Dry | 668 |
| BOD | mg/L | - | <3 | <3 | | | | | < 3 | < 3 | < 3 | < 3 | < 3 | | | 6 |
| Calcium | mg/L | - | 62.1 | 78.1 | 71.6 | | | | 62.5 | 67.3 | 50.1 | 29.1 | 60.4 | | | 261 |
| Chloride | mg/L | - | 10.4 | 12.1 | | | | | 6 | 10.2 | 6 | 3.6 | 9.1 | | | 76.9 |
| COD | mg/L | - | 49 | 48 | 44 | | | | 58 | 73 | 70 | 59 | 47 | | | 114 |
| Colour | colour unit | - | 102 | 66 | | | | | 135 | 92 | 74 | 115 | 75 | | | 53 |
| Specific Conductivity | umhos/cm | - | 390 | 412 | | | | | 338 | 374 | 241 | 159 | 359 | | | 1480 |
| DOC | mg/L | - | 18.1 | 7.5 | | | | | 23.5 | 23 | 11.9 | 16.6 | 17.6 | | | 23.5 |
| Fluoride | mg/L | - | <0.1 | <0.1 | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | <0.005 | <0.005 | | | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | | < 0.005 |
| Iron | mg/L | 0.3 | 0.187 | **1.14** | 0.168 | | | | 0.162 | 0.161 | **0.911** | 0.247 | **1.23** | | | **9.72** |
| Magnesium | mg/L | - | 4.56 | 5.24 | 4.89 | | | | 4.61 | 5.2 | 3.71 | 1.91 | 3.53 | | | 19.1 |
| Manganese | mg/L | - | 0.006 | 0.087 | 0.026 | | | | 0.072 | 0.035 | 0.107 | 0.054 | 0.079 | | | 0.611 |
| Nitrate | mg/L | - | 0.48 | 0.3 | | | | | < 0.05 | 0.08 | 0.05 | < 0.05 | < 0.05 | | | 0.18 |
| Nitrite | mg/L | - | <0.05 | <0.05 | | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.79 | 8.12 | | | | | 7.8 | 7.93 | 7.73 | 7.59 | 7.63 | | | 7.84 |
| Phenols | mg/L | 0.001 | <0.001 | 0.001 | | | | | **0.01** | **0.005** | <0.001 | < 0.002 | < 0.002 | | | < 0.002 |
| Total Phosphorus | mg/L | 0.03 | 0.02 | **0.06** | 0.02 | | | | < 0.1 | < 0.1 | **0.05** | **0.08** | **0.14** | | | **0.58** |
| Potassium | mg/L | - | 4.9 | 5 | 4.7 | | | | 1.9 | 3.1 | 2.2 | 1.6 | 3.1 | | | 19.2 |
| Sodium | mg/L | - | 9.2 | 10.1 | 9.5 | | | | 5.2 | 7 | 5.5 | 2.3 | 6.6 | | | 76.9 |
| Sulphate | mg/L | - | 4 | 4 | | | | | < 1 | 1 | 1 | 1 | < 1 | | | 17 |
| TDS | mg/L | - | 206 | 236 | | | | | 175 | 197 | 135 | 82 | 183 | | | 850 |
| TKN | mg/L | - | 0.9 | 0.9 | 0.7 | | | | 1.2 | 1.1 | 0.6 | 0.7 | 1.4 | | | 13.4 |
| Ammonia (NH3-N) | mg/L | - | 0.19 | 0.13 | 0.13 | | | | 0.06 | 0.03 | 0.13 | 0.03 | 0.35 | | | 8.79 |
| Total Suspended Solids | mg/L | - | 4 | 20 | | | | | 14 | < 3 | 5 | 6 | 7 | | | 140 |
| Turbidity | ntu | - | 1 | 9.8 | | | | | 2.1 | 1.1 | 4.6 | 6.9 | 3.3 | | | 88.2 |
| Hardness (CaCO3) | mg/L | - | 174 | 217 | 199 | | | | 175 | 184 | 140 | 81 | 173 | | | 731 |
| Unionized Ammonia | mg/L | 0.02 | <0.01 | <0.01 | | | | | 0.0018 | 0.0004 | 0.0025 | < 0.01 | 0.0100 | | | 0.0100 |
| Aluminum | mg/L | 0.075 | 0.04 | **0.17** | 0.04 | | | | 0.02 | 0.05 | 0.03 | 0.03 | 0.06 | | | **0.1** |
| Antimony | mg/L | 0.02 | 0.0003 | 0.0004 | 0.0006 | | | | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | | 0.0002 |
| Arsenic | mg/L | 0.005 | 0.0003 | 0.0004 | 0.0003 | | | | 0.0011 | 0.0006 | 0.0006 | 0.0003 | 0.0008 | | | 0.0013 |
| Barium | mg/L | - | 0.022 | 0.031 | 0.025 | | | | 0.031 | 0.036 | 0.029 | 0.01 | 0.024 | | | 0.12 |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | <0.0001 | | | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | | < 0.002 |
| Boron | mg/L | - | 0.083 | 0.057 | 0.055 | | | | 0.01 | 0.01 | 0.009 | 0.007 | 0.025 | | | 0.332 |
| Cadmium | mg/L | 0.0005 | <0.000015 | <0.000015 | <0.000015 | | | | 0.000094 | 0.000018 | 0.000086 | 0.000023 | < 0.000015 | | | 0.000075 |
| Chromium (total) | mg/L | 0.002 | <0.001 | <0.001 | <0.001 | | | | < 0.001 | < 0.001 | 0.001 | 0.001 | < 0.001 | | | 0.001 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0003 | 0.0005 | 0.0004 | | | | 0.0002 | < 0.0001 | 0.0003 | 0.0002 | 0.0005 | | | **0.0017** |
| Copper | mg/L | 0.005 | 0.0008 | 0.0007 | 0.0004 | | | | **0.0143** | 0.0027 | **0.015** | 0.003 | 0.0012 | | | 0.0019 |
| Lead | mg/L | 0.005 | 0.00008 | 0.00059 | 0.00005 | | | | 0.0006 | 0.00048 | 0.004 | 0.00098 | 0.00023 | | | 0.00191 |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | <0.00002 | | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | | < 0.00002 |
| Molybdenum | mg/L | 0.04 | <0.0001 | <0.0001 | <0.0001 | | | | 0.0003 | 0.0001 | 0.0005 | 0.0002 | 0.0003 | | | 0.0002 |
| Nickel | mg/L | 0.025 | 0.0008 | 0.0008 | 0.0006 | | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | | < 0.01 |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | <0.001 | | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | | < 0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | | | | 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | | | < 0.0001 |
| Strontium | mg/L | - | 0.157 | 0.178 | 0.165 | | | | 0.17 | 0.176 | 0.121 | 0.06 | 0.127 | | | 0.784 |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | <0.00005 | | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | | < 0.00005 |
| Vanadium | mg/L | 0.006 | <0.0001 | 0.0004 | 0.0001 | | | | 0.0001 | 0.0001 | 0.0004 | 0.0002 | 0.0004 | | | 0.0011 |
| Zinc | mg/L | 0.02 | <0.005 | 0.016 | 0.01 | | | | **0.027** | **0.033** | **0.074** | 0.013 | 0.013 | | | **0.055** |
| Field pH | pH unit | - | 7.58 | 7.75 | | | | | 7.93 | 7.73 | 8.26 | 8.2 | 8.51 | | | 6.91 |
| Field Temp | deg C | - | 7.2 | 6.9 | | | | | 19 | 12.6 | 3 | 0.6 | 1.9 | | | 8.1 |
| Field Conductivity | us/cm | - | 376 | 323 | 323 | | | | 264 | 284 | 314 | 160 | 451 | | | 1038 |
| Dissolved Oxygen | mg/L | - | 5.36 | 5.33 | 5.33 | | | | 1.41 | 3.82 | 2 | 12.65 | 3.34 | | | 2.25 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW13 (10m) 20-Jul-20 | SW13 (10m) 20-Oct-20 | SW13 (10m) 20-Apr-21 | SW13 (10m) 26-Apr-21 | SW13 (10m) 19-Jul-21 | SW13 (10m) 28-Oct-21 | SW13 (10m) 21-Apr-22 | SW13 (10m) 28-Apr-22 | SW13 (10m) 20-Jul-22 | SW13 (10m) 24-Oct-22 | SW13 (10m) 20-Apr-23 | SW13 (10m) 30-Aug-23 | SW13 (10m) 12-Oct-23 | SW13 (10m) 18-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry | Dry | 396 | 473 | Dry | Dry | 341 | 442 | Dry | Dry | 275 | Dry | Dry | 141 |
| BOD | mg/L | - | | | 19 | 11 | | | 4 | 19 | | | 8 | | | 5 |
| Calcium | mg/L | - | | | 359 | 282 | | | 113 | 149 | | | 90.6 | | | 56.1 |
| Chloride | mg/L | - | | | 32.8 | 46.2 | | | 32.7 | 32.8 | | | 19.5 | | | 6.4 |
| COD | mg/L | - | | | 830 | 456 | | | 92 | 187 | | | 105 | | | 114 |
| Colour | colour unit | - | | | 101 | 58 | | | 51 | 59 | | | 91 | | | 104 |
| Specific Conductivity | umhos/cm | - | | | 837 | 1000 | | | 767 | 877 | | | 613 | | | 281 |
| DOC | mg/L | - | | | 41.6 | 22.7 | | | 18.1 | 49.7 | | | 27.8 | | | 15 |
| Fluoride | mg/L | - | | | < 0.1 | < 0.1 | | | < 0.1 | < 0.1 | | | < 0.1 | | | <0.1 |
| Cyanide (free) | mg/L | 0.005 | | | < 0.005 | < 0.005 | | | < 0.005 | < 0.005 | | | < 0.005 | | | <0.005 |
| Iron | mg/L | 0.3 | | | **125** | **77.1** | | | **6.2** | **51.9** | | | **4.8** | | | **0.598** |
| Magnesium | mg/L | - | | | 15.9 | 14.7 | | | 8.63 | 10.4 | | | 5.78 | | | 3.53 |
| Manganese | mg/L | - | | | 3.95 | 2.43 | | | 0.362 | 0.542 | | | 0.177 | | | 0.04 |
| Nitrate | mg/L | - | | | < 0.05 | 0.19 | | | 0.16 | 0.09 | | | 0.24 | | | 0.1 |
| Nitrite | mg/L | - | | | < 0.05 | < 0.05 | | | < 0.05 | < 0.05 | | | < 0.05 | | | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | | | 7.97 | 7.9 | | | 7.95 | 7.9 | | | 7.86 | | | 7.88 |
| Phenols | mg/L | 0.001 | | | < 0.002 | **0.002** | | | < 0.001 | < 0.001 | | | < 0.001 | | | <0.001 |
| Total Phosphorus | mg/L | 0.03 | | | **3.26** | **1.23** | | | **0.12** | **0.64** | | | **0.21** | | | **0.19** |
| Potassium | mg/L | - | | | 13 | 10.5 | | | 8.1 | 10.6 | | | 5.7 | | | 2.5 |
| Sodium | mg/L | - | | | 30.2 | 33.2 | | | 23.1 | 31.4 | | | 13.6 | | | 4.8 |
| Sulphate | mg/L | - | | | < 1 | 2 | | | < 1 | < 1 | | | < 1 | | | 2 |
| TDS | mg/L | - | | | 457 | 751 | | | 401 | 557 | | | 305 | | | 162 |
| TKN | mg/L | - | | | 29.2 | 13.4 | | | 3.6 | 7.2 | | | 3.3 | | | 3.8 |
| Ammonia (NH3-N) | mg/L | - | | | 1.81 | 2.33 | | | 3.57 | 4.4 | | | 1.41 | | | 1.81 |
| Total Suspended Solids | mg/L | - | | | 440 | 285 | | | 24 | 1760 | | | 103 | | | 44 |
| Turbidity | ntu | - | | | 4630 | 1170 | | | 24.7 | 466 | | | 6.8 | | | 2.3 |
| Hardness (CaCO3) | mg/L | - | | | 963 | 487 | | | 317 | 415 | | | 274 | | | 155 |
| Unionized Ammonia | mg/L | 0.02 | | | < 0.01 | < 0.01 | | | 0.0200 | **0.0300** | | | 0.0100 | | | 0.0200 |
| Aluminum | mg/L | 0.075 | | | 0.04 | **0.1** | | | 0.04 | 0.05 | | | 0.03 | | | 0.06 |
| Antimony | mg/L | 0.02 | | | < 0.001 | < 0.001 | | | 0.0003 | 0.0003 | | | 0.0005 | | | <0.0001 |
| Arsenic | mg/L | 0.005 | | | **0.0152** | **0.0106** | | | 0.0015 | **0.006** | | | 0.0009 | | | 0.0004 |
| Barium | mg/L | - | | | 0.478 | 0.288 | | | 0.047 | 0.164 | | | 0.042 | | | 0.02 |
| Beryllium | mg/L | 1.1 | | | < 0.002 | < 0.002 | | | < 0.002 | < 0.002 | | | < 0.002 | | | <0.0001 |
| Boron | mg/L | - | | | 0.215 | 0.18 | | | 0.047 | 0.095 | | | 0.041 | | | 0.024 |
| Cadmium | mg/L | 0.0005 | | | **0.00275** | **0.00129** | | | < 0.000015 | 0.000029 | | | 0.000027 | | | <0.000015 |
| Chromium (total) | mg/L | 0.002 | | | **0.017** | **0.011** | | | < 0.001 | < 0.001 | | | < 0.001 | | | <0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | < 0.001 | < 0.001 | | | < 0.001 | | | <0.001 |
| Cobalt | mg/L | 0.0009 | | | **0.0137** | **0.0084** | | | **0.0012** | **0.0021** | | | 0.0007 | | | 0.0002 |
| Copper | mg/L | 0.005 | | | **0.0396** | **0.0239** | | | 0.0007 | 0.0015 | | | 0.001 | | | 0.0008 |
| Lead | mg/L | 0.005 | | | **0.0499** | **0.038** | | | 0.00018 | 0.00127 | | | 0.00111 | | | 0.00024 |
| Mercury | mg/L | 0.0002 | | | **0.00032** | 0.00005 | | | < 0.00002 | < 0.00002 | | | < 0.00002 | | | <0.00002 |
| Molybdenum | mg/L | 0.04 | | | < 0.001 | < 0.001 | | | 0.0001 | 0.0002 | | | < 0.0001 | | | <0.0001 |
| Nickel | mg/L | 0.025 | | | 0.02 | 0.01 | | | < 0.01 | < 0.01 | | | < 0.01 | | | 0.0018 |
| Selenium | mg/L | 0.1 | | | < 0.01 | < 0.01 | | | < 0.001 | < 0.001 | | | < 0.001 | | | <0.001 |
| Silver | mg/L | 0.0001 | | | < 0.0002 | < 0.0002 | | | < 0.0001 | < 0.0001 | | | < 0.0001 | | | <0.0001 |
| Strontium | mg/L | - | | | 0.793 | 0.672 | | | 0.303 | 0.413 | | | 0.224 | | | 0.127 |
| Thallium | mg/L | 0.0003 | | | < 0.0005 | < 0.0005 | | | < 0.00005 | < 0.00005 | | | < 0.00005 | | | <0.00005 |
| Vanadium | mg/L | 0.006 | | | **0.0218** | **0.015** | | | 0.0003 | 0.0012 | | | 0.0005 | | | 0.0002 |
| Zinc | mg/L | 0.02 | | | **0.95** | **0.449** | | | 0.009 | **0.024** | | | 0.013 | | | 0.009 |
| Field pH | pH unit | - | | | 7.12 | 6.59 | | | 8 | 7.66 | | | 7.76 | | | 7.83 |
| Field Temp | deg C | - | | | 5.2 | 3.1 | | | 5.1 | 9 | | | 10.2 | | | 7.8 |
| Field Conductivity | us/cm | - | | | 1150 | 827 | | | 230 | 725 | | | 395 | | | 263 |
| Dissolved Oxygen | mg/L | - | | | 14.53 | 4.5 | | | 5.6 | 1.97 | | | 8.33 | | | 1.17 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW13 (10m) 18-Apr-24 | SW13 (10m) 11-Jul-24 | SW13 (10m) 07-Oct-24 | SW13 (10m) 22-Apr-25 | SW13 (10m)-F 22-Apr-25 | SW13 (10m) 22-Jul-25 | SW13 (10m) 30-Sep-25 | SW13 (15m) 02-May-17 | SW13 (15m) 21-Jun-17 | SW13 (15m) 24-Apr-18 | SW13 (15m) 11-May-20 | SW13 (30m) 29-Apr-16 | SW13 (30m) 18-Apr-17 | SW13 (30m) 02-May-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 188 | 288 | Dry | 263 | | Dry | Dry | 145 | 159 | 169 | 181 | 157 | 144 | 120 |
| BOD | mg/L | - | <3 | <3 | | 9 | | | | < 3 | < 3 | < 3 | 7 | < 3 | < 3 | < 3 |
| Calcium | mg/L | - | 66.8 | 157 | | 98.5 | 95.7 | | | 50.9 | 63.9 | 54.2 | 72 | 60.9 | 49.1 | 49 |
| Chloride | mg/L | - | 11.1 | 22.2 | | 15.6 | | | | 7.9 | 6.4 | 9 | 13.7 | 10.1 | 8.1 | 6.6 |
| COD | mg/L | - | 51 | 181 | | 74 | 45 | | | 41 | 125 | 39 | 50 | 44 | 43 | 52 |
| Colour | colour unit | - | 107 | 80 | | 56 | | | | 101 | 105 | 62 | 69 | 68 | 105 | 101 |
| Specific Conductivity | umhos/cm | - | 405 | 643 | | 550 | | | | 315 | 336 | 339 | 405 | 349 | 308 | 260 |
| DOC | mg/L | - | 19.4 | 18.2 | | 8.1 | | | | 7.9 | 21.4 | 12 | 17.6 | 15.6 | 19.6 | 10.2 |
| Fluoride | mg/L | - | <0.1 | <0.1 | | <0.1 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | <0.005 | <0.005 | | <0.005 | | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | **0.385** | **13.3** | | **2.68** | **0.431** | | | 0.225 | **0.544** | **1.25** | **0.402** | 0.11 | 0.149 | 0.093 |
| Magnesium | mg/L | - | 4.94 | 12.8 | | 7.14 | 6.9 | | | 2.95 | 4.24 | 4.14 | 4.07 | 3.78 | 2.87 | 3.46 |
| Manganese | mg/L | - | 0.018 | 0.498 | | 0.082 | 0.057 | | | 0.008 | 0.112 | 0.123 | 0.044 | 0.008 | 0.007 | 0.039 |
| Nitrate | mg/L | - | 0.48 | 0.06 | | 0.61 | | | | < 0.1 | < 0.05 | < 0.05 | 0.29 | < 0.1 | < 0.1 | < 0.1 |
| Nitrite | mg/L | - | <0.05 | 0.05 | | **0.08** | | | | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.1 | < 0.1 | < 0.1 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.76 | 7.6 | | 8.11 | | | | 7.98 | 7.77 | 7.75 | 7.99 | 7.97 | 7.97 | 7.89 |
| Phenols | mg/L | 0.001 | <0.001 | <0.001 | | **0.002** | | | | **0.003** | **0.003** | < 0.001 | < 0.002 | **0.006** | **0.014** | **0.003** |
| Total Phosphorus | mg/L | 0.03 | 0.03 | **0.2** | | **0.18** | 0.03 | | | < 0.1 | **0.1** | **0.15** | **0.04** | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | 5.5 | 13.1 | | 8.5 | 8.2 | | | 1.4 | 1.2 | 2.8 | 2.3 | 1.9 | 1.4 | 1.3 |
| Sodium | mg/L | - | 10.3 | 42.7 | | 17 | 16.5 | | | 4.9 | 5.4 | 6.8 | 9 | 7.1 | 4.3 | 4.2 |
| Sulphate | mg/L | - | 5 | 13 | | 4 | | | | 4 | < 1 | 1 | 3 | 3 | 4 | 3 |
| TDS | mg/L | - | 219 | 341 | | 315 | | | | 159 | 177 | 182 | 218 | 181 | 156 | 140 |
| TKN | mg/L | - | 1 | 3.8 | | 2.7 | 1.8 | | | 0.6 | 4.5 | 2.2 | 0.8 | 0.7 | 0.6 | 0.9 |
| Ammonia (NH3-N) | mg/L | - | 0.27 | 0.99 | | 1.36 | 1.26 | | | < 0.01 | 0.02 | 0.5 | 0.06 | 0.04 | 0.03 | < 0.01 |
| Total Suspended Solids | mg/L | - | 5 | 19 | | 31 | | | | 4 | 28 | 42 | 260 | < 3 | 7 | 7 |
| Turbidity | ntu | - | 2.8 | 14.3 | | 13.3 | | | | 5.1 | 8.9 | 75.1 | 14.9 | 1.1 | 3.1 | 2.4 |
| Hardness (CaCO3) | mg/L | - | 187 | 444 | | 276 | 268 | | | | 181 | 153 | 197 | 168 | 168 | |
| Unionized Ammonia | mg/L | 0.02 | <0.01 | <0.01 | | <0.01 | | | | -- | 0.0001 | 0.0012 | < 0.01 | 0.0036 | 0.0001 | -- |
| Aluminum | mg/L | 0.075 | 0.06 | **0.28** | | 0.06 | 0.03 | | | 0.03 | 0.02 | **0.08** | 0.05 | 0.03 | 0.07 | 0.02 |
| Antimony | mg/L | 0.02 | 0.0004 | 0.0006 | | 0.0006 | 0.0005 | | | 0.0004 | 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | 0.0003 |
| Arsenic | mg/L | 0.005 | 0.0003 | 0.0016 | | 0.0003 | 0.0005 | | | 0.0006 | 0.0011 | 0.0008 | 0.0005 | 0.0004 | 0.0005 | 0.0005 |
| Barium | mg/L | - | 0.026 | 0.118 | | 0.043 | 0.04 | | | 0.017 | 0.033 | 0.028 | 0.024 | 0.015 | 0.015 | 0.019 |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.093 | 0.37 | | 0.094 | 0.09 | | | 0.006 | 0.01 | 0.016 | 0.012 | < 0.005 | 0.016 | < 0.005 |
| Cadmium | mg/L | 0.0005 | <0.000015 | 0.000055 | | <0.000015 | <0.000015 | | | < 0.000014 | 0.000082 | 0.000031 | < 0.000015 | < 0.00002 | < 0.000014 | < 0.000014 |
| Chromium (total) | mg/L | 0.002 | <0.001 | <0.001 | | <0.001 | <0.001 | | | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.0002 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | | <0.001 | <0.001 | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0004 | **0.0031** | | 0.0005 | 0.0006 | | | 0.0001 | 0.0002 | 0.0004 | 0.0002 | < 0.005 | < 0.0001 | < 0.0001 |
| Copper | mg/L | 0.005 | 0.0007 | 0.0027 | | 0.0005 | 0.0007 | | | 0.0006 | 0.004 | **0.0081** | 0.0009 | 0.0003 | < 0.0001 | 0.0002 |
| Lead | mg/L | 0.005 | 0.00009 | 0.00094 | | 0.00002 | 0.00021 | | | 0.00015 | 0.00392 | 0.00167 | 0.00057 | 0.00008 | 0.00004 | 0.00021 |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | | <0.00002 | <0.00002 | | | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00008 |
| Molybdenum | mg/L | 0.04 | 0.0001 | 0.0002 | | <0.0001 | <0.0001 | | | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 |
| Nickel | mg/L | 0.025 | 0.0009 | 0.0058 | | 0.001 | 0.0016 | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | | <0.001 | <0.001 | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | 0.171 | 0.604 | | 0.242 | 0.233 | | | 0.11 | 0.164 | 0.135 | 0.147 | 0.137 | 0.1 | 0.116 |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | | <0.00005 | <0.00005 | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0001 | 0.0008 | | <0.0001 | 0.0003 | | | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0001 | 0.0003 | < 0.0001 |
| Zinc | mg/L | 0.02 | <0.005 | 0.02 | | 0.012 | 0.008 | | | **0.192** | **0.037** | 0.017 | **0.045** | < 0.005 | < 0.005 | **0.056** |
| Field pH | pH unit | - | 7.98 | 7.18 | | 6.98 | | | | -- | 7.14 | 7.42 | 7.28 | 8.87 | 7.38 | -- |
| Field Temp | deg C | - | 7.2 | 19.4 | | 6.4 | | | | -- | 16.2 | 1.6 | 5.6 | 5.6 | 4.8 | -- |
| Field Conductivity | us/cm | - | 395 | 667 | | 632 | 632 | | | -- | 275 | 537 | 402 | 285 | 250 | -- |
| Dissolved Oxygen | mg/L | - | 5.31 | 0.9 | | 5.68 | 5.68 | | | -- | 2.43 | 3.48 | 1.77 | 6.2 | 6.21 | -- |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW13 (30m) 21-Jun-17 | SW13 (30m) 20-Jul-17 | SW13 (30m) 23-Oct-17 | SW13 (30m) 24-Apr-18 | SW13 (30m) 24-Apr-18 | SW13 (30m) 12-Apr-19 | SW13 (30m) 24-Apr-19 | SW13 (30m) 08-Jul-19 | SW13 (30m) 22-Oct-19 | SW13 (30m) 23-Apr-20 | SW13 (30m) 20-Oct-20 | SW13 (30m) 20-Apr-21 | SW13 (30m) 26-Apr-21 | SW13 (30m) 19-Jul-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 167 | 165 | 161 | 88 | 89 | 69 | 78 | 183 | Dry | 137 | 206 | 140 | 151 | 210 |
| BOD | mg/L | - | < 3 | 6 | 4 | < 3 | < 3 | < 3 | < 3 | 3 | | < 3 | 15 | 3 | 6 | < 6 |
| Calcium | mg/L | - | 62.9 | 64.3 | 68.3 | 38.9 | 32.8 | 30.8 | 32.5 | 72.4 | | 61.1 | 88.7 | 58.8 | 61.3 | 76.5 |
| Chloride | mg/L | - | 9.9 | 6 | 10.2 | 4.1 | 4.1 | 3.7 | 3.9 | 8.2 | | 10.2 | 19.2 | 7.8 | 8.8 | 12.2 |
| COD | mg/L | - | 77 | 94 | 565 | 96 | 37 | 53 | 47 | 331 | | 38 | 194 | 95 | 94 | 61 |
| Colour | colour unit | - | 145 | 120 | 86 | 100 | 85 | 121 | 101 | 140 | | 63 | 104 | 77 | 78 | 118 |
| Specific Conductivity | umhos/cm | - | 359 | 337 | 350 | 190 | 183 | 160 | 180 | 340 | | 320 | 422 | 298 | 318 | 428 |
| DOC | mg/L | - | 33.8 | 25.3 | 26.5 | 13 | 11.8 | 17.1 | 18.9 | 26.5 | | 14.1 | 35.9 | 20.4 | 19.8 | 26.1 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | 0.078 | 0.271 | **0.733** | 0.246 | 0.062 | 0.16 | 0.035 | 0.246 | | 0.047 | **1.79** | **0.392** | **0.552** | 0.107 |
| Magnesium | mg/L | - | 3.41 | 4.58 | 4.83 | 3.3 | 2.16 | 2.01 | 2.14 | 4.32 | | 3.6 | 5.13 | 3.36 | 3.67 | 4.42 |
| Manganese | mg/L | - | 0.015 | 0.543 | 0.184 | 0.035 | 0.006 | 0.06 | 0.004 | 0.209 | | 0.006 | 1.03 | 0.096 | 0.123 | 0.068 |
| Nitrate | mg/L | - | < 0.05 | < 0.05 | 0.27 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.08 | | 0.14 | < 0.05 | < 0.05 | < 0.05 | 0.12 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.83 | 8.09 | 8 | 7.87 | 7.67 | 7.61 | 7.37 | 7.78 | | 7.91 | 7.83 | 7.93 | 7.87 | 8 |
| Phenols | mg/L | 0.001 | **0.004** | **0.01** | **0.006** | <0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.002 |
| Total Phosphorus | mg/L | 0.03 | **0.2** | **0.2** | **0.2** | **0.17** | 0.02 | **0.1** | **0.04** | **0.46** | | 0.01 | **0.27** | **0.2** | **0.19** | **0.05** |
| Potassium | mg/L | - | 0.7 | 1.6 | 2.2 | 1.4 | 1.3 | 1.7 | 1.8 | 0.7 | | 1.9 | 3 | 1.7 | 1.8 | 1.8 |
| Sodium | mg/L | - | 5.4 | 5.1 | 6.3 | 3.6 | 2.5 | 2.5 | 2.5 | 5.5 | | 6.3 | 8.5 | 5.3 | 5.9 | 6.8 |
| Sulphate | mg/L | - | < 1 | 1 | 1 | 2 | 1 | 1 | < 1 | < 1 | | 6 | 3 | 1 | 2 | < 1 |
| TDS | mg/L | - | 183 | 180 | 190 | 103 | 98 | 84 | 90 | 202 | | 171 | 246 | 159 | 175 | 236 |
| TKN | mg/L | - | 1.1 | 1.6 | 6.5 | 2.2 | 0.4 | 1.1 | 0.6 | 4.7 | | 0.5 | 3.8 | 1.6 | 2.1 | 1 |
| Ammonia (NH3-N) | mg/L | - | 0.01 | 0.05 | 0.06 | 0.04 | 0.02 | 0.09 | 0.04 | 0.09 | | 0.01 | 0.01 | 0.04 | 0.04 | 0.08 |
| Total Suspended Solids | mg/L | - | 4 | 64 | 40 | 10 | < 3 | 15 | 4 | 92 | | 6 | 2240 | 14 | 76 | 15 |
| Turbidity | ntu | - | 1.9 | 6.2 | 16.3 | 5.8 | 0.7 | 7.2 | 0.9 | 64.8 | | 1.4 | 620 | 21.4 | 105 | 8.3 |
| Hardness (CaCO3) | mg/L | - | 198 | 179 | 179 | 111 | 91 | 83 | 90 | 190 | | 163 | 243 | 161 | 169 | 228 |
| Unionized Ammonia | mg/L | 0.02 | 0.0005 | 0.0006 | 0.0005 | 0.0004 | 0.0000 | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aluminum | mg/L | 0.075 | 0.03 | 0.02 | 0.05 | 0.04 | 0.03 | 0.06 | 0.03 | 0.06 | | 0.03 | 0.02 | < 0.01 | 0.05 | 0.05 |
| Antimony | mg/L | 0.02 | 0.0001 | 0.0002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 0.0003 | | 0.0002 | 0.0001 | 0.0003 | 0.0003 | 0.0006 |
| Arsenic | mg/L | 0.005 | 0.0019 | 0.0013 | 0.001 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0008 | | 0.0003 | 0.0009 | 0.0005 | 0.0006 | 0.0017 |
| Barium | mg/L | - | 0.021 | 0.036 | 0.044 | 0.026 | 0.008 | 0.01 | 0.008 | 0.028 | | 0.016 | 0.045 | 0.02 | 0.022 | 0.027 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.007 | 0.011 | 0.018 | 0.005 | < 0.005 | 0.01 | 0.005 | 0.009 | | 0.015 | 0.022 | 0.01 | 0.011 | 0.023 |
| Cadmium | mg/L | 0.0005 | 0.00005 | 0.000079 | 0.000074 | 0.000074 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | | < 0.000015 | 0.000119 | 0.000025 | 0.000033 | < 0.000015 |
| Chromium (total) | mg/L | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | | < 0.001 | 0.002 | < 0.001 | 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | < 0.0001 | 0.0005 | 0.0002 | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 | 0.0003 | | < 0.0001 | **0.001** | 0.0002 | 0.0002 | 0.0001 |
| Copper | mg/L | 0.005 | 0.0029 | **0.006** | 0.0031 | **0.0092** | 0.0002 | 0.0009 | 0.0003 | 0.0003 | | 0.0004 | 0.0027 | 0.0006 | 0.0007 | 0.0002 |
| Lead | mg/L | 0.005 | 0.00119 | 0.00115 | 0.00312 | 0.00261 | 0.00003 | 0.00023 | 0.00009 | 0.00027 | | 0.00006 | **0.00597** | 0.00123 | 0.0015 | 0.00012 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | 0.00004 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | < 0.0001 | | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0003 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.00002 | 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | - | 0.151 | 0.18 | 0.178 | 0.105 | 0.067 | 0.063 | 0.069 | 0.164 | | 0.121 | 0.171 | 0.118 | 0.133 | 0.179 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | | 0.0002 | 0.0008 | 0.0003 | 0.0004 | 0.0001 |
| Zinc | mg/L | 0.02 | 0.008 | **0.026** | **0.027** | **0.027** | < 0.005 | 0.015 | < 0.005 | 0.013 | | < 0.005 | **0.03** | 0.018 | **0.022** | 0.013 |
| Field pH | pH unit | - | 8.22 | 7.53 | 7.5 | 7.95 | 7.44 | 8.34 | 8.51 | 7.31 | | 7.7 | 8.5 | 7.08 | 7.1 | 6.97 |
| Field Temp | deg C | - | 16.2 | 18.3 | 13.5 | 2.9 | 0.1 | 0.5 | 3.7 | 16.6 | | 1 | 7.1 | 5.2 | 6.4 | 19.7 |
| Field Conductivity | us/cm | - | 293 | 272 | 325 | 205 | 221.8 | 170 | 165 | 309 | | 365 | 470 | 390 | 285 | 403 |
| Dissolved Oxygen | mg/L | - | 1.22 | 1.04 | 0.75 | 4.77 | 6.18 | 14.54 | 4.3 | 7.31 | | 5.66 | 2.55 | 12.81 | 6.32 | 1.55 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW13 (30m) 28-Oct-21 | SW13 (30m) 21-Apr-22 | SW13 (30m) 28-Apr-22 | SW13 (30m) 20-Jul-22 | SW13 (30m) 24-Oct-22 | SW13 (30m) 19-Apr-23 | SW13 (30m) 30-Aug-23 | SW13 (30m) 12-Oct-23 | SW13 (30m) 18-Apr-24 | SW13 (30m) 18-Apr-24 | SW13 (30m) 11-Jul-24 | SW13 (30m) 07-Oct-24 | SW13 (30m) 22-Apr-25 | SW13 (30m)-F 22-Apr-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 159 | 120 | 130 | 185 | Dry | 122 | Dry | 216 | 121 | 121 | 128 | 211 | 124 | |
| BOD | mg/L | - | 6 | < 3 | < 3 | 4 | | < 3 | | 13 | <3 | <3 | <3 | 18 | <3 | |
| Calcium | mg/L | - | 72.3 | 41.3 | 49.3 | 76.4 | | 46.5 | | 79.2 | 53.5 | 41.6 | 51 | 83 | 48.1 | 50.9 |
| Chloride | mg/L | - | 13.1 | 6.8 | 7.2 | 12 | | 5.3 | | 15.7 | 5.3 | 5.4 | 16.3 | 14.9 | 7.5 | |
| COD | mg/L | - | 143 | 42 | 56 | 93 | | 51 | | 242 | 132 | 56 | 57 | 394 | 38 | 71 |
| Colour | colour unit | - | 78 | 85 | 79 | 105 | | 95 | | 92 | 89 | 100 | 106 | 78 | 71 | |
| Specific Conductivity | umhos/cm | - | 360 | 259 | 269 | 387 | | 263 | | 447 | 245 | 248 | 297 | 431 | 259 | |
| DOC | mg/L | - | 21.8 | 20.7 | 18.3 | 28 | | 11.8 | | 50.2 | 20.2 | 16.4 | 15 | 30 | 7.2 | |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | <0.005 | <0.005 | <0.005 | <0.005 | <0.008 | <0.005 | |
| Iron | mg/L | 0.3 | **0.838** | 0.122 | 0.197 | **1.52** | | **0.527** | | **8.79** | **0.95** | 0.102 | **0.889** | **2.97** | 0.3 | 0.092 |
| Magnesium | mg/L | - | 4.27 | 2.69 | 3.18 | 4.19 | | 2.79 | | 5.15 | 3.11 | 2.72 | 2.98 | 5.19 | 3.11 | 3.25 |
| Manganese | mg/L | - | 0.09 | 0.024 | 0.04 | 0.471 | | 0.081 | | 0.349 | 0.33 | 0.017 | 0.102 | 0.114 | 0.05 | 0.01 |
| Nitrate | mg/L | - | < 0.05 | < 0.05 | < 0.05 | 0.08 | | 0.06 | | 0.06 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | | 0.06 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | |
| pH Lab | pH unit | 6.5 - 8.5 | 7.34 | 7.15 | 7.8 | 7.88 | | 7.38 | | 8.08 | 7.79 | 7.4 | 6.99 | 7.87 | 7.91 | |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | |
| Total Phosphorus | mg/L | 0.03 | **0.37** | 0.03 | **0.05** | **0.18** | | **0.05** | | **1.1** | **0.14** | **0.06** | **0.1** | **0.59** | 0.03 | **0.12** |
| Potassium | mg/L | - | 2.2 | 1.6 | 1.8 | 1.4 | | 1.8 | | 6.4 | 1.6 | 1.6 | 4.4 | 4.8 | 2 | 2.1 |
| Sodium | mg/L | - | 5.8 | 3.8 | 4.8 | 5.9 | | 3.8 | | 7 | 3.5 | 3.7 | 3.8 | 7.4 | 4.2 | 4.4 |
| Sulphate | mg/L | - | < 1 | 2 | 2 | 1 | | < 1 | | 2 | 2 | 2 | <1 | <1 | 3 | |
| TDS | mg/L | - | 194 | 130 | 146 | 214 | | 134 | | 254 | 143 | 130 | 157 | 245 | 142 | |
| TKN | mg/L | - | 5.8 | 0.6 | 2.6 | 2.5 | | 0.8 | | 6.3 | 2.3 | 1.1 | 1.1 | 9.6 | 0.5 | 1.3 |
| Ammonia (NH3-N) | mg/L | - | 0.09 | 0.06 | 2.55 | 0.53 | | 0.06 | | 0.29 | 0.27 | 0.16 | 0.08 | 0.26 | <0.05 | <0.05 |
| Total Suspended Solids | mg/L | - | 29 | 7 | 52 | 21 | | 16 | | 360 | 108 | 12 | 19 | 2680 | 9 | |
| Turbidity | ntu | - | 25.1 | 4.5 | 6.5 | 37.2 | | 10.2 | | 34.1 | 56.1 | 3.5 | 4.4 | 568 | 1.8 | |
| Hardness (CaCO3) | mg/L | - | 197 | 114 | 136 | 208 | | 130 | | 219 | 147 | 115 | 140 | 229 | 133 | 141 |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | < 0.01 | **0.0400** | < 0.01 | | < 0.01 | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | |
| Aluminum | mg/L | 0.075 | 0.06 | 0.01 | 0.02 | 0.05 | | 0.02 | | 0.06 | **0.17** | 0.04 | **0.14** | **0.26** | 0.05 | 0.03 |
| Antimony | mg/L | 0.02 | 0.0004 | 0.0003 | 0.0003 | 0.0006 | | 0.0006 | | 0.0001 | 0.0001 | 0.0006 | 0.0004 | 0.0004 | 0.0004 | 0.0003 |
| Arsenic | mg/L | 0.005 | 0.0006 | 0.0003 | 0.0003 | 0.0009 | | 0.0004 | | 0.002 | 0.0004 | 0.0003 | 0.0007 | 0.0008 | 0.0003 | 0.0002 |
| Barium | mg/L | - | 0.025 | 0.013 | 0.015 | 0.033 | | 0.015 | | 0.068 | 0.025 | 0.012 | 0.023 | 0.037 | 0.017 | 0.016 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | - | 0.013 | 0.005 | 0.008 | 0.007 | | 0.007 | | 0.026 | 0.005 | <0.005 | 0.024 | 0.02 | 0.008 | 0.012 |
| Cadmium | mg/L | 0.0005 | 0.000029 | < 0.000015 | < 0.000015 | 0.000016 | | < 0.000015 | | 0.000099 | 0.000077 | <0.000015 | <0.000015 | 0.000128 | <0.000015 | <0.000015 |
| Chromium (total) | mg/L | 0.002 | 0.001 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Chromium (VI) | mg/L | 0.001 | | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0009 | 0.0003 | 0.0001 | 0.0001 | 0.0008 | | 0.0002 | | **0.001** | 0.0004 | 0.0003 | 0.0004 | 0.0007 | 0.0002 | 0.0001 |
| Copper | mg/L | 0.005 | 0.0012 | 0.0003 | 0.0007 | 0.0011 | | 0.0003 | | 0.0025 | 0.0013 | 0.0005 | 0.0008 | 0.0029 | 0.0005 | 0.0003 |
| Lead | mg/L | 0.005 | 0.00216 | 0.00017 | 0.00055 | 0.00109 | | 0.00024 | | 0.00445 | 0.00397 | 0.00019 | 0.00049 | 0.00374 | 0.00036 | 0.00003 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | | 0.00004 | 0.00003 | <0.00002 | <0.00002 | 0.00009 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | | 0.0002 | 0.0001 | <0.0001 | 0.0001 | 0.0003 | <0.0001 | <0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | | 0.002 | 0.0009 | 0.0006 | 0.0008 | 0.0011 | 0.0006 | 0.0005 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | 0.151 | 0.09 | 0.104 | 0.177 | | 0.1 | | 0.191 | 0.118 | 0.095 | 0.14 | 0.196 | 0.103 | 0.107 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.006 | 0.0005 | 0.0002 | 0.0002 | 0.0003 | | 0.0002 | | 0.0011 | 0.0003 | <0.0001 | 0.0003 | 0.001 | 0.0002 | 0.0001 |
| Zinc | mg/L | 0.02 | **0.023** | < 0.005 | 0.006 | 0.019 | | 0.007 | | **0.037** | 0.015 | 0.008 | 0.01 | **0.029** | 0.008 | 0.007 |
| Field pH | pH unit | - | 8.23 | 8 | 8.05 | 7.3 | | 7.84 | | 7.53 | 8.09 | 7.97 | 7.33 | 7.06 | 7.02 | |
| Field Temp | deg C | - | 5.6 | 5.1 | 5.9 | 21.6 | | 10.6 | | 8.7 | 7.3 | 7.7 | 19.4 | 12.1 | 7 | |
| Field Conductivity | us/cm | - | 350 | 230 | 243 | 325 | | 240 | | 328 | 241 | 241 | 512 | 456 | 230 | 230 |
| Dissolved Oxygen | mg/L | - | 6.43 | 5.6 | 2.82 | 4.05 | | 7.85 | | 2.69 | 1.84 | 5.82 | 0.9 | 2.2 | 4.61 | 4.61 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW13 (30m) 30-Sep-25 | SW14 29-Apr-16 | SW14 24-Aug-16 | SW14 04-Oct-16 | SW14 18-Apr-17 | SW14 (10m) 21-Jun-17 | SW14 20-Jul-17 | SW14 23-Oct-17 | SW14 24-Apr-18 | SW14 (10m) 24-Apr-18 | SW14 12-Apr-19 | SW14 24-Apr-19 | SW14 08-Jul-19 | SW14 22-Oct-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry | 128 | Dry | Dry | 115 | 163 | 159 | 164 | 92 | 93 | 64 | 91 | 209 | Dry |
| BOD | mg/L | - | | < 3 | | | < 3 | < 3 | < 3 | 6 | < 3 | < 3 | < 3 | < 3 | < 3 | |
| Calcium | mg/L | - | | 51.4 | | | 39.7 | 66.2 | 76.4 | 67.9 | 40.1 | 36.1 | 29.4 | 38.7 | 93.8 | |
| Chloride | mg/L | - | | 6.8 | | | 7 | 7 | 5.5 | 9.5 | 4 | 3.9 | 3.2 | 5.6 | 10.2 | |
| COD | mg/L | - | | 50 | | | 58 | 74 | 602 | 561 | 39 | 42 | 51 | 51 | 65 | |
| Colour | colour unit | - | | 84 | | | 134 | 112 | 140 | 88 | 140 | 130 | 143 | 144 | 143 | |
| Specific Conductivity | umhos/cm | - | | 278 | | | 254 | 339 | 332 | 360 | 196 | 186 | 147 | 210 | 445 | |
| DOC | mg/L | - | | 15.8 | | | 21.3 | 21.1 | 24.9 | 25.1 | 8.9 | 13 | 17.1 | 18.7 | 31.9 | |
| Fluoride | mg/L | - | | < 0.1 | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | |
| Cyanide (free) | mg/L | 0.005 | | < 0.005 | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | |
| Iron | mg/L | 0.3 | | 0.038 | | | 0.065 | 0.29 | **4.08** | **0.356** | 0.253 | 0.197 | 0.233 | 0.27 | **1.22** | |
| Magnesium | mg/L | - | | 3.31 | | | 2.53 | 4.35 | 4.91 | 5.12 | 3.22 | 2.87 | 1.88 | 2.26 | 5.53 | |
| Manganese | mg/L | - | | 0.008 | | | 0.013 | 0.344 | 2.69 | 0.159 | 0.032 | 0.063 | 0.043 | 0.137 | 1.32 | |
| Nitrate | mg/L | - | | 0.1 | | | < 0.1 | 0.05 | < 0.05 | 0.13 | 0.08 | 0.07 | < 0.05 | < 0.05 | 0.06 | |
| Nitrite | mg/L | - | | < 0.1 | | | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | |
| pH Lab | pH unit | 6.5 - 8.5 | | 7.93 | | | 7.89 | 7.75 | 8.14 | 7.96 | 7.95 | 7.61 | 7.61 | 7.83 | 7.92 | |
| Phenols | mg/L | 0.001 | | **0.008** | | | **0.004** | **0.009** | **0.013** | **0.028** | < 0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | |
| Total Phosphorus | mg/L | 0.03 | | < 0.1 | | | < 0.1 | < 0.1 | **0.6** | **0.1** | 0.03 | 0.03 | **0.05** | **0.04** | **0.09** | |
| Potassium | mg/L | - | | 1.6 | | | 1.2 | 1.8 | 1.8 | 3 | 1.4 | 1.4 | 1.5 | 1.9 | 2.5 | |
| Sodium | mg/L | - | | 4.8 | | | 3.3 | 5.8 | 4.8 | 6.7 | 3.5 | 3.1 | 2.1 | 3.7 | 6.7 | |
| Sulphate | mg/L | - | | 4 | | | 4 | < 1 | < 1 | 1 | 2 | 2 | 1 | 1 | < 1 | |
| TDS | mg/L | - | | 149 | | | 127 | 184 | 180 | 193 | 107 | 106 | 78 | 107 | 247 | |
| TKN | mg/L | - | | 0.6 | | | 0.7 | 0.8 | 29.9 | 4.8 | 0.5 | 0.6 | 0.7 | 0.7 | 1 | |
| Ammonia (NH3-N) | mg/L | - | | 0.04 | | | 0.02 | 0.03 | 0.18 | 0.05 | 0.04 | 0.06 | 0.04 | 0.09 | 0.17 | |
| Total Suspended Solids | mg/L | - | | < 3 | | | < 3 | 25 | 38 | 320 | 9 | 11 | < 3 | < 3 | 16 | |
| Turbidity | ntu | - | | 0.5 | | | 1 | 9 | 7.7 | 154 | 4.4 | 12.8 | 0.8 | 2.4 | 36.6 | |
| Hardness (CaCO3) | mg/L | - | | 142 | | | 140 | 189 | 211 | 178 | 113 | 102 | 78 | 106 | 247 | |
| Unionized Ammonia | mg/L | 0.02 | | 0.0013 | | | 0.0001 | 0.0004 | 0.0138 | 0.0002 | 0.0011 | 0.0003 | < 0.01 | < 0.01 | < 0.01 | |
| Aluminum | mg/L | 0.075 | | 0.03 | | | 0.04 | 0.07 | 0.03 | 0.04 | 0.04 | **0.09** | 0.05 | 0.04 | 0.05 | |
| Antimony | mg/L | 0.02 | | <0.0001 | | | < 0.0001 | 0.0001 | 0.0004 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 | 0.0003 | |
| Arsenic | mg/L | 0.005 | | 0.0004 | | | 0.0005 | 0.0011 | 0.0033 | 0.0008 | 0.0002 | 0.0002 | 0.0004 | 0.0005 | 0.0028 | |
| Barium | mg/L | - | | 0.012 | | | 0.011 | 0.029 | 0.072 | 0.041 | 0.023 | 0.018 | 0.01 | 0.015 | 0.041 | |
| Beryllium | mg/L | 1.1 | | < 0.002 | | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | |
| Boron | mg/L | - | | < 0.005 | | | 0.012 | 0.01 | 0.019 | 0.016 | < 0.005 | < 0.005 | 0.008 | 0.009 | 0.008 | |
| Cadmium | mg/L | 0.0005 | | < 0.00002 | | | < 0.000014 | < 0.000014 | 0.000423 | 0.000096 | 0.000041 | 0.000049 | < 0.000015 | < 0.000015 | < 0.000015 | |
| Chromium (total) | mg/L | 0.002 | | < 0.0002 | | | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | < 0.001 | |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | | < 0.005 | | | < 0.0001 | 0.0002 | **0.0027** | 0.0002 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | **0.0013** | |
| Copper | mg/L | 0.005 | | 0.0002 | | | < 0.0001 | 0.0001 | 0.0039 | 0.0049 | **0.0062** | **0.0066** | 0.0011 | 0.0005 | 0.0009 | |
| Lead | mg/L | 0.005 | | 0.00006 | | | 0.00002 | 0.00005 | **0.0135** | 0.00223 | 0.00126 | 0.00163 | 0.00036 | 0.00014 | 0.00036 | |
| Mercury | mg/L | 0.0002 | | < 0.00002 | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | |
| Molybdenum | mg/L | 0.04 | | 0.0001 | | | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0003 | |
| Nickel | mg/L | 0.025 | | < 0.01 | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | |
| Selenium | mg/L | 0.1 | | < 0.001 | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | |
| Silver | mg/L | 0.0001 | | < 0.00002 | | | < 0.00002 | < 0.00002 | 0.00004 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | |
| Strontium | mg/L | - | | 0.118 | | | 0.083 | 0.173 | 0.209 | 0.18 | 0.104 | 0.091 | 0.06 | 0.081 | 0.214 | |
| Thallium | mg/L | 0.0003 | | < 0.00005 | | | < 0.00005 | < 0.00005 | 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | |
| Vanadium | mg/L | 0.006 | | 0.0001 | | | 0.0001 | 0.0001 | 0.0027 | 0.0004 | 0.0004 | 0.0003 | 0.0002 | 0.0004 | 0.0006 | |
| Zinc | mg/L | 0.02 | | < 0.005 | | | < 0.005 | **0.049** | **0.107** | **0.048** | 0.018 | 0.014 | 0.013 | 0.015 | 0.013 | |
| Field pH | pH unit | - | | 8.39 | | | 7.38 | 7.66 | 8.34 | 7.18 | 8.29 | 7.65 | 8.19 | 7.98 | 7.31 | |
| Field Temp | deg C | - | | 5.8 | | | 4.8 | 15 | 19.3 | 13.1 | 6.9 | 4.7 | 1 | 2.9 | 16.8 | |
| Field Conductivity | us/cm | - | | 235 | | | 250 | 289 | 307 | 271 | 1930 | 203.8 | 170 | 194 | 396 | |
| Dissolved Oxygen | mg/L | - | | 6.35 | | | 5.52 | 2.6 | 2.65 | 1.79 | 5.18 | 7.02 | 15.1 | 6.16 | 3.14 | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW14 23-Apr-20 | SW14 27-Apr-20 | SW14 20-Jul-20 | SW14 20-Oct-20 | SW14 20-Apr-21 | SW14 26-Apr-21 | SW14 19-Jul-21 | SW14 28-Oct-21 | SW14 21-Apr-22 | SW14 28-Apr-22 | SW14 20-Jul-22 | SW14 19-Apr-23 | SW14 30-Aug-23 | SW14 12-Oct-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 104 | 118 | Dry | Dry | 132 | 132 | 169 | 174 | 106 | 124 | 164 | 108 | Dry | Dry |
| BOD | mg/L | - | < 3 | < 3 | | | < 3 | < 3 | 3 | < 3 | < 3 | < 3 | 4 | < 3 | | |
| Calcium | mg/L | - | 52.3 | 59.6 | | | 52.5 | 53 | 71 | 75.1 | 42.6 | 45.7 | 66.9 | 40.4 | | |
| Chloride | mg/L | - | 7.1 | 11.9 | | | 7.1 | 7.5 | 12.3 | 14.1 | 6.3 | 6.7 | 11.5 | 4.6 | | |
| COD | mg/L | - | 52 | 39 | | | 71 | 70 | 59 | 52 | 74 | 42 | 55 | 53 | | |
| Colour | colour unit | - | 115 | 102 | | | 102 | 103 | 109 | 89 | 146 | 120 | 135 | 142 | | |
| Specific Conductivity | umhos/cm | - | 239 | 292 | | | 271 | 280 | 349 | 389 | 243 | 257 | 344 | 235 | | |
| DOC | mg/L | - | 17.6 | 16.9 | | | 21.4 | 20.8 | 24.6 | 21.6 | 20.3 | 21.8 | 27.3 | 15 | | |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | |
| Iron | mg/L | 0.3 | 0.142 | 0.185 | | | **0.723** | **0.706** | 0.216 | 0.244 | 0.243 | 0.122 | **1.1** | 0.139 | | |
| Magnesium | mg/L | - | 4.14 | 3.43 | | | 3.26 | 3.31 | 4.17 | 4.81 | 2.96 | 3.05 | 3.92 | 2.5 | | |
| Manganese | mg/L | - | 0.053 | 0.044 | | | 0.895 | 0.901 | 0.246 | 0.229 | 0.153 | 0.026 | 0.262 | 0.02 | | |
| Nitrate | mg/L | - | 0.05 | 0.05 | | | < 0.05 | < 0.05 | 0.07 | < 0.05 | 0.12 | < 0.05 | < 0.05 | < 0.05 | | |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | |
| pH Lab | pH unit | 6.5 - 8.5 | 7.73 | 7.9 | | | 7.92 | 7.92 | 8.02 | 7.48 | 7.1 | 7.75 | 7.75 | 7.37 | | |
| Phenols | mg/L | 0.001 | < 0.002 | < 0.002 | | | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | |
| Total Phosphorus | mg/L | 0.03 | 0.03 | **0.05** | | | **0.16** | **0.09** | **0.04** | 0.03 | 0.03 | 0.02 | **0.06** | 0.01 | | |
| Potassium | mg/L | - | 1.4 | 1.7 | | | 1.6 | 1.6 | 1.9 | 3.4 | 1.7 | 1.8 | 1.5 | 1.7 | | |
| Sodium | mg/L | - | 5.2 | 6.3 | | | 4.6 | 4.9 | 5.8 | 6.1 | 3.8 | 4.3 | 5.6 | 3.3 | | |
| Sulphate | mg/L | - | 4 | 5 | | | 2 | 3 | < 1 | < 1 | 2 | 2 | 1 | < 1 | | |
| TDS | mg/L | - | 137 | 156 | | | 150 | 153 | 193 | 208 | 124 | 142 | 193 | 117 | | |
| TKN | mg/L | - | 0.7 | 0.5 | | | 1.2 | 1.3 | 0.9 | 0.8 | 0.6 | 3.9 | 1.6 | 1 | | |
| Ammonia (NH3-N) | mg/L | - | 0.01 | 0.03 | | | 0.04 | 0.02 | 0.03 | 0.04 | 0.02 | 3.08 | 0.7 | 0.81 | | |
| Total Suspended Solids | mg/L | - | < 3 | 28 | | | 18 | 24 | 18 | 22 | 4 | 13 | 62 | < 3 | | |
| Turbidity | ntu | - | 0.7 | 46.7 | | | 15.7 | 30.3 | 3.7 | 5.7 | 11.2 | 1 | 6.1 | 1.4 | | |
| Hardness (CaCO3) | mg/L | - | 122 | 163 | | | 145 | 147 | 185 | 209 | 119 | 127 | 183 | 118 | | |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | < 0.01 | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | **0.0600** | < 0.01 | 0.0200 | | |
| Aluminum | mg/L | 0.075 | 0.04 | 0.03 | | | 0.01 | 0.04 | 0.04 | 0.06 | 0.02 | 0.02 | 0.04 | 0.03 | | |
| Antimony | mg/L | 0.02 | 0.0002 | < 0.0001 | | | 0.0003 | 0.0004 | 0.0003 | 0.0006 | 0.0004 | 0.0003 | 0.0002 | 0.0005 | | |
| Arsenic | mg/L | 0.005 | 0.0003 | 0.0004 | | | 0.0006 | 0.0006 | 0.0012 | 0.0006 | 0.0003 | 0.0003 | 0.0009 | 0.0003 | | |
| Barium | mg/L | - | 0.025 | 0.019 | | | 0.022 | 0.023 | 0.027 | 0.021 | 0.012 | 0.012 | 0.029 | 0.011 | | |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | |
| Boron | mg/L | - | 0.007 | 0.01 | | | 0.006 | 0.007 | 0.01 | 0.009 | < 0.005 | 0.007 | 0.006 | < 0.005 | | |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000015 | | | 0.000021 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 | | |
| Chromium (total) | mg/L | 0.002 | 0.001 | 0.001 | | | < 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | | |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | |
| Cobalt | mg/L | 0.0009 | < 0.0001 | 0.0002 | | | 0.0007 | 0.0006 | 0.0002 | 0.0002 | 0.0002 | < 0.0001 | 0.0003 | 0.0001 | | |
| Copper | mg/L | 0.005 | 0.0003 | 0.0009 | | | 0.0006 | 0.0005 | 0.0002 | 0.0002 | 0.0004 | 0.0004 | 0.0006 | 0.0003 | | |
| Lead | mg/L | 0.005 | 0.00015 | 0.00013 | | | 0.00061 | 0.00055 | 0.00008 | 0.00011 | 0.00021 | 0.0001 | 0.00096 | 0.00005 | | |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | |
| Molybdenum | mg/L | 0.04 | < 0.0001 | 0.0002 | | | 0.0002 | 0.0002 | 0.0002 | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | | |
| Strontium | mg/L | - | 0.129 | 0.121 | | | 0.11 | 0.121 | 0.171 | 0.168 | 0.095 | 0.098 | 0.165 | 0.089 | | |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0002 | | | 0.0005 | 0.0004 | 0.0001 | < 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0001 | | |
| Zinc | mg/L | 0.02 | 0.012 | 0.015 | | | **0.023** | **0.024** | 0.012 | 0.012 | < 0.005 | < 0.005 | 0.01 | < 0.005 | | |
| Field pH | pH unit | - | 7.93 | 7.3 | | | 7.46 | 6.96 | 6.98 | 8.29 | 8.48 | 8.15 | 7.15 | 8.15 | | |
| Field Temp | deg C | - | 3.6 | 9.2 | | | 6.6 | 10.3 | 21.7 | 6.1 | 6.6 | 6.5 | 23.3 | 11.3 | | |
| Field Conductivity | us/cm | - | 260 | 274.4 | | | 350 | 229 | 334 | 370 | 215 | 233 | 250 | 205 | | |
| Dissolved Oxygen | mg/L | - | 6.44 | 6.38 | | | 11.09 | 5.01 | 1.69 | 5.11 | 6.5 | 4.69 | 3.21 | 8.3 | | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW14 | SW14 (15m) | SW14 | SW14 | SW14 | SW14-F | SW14 | SW14 | SW15 | SW15 | SW15 | SW15 (10m) | SW15 (10m) | SW15 (10m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 18-Apr-24 | 18-Apr-24 | 11-Jul-24 | 07-Oct-24 | 22-Apr-25 | 22-Apr-25 | 22-Jul-25 | 30-Sep-25 | 29-Apr-16 | 24-Aug-16 | 04-Oct-16 | 24-Apr-18 | 12-Apr-19 | 22-Oct-19 |
| Total Alkalinity | mg/L | - | 118 | 123 | 139 | 179 | 115 | | Dry | Dry | Dry | Dry | Dry | 478 | 334 | Dry |
| BOD | mg/L | - | <3 | <3 | <3 | 17 | 5 | | | | | | | < 3 | 16 | |
| Calcium | mg/L | - | 45.3 | 44.4 | 51.6 | 452 | 45 | 46.8 | | | | | | 144 | 116 | |
| Chloride | mg/L | - | 4.9 | 5.9 | 5.6 | 10.6 | 7.1 | | | | | | | 20.3 | 16.2 | |
| COD | mg/L | - | 70 | 53 | 60 | 7150 | 79 | 35 | | | | | | 79 | 168 | |
| Colour | colour unit | - | 132 | 135 | 104 | 67 | 114 | | | | | | | 80 | 63 | |
| Specific Conductivity | umhos/cm | - | 237 | 253 | 285 | 406 | 243 | | | | | | | 935 | 751 | |
| DOC | mg/L | - | 20.8 | 20.4 | 17.8 | 24.9 | 8.2 | | | | | | | 19.9 | 28.4 | |
| Fluoride | mg/L | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | < 0.1 | < 0.1 | |
| Cyanide (free) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | <0.170 | <0.005 | | | | | | | < 0.005 | < 0.005 | |
| Iron | mg/L | 0.3 | 0.272 | 0.107 | **0.341** | **105** | **0.361** | 0.112 | | | | | | **1.68** | **2.19** | |
| Magnesium | mg/L | - | 2.9 | 2.97 | 3.08 | 18.8 | 2.98 | 3.12 | | | | | | 21.3 | 17.2 | |
| Manganese | mg/L | - | 0.064 | 0.213 | 0.06 | 3.73 | 0.085 | 0.012 | | | | | | 0.945 | 0.884 | |
| Nitrate | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | < 0.05 | < 0.05 | |
| Nitrite | mg/L | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | < 0.05 | < 0.05 | |
| pH Lab | pH unit | 6.5 - 8.5 | 7.85 | 7.45 | 7.18 | 7.7 | 7.99 | | | | | | | 7.85 | 7.94 | |
| Phenols | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | **0.003** | <0.001 | | | | | | | < 0.001 | < 0.002 | |
| Total Phosphorus | mg/L | 0.03 | **0.04** | 0.02 | **0.08** | **8.14** | **0.1** | 0.02 | | | | | | **0.45** | **0.76** | |
| Potassium | mg/L | - | 1.5 | 2.1 | 1.8 | 8.5 | 1.9 | 2 | | | | | | 24.5 | 28.5 | |
| Sodium | mg/L | - | 3.3 | 3.9 | 3.9 | 5.5 | 3.9 | 4 | | | | | | 24.1 | 26 | |
| Sulphate | mg/L | - | 2 | 2 | <1 | <1 | 3 | | | | | | | 3 | 20 | |
| TDS | mg/L | - | 131 | 136 | 150 | 204 | 133 | | | | | | | 539 | 429 | |
| TKN | mg/L | - | 0.9 | 0.6 | 1.1 | 16.4 | 1.4 | 0.5 | | | | | | 6.3 | 6.4 | |
| Ammonia (NH3-N) | mg/L | - | 0.06 | 0.05 | 0.32 | 0.72 | 0.13 | 0.05 | | | | | | 4.41 | 1.3 | |
| Total Suspended Solids | mg/L | - | 22 | 4 | 27 | 4240 | 220 | | | | | | | 46 | 395 | |
| Turbidity | ntu | - | 3.5 | 1.3 | 2.8 | 6250 | 9.8 | | | | | | | 26.1 | 71.4 | |
| Hardness (CaCO3) | mg/L | - | 125 | 123 | 142 | 1210 | 125 | 130 | | | | | | 448 | 330 | |
| Unionized Ammonia | mg/L | 0.02 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | **0.0624** | < 0.01 | |
| Aluminum | mg/L | 0.075 | 0.06 | 0.04 | 0.06 | **18.1** | 0.06 | 0.02 | | | | | | 0.07 | 0.06 | |
| Antimony | mg/L | 0.02 | 0.0002 | 0.0002 | 0.0005 | 0.0012 | 0.0003 | 0.0005 | | | | | | 0.0001 | 0.0002 | |
| Arsenic | mg/L | 0.005 | 0.0003 | 0.0003 | 0.0005 | **0.0203** | 0.0003 | 0.0002 | | | | | | 0.0013 | 0.0013 | |
| Barium | mg/L | - | 0.012 | 0.01 | 0.02 | 0.773 | 0.014 | 0.013 | | | | | | 0.073 | 0.076 | |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | <0.0001 | 0.001 | <0.0001 | <0.0001 | | | | | | < 0.002 | < 0.002 | |
| Boron | mg/L | - | <0.005 | <0.005 | 0.008 | 0.216 | 0.006 | 0.006 | | | | | | 0.277 | 0.269 | |
| Cadmium | mg/L | 0.0005 | <0.000015 | <0.000015 | <0.000015 | **0.00458** | 0.000019 | <0.000015 | | | | | | 0.000072 | 0.000086 | |
| Chromium (total) | mg/L | 0.002 | <0.001 | <0.001 | 0.002 | **0.032** | <0.001 | <0.001 | | | | | | < 0.001 | 0.001 | |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0002 | 0.0002 | 0.0003 | **0.0213** | 0.0002 | 0.0002 | | | | | | **0.0014** | **0.0017** | |
| Copper | mg/L | 0.005 | 0.0007 | 0.0003 | 0.0005 | **0.114** | 0.0004 | 0.0003 | | | | | | **0.0107** | 0.0027 | |
| Lead | mg/L | 0.005 | 0.0003 | 0.00004 | 0.00018 | **0.169** | 0.0003 | 0.00004 | | | | | | 0.00223 | 0.00216 | |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | <0.00002 | **0.00048** | <0.00002 | <0.00002 | | | | | | < 0.00002 | 0.00003 | |
| Molybdenum | mg/L | 0.04 | <0.0001 | <0.0001 | <0.0001 | 0.0054 | <0.0001 | <0.0001 | | | | | | 0.0006 | 0.0014 | |
| Nickel | mg/L | 0.025 | 0.0007 | 0.0005 | 0.0007 | **0.0365** | 0.0005 | 0.0005 | | | | | | < 0.01 | < 0.01 | |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | <0.001 | 0.008 | <0.001 | <0.001 | | | | | | < 0.001 | < 0.001 | |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | **0.0006** | <0.0001 | <0.0001 | | | | | | < 0.00002 | < 0.0001 | |
| Strontium | mg/L | - | 0.101 | 0.102 | 0.129 | 1.05 | 0.096 | 0.099 | | | | | | 0.466 | 0.365 | |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | <0.00005 | **0.00077** | <0.00005 | <0.00005 | | | | | | < 0.00005 | < 0.00005 | |
| Vanadium | mg/L | 0.006 | 0.0001 | 0.0001 | 0.0002 | **0.0536** | 0.0002 | <0.0001 | | | | | | 0.0004 | 0.0011 | |
| Zinc | mg/L | 0.02 | 0.013 | **0.079** | 0.006 | **1.6** | 0.008 | <0.005 | | | | | | **0.029** | **0.033** | |
| Field pH | pH unit | - | 7.99 | 8.22 | 7.46 | 7.42 | 7.34 | | | | | | | 8.08 | 7.3 | |
| Field Temp | deg C | - | 8 | 9.5 | 19.4 | 15.3 | 7 | | | | | | | 4.4 | 2.9 | |
| Field Conductivity | us/cm | - | 232 | 257 | 329 | 574 | 230 | 230 | | | | | | 865 | 780 | |
| Dissolved Oxygen | mg/L | - | 1.98 | 7.9 | 1.53 | 1.63 | 6.22 | 6.22 | | | | | | 5.56 | 13.4 | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW15 (10m) 27-Apr-20 | SW15 (10m) 20-Jul-20 | SW15 (10m) 20-Oct-20 | SW15 (10m) 20-Apr-21 | SW15 (10m) 19-Jul-21 | SW15 (10m) 28-Oct-21 | SW15 (10m) 21-Apr-22 | SW15 (10m) 20-Jul-22 | SW15 (10m) 24-Oct-22 | SW15 (10m) 20-Apr-23 | SW15 (10m) 30-Aug-23 | SW15 (10m) 12-Oct-23 | SW15 (10m) 18-Apr-24 | SW15 (10m) 18-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | Dry | 383 |
| BOD | mg/L | - | | | | | | | | | | | | | | 6 |
| Calcium | mg/L | - | | | | | | | | | | | | | | 120 |
| Chloride | mg/L | - | | | | | | | | | | | | | | 8.9 |
| COD | mg/L | - | | | | | | | | | | | | | | 107 |
| Colour | colour unit | - | | | | | | | | | | | | | | 81 |
| Specific Conductivity | umhos/cm | - | | | | | | | | | | | | | | 738 |
| DOC | mg/L | - | | | | | | | | | | | | | | 33 |
| Fluoride | mg/L | - | | | | | | | | | | | | | | <0.1 |
| Cyanide (free) | mg/L | 0.005 | | | | | | | | | | | | | | <0.005 |
| Iron | mg/L | 0.3 | | | | | | | | | | | | | | **0.593** |
| Magnesium | mg/L | - | | | | | | | | | | | | | | 14.3 |
| Manganese | mg/L | - | | | | | | | | | | | | | | 0.271 |
| Nitrate | mg/L | - | | | | | | | | | | | | | | 0.05 |
| Nitrite | mg/L | - | | | | | | | | | | | | | | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | | | | | | | | | | | | | | 7.99 |
| Phenols | mg/L | 0.001 | | | | | | | | | | | | | | <0.001 |
| Total Phosphorus | mg/L | 0.03 | | | | | | | | | | | | | | **0.13** |
| Potassium | mg/L | - | | | | | | | | | | | | | | 10.2 |
| Sodium | mg/L | - | | | | | | | | | | | | | | 12 |
| Sulphate | mg/L | - | | | | | | | | | | | | | | <1 |
| TDS | mg/L | - | | | | | | | | | | | | | | 397 |
| TKN | mg/L | - | | | | | | | | | | | | | | 2.1 |
| Ammonia (NH3-N) | mg/L | - | | | | | | | | | | | | | | 0.3 |
| Total Suspended Solids | mg/L | - | | | | | | | | | | | | | | 720 |
| Turbidity | ntu | - | | | | | | | | | | | | | | 59.4 |
| Hardness (CaCO3) | mg/L | - | | | | | | | | | | | | | | 358 |
| Unionized Ammonia | mg/L | 0.02 | | | | | | | | | | | | | | <0.01 |
| Aluminum | mg/L | 0.075 | | | | | | | | | | | | | | **0.09** |
| Antimony | mg/L | 0.02 | | | | | | | | | | | | | | 0.0004 |
| Arsenic | mg/L | 0.005 | | | | | | | | | | | | | | 0.001 |
| Barium | mg/L | - | | | | | | | | | | | | | | 0.048 |
| Beryllium | mg/L | 1.1 | | | | | | | | | | | | | | <0.0001 |
| Boron | mg/L | - | | | | | | | | | | | | | | 0.267 |
| Cadmium | mg/L | 0.0005 | | | | | | | | | | | | | | 0.000034 |
| Chromium (total) | mg/L | 0.002 | | | | | | | | | | | | | | 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | | | | | <0.001 |
| Cobalt | mg/L | 0.0009 | | | | | | | | | | | | | | 0.0009 |
| Copper | mg/L | 0.005 | | | | | | | | | | | | | | 0.0017 |
| Lead | mg/L | 0.005 | | | | | | | | | | | | | | 0.00113 |
| Mercury | mg/L | 0.0002 | | | | | | | | | | | | | | <0.00002 |
| Molybdenum | mg/L | 0.04 | | | | | | | | | | | | | | 0.0004 |
| Nickel | mg/L | 0.025 | | | | | | | | | | | | | | 0.0027 |
| Selenium | mg/L | 0.1 | | | | | | | | | | | | | | <0.001 |
| Silver | mg/L | 0.0001 | | | | | | | | | | | | | | <0.0001 |
| Strontium | mg/L | - | | | | | | | | | | | | | | 0.398 |
| Thallium | mg/L | 0.0003 | | | | | | | | | | | | | | <0.00005 |
| Vanadium | mg/L | 0.006 | | | | | | | | | | | | | | 0.0005 |
| Zinc | mg/L | 0.02 | | | | | | | | | | | | | | 0.013 |
| Field pH | pH unit | - | | | | | | | | | | | | | | 7.84 |
| Field Temp | deg C | - | | | | | | | | | | | | | | 8.1 |
| Field Conductivity | us/cm | - | | | | | | | | | | | | | | 703 |
| Dissolved Oxygen | mg/L | - | | | | | | | | | | | | | | 8.54 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW15 (10m) 11-Jul-24 | SW15 (10m) 07-Oct-24 | SW15 (10m) 22-Apr-25 | SW15 (10m)-F 22-Apr-25 | SW15 (10m) 22-Jul-25 | SW15 (10m) 30-Sep-25 | SW15 (15m) 24-Apr-18 | SW15 (20m) 02-May-17 | SW15 (20m) 24-Apr-18 | SW15 (20m) 24-Apr-19 | SW15 (30m) 26-Apr-16 | SW15 (30m) 02-May-17 | SW15 (30m) 21-Jun-17 | SW15 (30m) 24-Apr-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry | Dry | 472 | | Dry | Dry | 23 | 355 | 287 | 295 | 373 | 331 | 392 | 346 |
| BOD | mg/L | - | | | 14 | | | | < 3 | 10 | < 3 | 16 | 12 | 4 | 32 | < 3 |
| Calcium | mg/L | - | | | 170 | 146 | | | 10.9 | 113 | 117 | 97.7 | 114 | 93.4 | 114 | 122 |
| Chloride | mg/L | - | | | 20.9 | | | | 1.6 | 23.4 | 15.5 | 10.7 | 39.3 | 22.1 | 16.6 | 16.3 |
| COD | mg/L | - | | | 74 | 67 | | | 51 | 91 | 686 | 221 | 248 | 107 | 147 | 223 |
| Colour | colour unit | - | | | 68 | | | | 65 | 116 | 49 | 85 | 110 | 120 | 185 | 70 |
| Specific Conductivity | umhos/cm | - | | | 904 | | | | 48 | 850 | 568 | 645 | 842 | 774 | 797 | 706 |
| DOC | mg/L | - | | | 12.1 | | | | 10.9 | 24.3 | 18.7 | 22.3 | 36.2 | 21.4 | 50.4 | 22.9 |
| Fluoride | mg/L | - | | | <0.1 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | | | <0.005 | | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | | | **6.08** | **0.513** | | | 0.22 | 0.299 | **3.47** | **1.3** | **0.522** | 0.135 | **4.41** | **1.42** |
| Magnesium | mg/L | - | | | 16.2 | 16 | | | 1.98 | 17.5 | 9.42 | 14.1 | 15.8 | 14 | 12.4 | 13.8 |
| Manganese | mg/L | - | | | 0.827 | 0.577 | | | 0.085 | 0.121 | 0.763 | 0.387 | 0.444 | 0.031 | 0.331 | 0.678 |
| Nitrate | mg/L | - | | | 0.05 | | | | 0.05 | < 0.1 | 0.32 | 0.23 | 0.2 | < 0.1 | 0.07 | 0.08 |
| Nitrite | mg/L | - | | | <0.05 | | | | < 0.05 | < 0.1 | < 0.05 | < 0.05 | < 0.1 | < 0.1 | < 0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | | | 8.06 | | | | 6.95 | 8.17 | 7.84 | 8.12 | 7.85 | 8.24 | 7.84 | 7.77 |
| Phenols | mg/L | 0.001 | | | <0.001 | | | | **0.006** | **0.002** | < 0.001 | < 0.002 | **0.014** | **0.002** | **0.011** | **0.013** |
| Total Phosphorus | mg/L | 0.03 | | | **0.17** | **0.06** | | | **0.38** | **0.1** | **1.55** | **0.66** | **0.4** | **0.1** | **0.8** | **1.07** |
| Potassium | mg/L | - | | | 11.7 | 12.3 | | | 2.4 | 33.4 | 10.4 | 22.6 | 37.8 | 32.4 | 27.1 | 17.7 |
| Sodium | mg/L | - | | | 20.8 | 21.9 | | | 1.3 | 30.4 | 15.7 | 15.2 | 34.1 | 29.6 | 30.5 | 23.8 |
| Sulphate | mg/L | - | | | 1 | | | | < 1 | 34 | 2 | 13 | 17 | 23 | 2 | 2 |
| TDS | mg/L | - | | | 531 | | | | 33 | 464 | 348 | 350 | 483 | 414 | 443 | 403 |
| TKN | mg/L | - | | | 4.4 | 3.7 | | | 2.2 | 2.3 | 19 | 5.4 | 10.8 | 1.5 | 8.6 | 13.2 |
| Ammonia (NH3-N) | mg/L | - | | | 2.97 | 2.99 | | | 0.38 | 0.04 | 1.77 | 0.59 | 0.15 | 0.03 | 0.07 | 0.7 |
| Total Suspended Solids | mg/L | - | | | 1470 | | | | 24 | 60 | 410 | 340 | 480 | 30 | 340 | 980 |
| Turbidity | ntu | - | | | 43.4 | | | | 10.2 | 20.4 | 990 | 42.3 | 142 | 3.9 | 110 | 346 |
| Hardness (CaCO3) | mg/L | - | | | 492 | 432 | | | 35 | 353 | 331 | 302 | 350 | 320 | 371 | 362 |
| Unionized Ammonia | mg/L | 0.02 | | | <0.01 | | | | 0.0040 | -- | 0.0038 | < 0.01 | 0.0050 | -- | 0.0004 | 0.0120 |
| Aluminum | mg/L | 0.075 | | | **1.21** | 0.06 | | | **0.08** | 0.05 | **1.48** | 0.06 | **0.12** | 0.05 | 0.06 | **0.08** |
| Antimony | mg/L | 0.02 | | | 0.0004 | 0.0006 | | | < 0.0001 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0004 | 0.0001 |
| Arsenic | mg/L | 0.005 | | | 0.0025 | 0.0011 | | | < 0.0001 | 0.0015 | 0.0015 | 0.0013 | 0.0011 | 0.0012 | 0.0027 | 0.0007 |
| Barium | mg/L | - | | | 0.08 | 0.052 | | | 0.016 | 0.053 | 0.064 | 0.048 | 0.053 | 0.035 | 0.074 | 0.067 |
| Beryllium | mg/L | 1.1 | | | <0.0001 | <0.0001 | | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | | | 0.206 | 0.209 | | | 0.02 | 0.273 | 0.13 | 0.259 | 0.166 | 0.195 | 0.102 | 0.224 |
| Cadmium | mg/L | 0.0005 | | | 0.000133 | <0.000015 | | | 0.000043 | 0.000024 | 0.000216 | 0.000126 | 0.0001 | < 0.000014 | 0.000138 | 0.000339 |
| Chromium (total) | mg/L | 0.002 | | | 0.002 | <0.001 | | | 0.001 | < 0.001 | 0.002 | < 0.001 | 0.0004 | < 0.001 | < 0.001 | 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | <0.001 | <0.001 | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | | | **0.0026** | **0.0015** | | | 0.0002 | 0.0009 | **0.0016** | **0.001** | < 0.005 | 0.0005 | **0.0013** | 0.0007 |
| Copper | mg/L | 0.005 | | | 0.0037 | 0.0006 | | | **0.0058** | 0.0016 | **0.0134** | 0.0034 | 0.0034 | 0.001 | 0.0045 | **0.0083** |
| Lead | mg/L | 0.005 | | | 0.00456 | 0.00011 | | | 0.00102 | 0.00021 | **0.00907** | 0.0031 | 0.00127 | 0.00004 | 0.00296 | **0.0106** |
| Mercury | mg/L | 0.0002 | | | <0.00002 | <0.00002 | | | < 0.00002 | 0.00003 | 0.00012 | 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | 0.00006 |
| Molybdenum | mg/L | 0.04 | | | 0.0002 | 0.0002 | | | 0.0001 | 0.0017 | 0.0004 | 0.0014 | 0.0006 | 0.0015 | 0.0009 | 0.0003 |
| Nickel | mg/L | 0.025 | | | 0.0035 | 0.0019 | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | | | <0.001 | <0.001 | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | | | <0.0001 | <0.0001 | | | < 0.00002 | < 0.00002 | 0.00003 | < 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00002 |
| Strontium | mg/L | - | | | 0.485 | 0.456 | | | 0.046 | 0.389 | 0.317 | 0.329 | 0.381 | 0.303 | 0.351 | 0.369 |
| Thallium | mg/L | 0.0003 | | | <0.00005 | <0.00005 | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | | | 0.0023 | 0.0003 | | | 0.0002 | 0.0004 | 0.0026 | 0.0012 | 0.0004 | 0.0003 | 0.002 | 0.0012 |
| Zinc | mg/L | 0.02 | | | **0.055** | 0.01 | | | **0.04** | **0.042** | **0.061** | **0.041** | **0.028** | < 0.005 | **0.065** | **0.07** |
| Field pH | pH unit | - | | | 6.85 | | | | 8.03 | -- | 7.24 | 7.57 | 8.47 | -- | 7.22 | 8.14 |
| Field Temp | deg C | - | | | 8 | | | | 2.3 | -- | 5 | 4.5 | 4.1 | -- | 18.1 | 5.1 |
| Field Conductivity | us/cm | - | | | 665 | 665 | | | 48.1 | -- | 684.6 | 558 | 620 | -- | 643 | 637 |
| Dissolved Oxygen | mg/L | - | | | 4.16 | 4.16 | | | 3.87 | -- | 0.71 | 10.3 | 4.33 | -- | 1.9 | 5.45 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW15 (30m) 12-Apr-19 | SW15 (30m) 24-Apr-19 | SW15 (30m) 22-Oct-19 | SW15 (30m) 27-Apr-20 | SW15 (30m) 20-Jul-20 | SW15 (30m) 20-Oct-20 | SW15 (30m) 20-Apr-21 | SW15 (30m) 19-Jul-21 | SW15 (30m) 28-Oct-21 | SW15 (30m) 21-Apr-22 | SW15 (30m) 20-Jul-22 | SW15 (30m) 24-Oct-22 | SW15 (30m) 20-Apr-23 | SW15 (30m) 30-Aug-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 308 | 250 | Dry | Dry | Dry | Dry | Dry | Dry | Dry | 304 | Dry | Dry | Dry | Dry |
| BOD | mg/L | - | 10 | < 3 | | | | | | | | 13 | | | | |
| Calcium | mg/L | - | 95.3 | 75.8 | | | | | | | | 98.5 | | | | |
| Chloride | mg/L | - | 11.1 | 10 | | | | | | | | 6.4 | | | | |
| COD | mg/L | - | 111 | 164 | | | | | | | | 94 | | | | |
| Colour | colour unit | - | 97 | 67 | | | | | | | | 127 | | | | |
| Specific Conductivity | umhos/cm | - | 626 | 505 | | | | | | | | 625 | | | | |
| DOC | mg/L | - | 28 | 26 | | | | | | | | 34.1 | | | | |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | | | | | | | | < 0.1 | | | | |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | | | | | | | | < 0.005 | | | | |
| Iron | mg/L | 0.3 | **0.326** | **1.03** | | | | | | | | **0.394** | | | | |
| Magnesium | mg/L | - | 12.3 | 9.1 | | | | | | | | 13.9 | | | | |
| Manganese | mg/L | - | 0.875 | 0.326 | | | | | | | | 0.288 | | | | |
| Nitrate | mg/L | - | < 0.05 | < 0.05 | | | | | | | | 0.07 | | | | |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | | | | | | | | < 0.05 | | | | |
| pH Lab | pH unit | 6.5 - 8.5 | 7.88 | 8.01 | | | | | | | | 8.08 | | | | |
| Phenols | mg/L | 0.001 | < 0.002 | < 0.002 | | | | | | | | < 0.001 | | | | |
| Total Phosphorus | mg/L | 0.03 | **0.5** | **0.49** | | | | | | | | **0.7** | | | | |
| Potassium | mg/L | - | 22.5 | 20.1 | | | | | | | | 18.8 | | | | |
| Sodium | mg/L | - | 18.4 | 16.8 | | | | | | | | 11.6 | | | | |
| Sulphate | mg/L | - | 9 | 9 | | | | | | | | < 1 | | | | |
| TDS | mg/L | - | 356 | 287 | | | | | | | | 333 | | | | |
| TKN | mg/L | - | 3.8 | 3.5 | | | | | | | | 3.2 | | | | |
| Ammonia (NH3-N) | mg/L | - | 1.15 | 0.06 | | | | | | | | 0.09 | | | | |
| Total Suspended Solids | mg/L | - | 150 | 110 | | | | | | | | 188 | | | | |
| Turbidity | ntu | - | 36.7 | 111 | | | | | | | | 28.4 | | | | |
| Hardness (CaCO3) | mg/L | - | 283 | 227 | | | | | | | | 303 | | | | |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | < 0.01 | | | | | | | | < 0.01 | | | | |
| Aluminum | mg/L | 0.075 | 0.06 | 0.06 | | | | | | | | 0.03 | | | | |
| Antimony | mg/L | 0.02 | 0.0002 | 0.0002 | | | | | | | | 0.0004 | | | | |
| Arsenic | mg/L | 0.005 | 0.001 | 0.0012 | | | | | | | | 0.0011 | | | | |
| Barium | mg/L | - | 0.056 | 0.039 | | | | | | | | 0.037 | | | | |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | | | | | | | | < 0.002 | | | | |
| Boron | mg/L | - | 0.144 | 0.104 | | | | | | | | 0.136 | | | | |
| Cadmium | mg/L | 0.0005 | 0.000046 | 0.000103 | | | | | | | | < 0.000015 | | | | |
| Chromium (total) | mg/L | 0.002 | < 0.001 | < 0.001 | | | | | | | | < 0.001 | | | | |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | < 0.001 | | | | |
| Cobalt | mg/L | 0.0009 | 0.0009 | 0.0009 | | | | | | | | 0.0005 | | | | |
| Copper | mg/L | 0.005 | 0.0017 | 0.0025 | | | | | | | | 0.0008 | | | | |
| Lead | mg/L | 0.005 | 0.00112 | 0.00317 | | | | | | | | 0.00018 | | | | |
| Mercury | mg/L | 0.0002 | 0.00003 | 0.00003 | | | | | | | | < 0.00002 | | | | |
| Molybdenum | mg/L | 0.04 | 0.0006 | 0.0006 | | | | | | | | 0.0009 | | | | |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | | | | | | | | < 0.01 | | | | |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | | | | | | | | < 0.001 | | | | |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | | | | | | | | < 0.0001 | | | | |
| Strontium | mg/L | - | 0.248 | 0.207 | | | | | | | | 0.308 | | | | |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | | | | | | | | < 0.00005 | | | | |
| Vanadium | mg/L | 0.006 | 0.0003 | 0.0018 | | | | | | | | 0.0004 | | | | |
| Zinc | mg/L | 0.02 | 0.017 | **0.053** | | | | | | | | 0.006 | | | | |
| Field pH | pH unit | - | 7.33 | 7.58 | | | | | | | | 7.78 | | | | |
| Field Temp | deg C | - | 1.8 | 4 | | | | | | | | 6.7 | | | | |
| Field Conductivity | us/cm | - | 630 | 446 | | | | | | | | 515 | | | | |
| Dissolved Oxygen | mg/L | - | 9.62 | 9.9 | | | | | | | | 7.18 | | | | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW15 (30m) 12-Oct-23 | SW15 (30m) 18-Apr-24 | SW15 (30m) 18-Apr-24 | SW15 (30m) 11-Jul-24 | SW15 (30m) 07-Oct-24 | SW15 (30m) 22-Apr-25 | SW15 (30m)-F 22-Apr-25 | SW15 (30m) 22-Jul-25 | SW15 (30m) 30-Sep-25 | SW16 29-Apr-16 | SW16-F 29-Apr-16 | SW16 18-Apr-17 | SW16-F 18-Apr-17 | SW16 24-Oct-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry | Dry | 389 | 179 | Dry | 282 | | Dry | Dry | 210 | -- | 192 | -- | 275 |
| BOD | mg/L | - | | | 5 | 4 | | 7 | | | | < 3 | -- | < 3 | -- | < 3 |
| Calcium | mg/L | - | | | 125 | 57.4 | | 107 | 89.1 | | | 82.9 | 81.7 | 66.9 | 69 | 102 |
| Chloride | mg/L | - | | | 12.9 | 2.1 | | 15.7 | | | | 7.3 | -- | 6.2 | -- | 10.9 |
| COD | mg/L | - | | | 92 | 113 | | 287 | 47 | | | 19 | -- | 26 | -- | 45 |
| Colour | colour unit | - | | | 102 | 154 | | 54 | | | | 30 | -- | 39 | -- | 43 |
| Specific Conductivity | umhos/cm | - | | | 753 | 356 | | 568 | | | | 431 | -- | 387 | -- | 571 |
| DOC | mg/L | - | | | 34.4 | 28.2 | | 9 | | | | 8.2 | -- | 10.6 | -- | 15.1 |
| Fluoride | mg/L | - | | | <0.1 | <0.1 | | <0.1 | | | | 0.1 | -- | < 0.1 | -- | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | | | <0.005 | <0.005 | | <0.005 | | | | < 0.005 | -- | < 0.005 | -- | < 0.005 |
| Iron | mg/L | 0.3 | | | 0.12 | 0.093 | | **2.29** | 0.112 | | | 0.019 | 0.015 | 0.026 | 0.022 | 0.046 |
| Magnesium | mg/L | - | | | 14.5 | 5.96 | | 7.92 | 7.08 | | | 4.66 | 4.5 | 3.65 | 3.7 | 6.16 |
| Manganese | mg/L | - | | | 0.171 | 0.021 | | 0.464 | 0.021 | | | 0.005 | 0.004 | 0.005 | 0.005 | 0.013 |
| Nitrate | mg/L | - | | | <0.05 | <0.05 | | 0.39 | | | | 0.1 | -- | 0.1 | -- | 0.15 |
| Nitrite | mg/L | - | | | <0.05 | <0.05 | | <0.05 | | | | < 0.1 | -- | < 0.1 | -- | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | | | 8.05 | 7.52 | | 8.11 | | | | 8.13 | -- | 8.16 | -- | 8.08 |
| Phenols | mg/L | 0.001 | | | <0.001 | <0.001 | | <0.001 | | | | **0.006** | -- | **0.006** | -- | **0.006** |
| Total Phosphorus | mg/L | 0.03 | | | **0.14** | **0.19** | | **0.49** | 0.03 | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Potassium | mg/L | - | | | 11.9 | 12.5 | | 11.1 | 10.1 | | | 0.7 | 0.7 | 0.7 | 0.9 | 2.9 |
| Sodium | mg/L | - | | | 16.4 | 6.3 | | 16.1 | 15.2 | | | 4.8 | 4.7 | 3.3 | 3.5 | 5.5 |
| Sulphate | mg/L | - | | | <1 | 1 | | 1 | | | | 5 | -- | 5 | -- | 6 |
| TDS | mg/L | - | | | 416 | 193 | | 333 | | | | 232 | -- | 201 | -- | 298 |
| TKN | mg/L | - | | | 2.2 | 2 | | 7.8 | 1.4 | | | 0.5 | 0.5 | 0.6 | -- | 0.8 |
| Ammonia (NH3-N) | mg/L | - | | | 0.26 | 0.09 | | 0.66 | 0.61 | | | 0.04 | 0.03 | 0.02 | -- | 0.04 |
| Total Suspended Solids | mg/L | - | | | 165 | 124 | | 140 | | | | < 3 | -- | < 3 | -- | < 3 |
| Turbidity | ntu | - | | | 11.3 | 42 | | 104 | | | | 0.3 | -- | 0.7 | -- | 1 |
| Hardness (CaCO3) | mg/L | - | | | 373 | 168 | | 300 | 252 | | | 226 | 223 | 219 | 188 | 305 |
| Unionized Ammonia | mg/L | 0.02 | | | <0.01 | <0.01 | | <0.01 | | | | 0.0017 | 0.0013 | 0.0001 | -- | 0.0003 |
| Aluminum | mg/L | 0.075 | | | **0.09** | 0.06 | | **0.44** | 0.03 | | | 0.03 | 0.02 | 0.05 | 0.05 | |
| Antimony | mg/L | 0.02 | | | 0.0004 | 0.0004 | | 0.0004 | 0.0006 | | | < 0.0001 | < 0.0001 | < 0.0001 | 0.0001 | |
| Arsenic | mg/L | 0.005 | | | 0.0009 | 0.0009 | | 0.0009 | 0.0004 | | | 0.0002 | 0.0002 | 0.0002 | 0.0004 | |
| Barium | mg/L | - | | | 0.041 | 0.027 | | 0.054 | 0.029 | | | 0.022 | 0.022 | 0.021 | 0.059 | |
| Beryllium | mg/L | 1.1 | | | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | |
| Boron | mg/L | - | | | 0.245 | 0.138 | | 0.092 | 0.078 | | | < 0.005 | < 0.005 | 0.01 | 0.018 | |
| Cadmium | mg/L | 0.0005 | | | <0.000015 | 0.000016 | | 0.000126 | <0.000015 | | | < 0.00002 | < 0.00002 | < 0.000014 | < 0.000014 | |
| Chromium (total) | mg/L | 0.002 | | | <0.001 | <0.001 | | <0.001 | <0.001 | | | < 0.0002 | < 0.0002 | < 0.001 | < 0.001 | |
| Chromium (VI) | mg/L | 0.001 | | | <0.001 | <0.001 | | <0.001 | <0.001 | | | | | | | |
| Cobalt | mg/L | 0.0009 | | | 0.0007 | 0.0003 | | **0.0012** | 0.0005 | | | < 0.005 | < 0.005 | < 0.0001 | < 0.0001 | |
| Copper | mg/L | 0.005 | | | 0.0008 | 0.0018 | | 0.0021 | 0.0004 | | | 0.0006 | 0.0007 | 0.0012 | 0.0009 | |
| Lead | mg/L | 0.005 | | | 0.00021 | 0.00022 | | 0.0039 | 0.00007 | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | |
| Mercury | mg/L | 0.0002 | | | <0.00002 | <0.00002 | | <0.00002 | <0.00002 | | | < 0.00002 | < 0.00002 | -- | < 0.00002 | |
| Molybdenum | mg/L | 0.04 | | | 0.0004 | 0.0006 | | 0.0002 | 0.0002 | | | 0.0001 | 0.0001 | 0.0001 | 0.0002 | |
| Nickel | mg/L | 0.025 | | | 0.002 | 0.0007 | | 0.002 | 0.001 | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | |
| Selenium | mg/L | 0.1 | | | <0.001 | <0.001 | | <0.001 | <0.001 | | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | |
| Silver | mg/L | 0.0001 | | | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | |
| Strontium | mg/L | - | | | 0.42 | 0.162 | | 0.286 | 0.245 | | | 0.218 | 0.21 | 0.159 | 0.282 | |
| Thallium | mg/L | 0.0003 | | | <0.00005 | <0.00005 | | <0.00005 | <0.00005 | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | |
| Vanadium | mg/L | 0.006 | | | 0.0001 | 0.0005 | | 0.001 | 0.0001 | | | 0.0003 | 0.0002 | 0.0003 | 0.0005 | |
| Zinc | mg/L | 0.02 | | | 0.006 | 0.009 | | **0.041** | 0.008 | | | < 0.005 | < 0.005 | < 0.005 | **0.188** | |
| Field pH | pH unit | - | | | 8.01 | 7.37 | | 7.03 | | | | 8.47 | 8.47 | 7.32 | 7.32 | 7.52 |
| Field Temp | deg C | - | | | 7.2 | 19.8 | | 8.9 | | | | 7.5 | 7.5 | 7.2 | 7.2 | 12.5 |
| Field Conductivity | us/cm | - | | | 704 | 384 | | 455 | 455 | | | 355 | 355 | 318 | 318 | 318 |
| Dissolved Oxygen | mg/L | - | | | 5.56 | 4.97 | | 9.75 | 9.75 | | | 11.2 | 11.2 | 13.12 | 13.12 | 4.45 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW16 24-Apr-18 | SW16 12-Apr-19 | SW16 22-Oct-19 | SW16 23-Apr-20 | SW16 20-Jul-20 | SW16 20-Oct-20 | SW16 20-Apr-21 | SW16 19-Jul-21 | SW16 28-Oct-21 | SW16 21-Apr-22 | SW16 20-Jul-22 | SW16 24-Oct-22 | SW16 20-Apr-23 | SW16 30-Aug-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 162 | 163 | Dry | 182 | Dry | Dry | 234 | Dry | 272 | 223 | 339 | Dry | 221 | Dry |
| BOD | mg/L | - | < 3 | < 3 | | < 3 | | | < 3 | | < 3 | < 3 | < 3 | | < 3 | |
| Calcium | mg/L | - | 63.3 | 70.4 | | 83.5 | | | 99.3 | | 130 | 86.1 | 120 | | 89.1 | |
| Chloride | mg/L | - | 5.5 | 7.2 | | 12.2 | | | 12.8 | | 18.1 | 18.1 | 14.3 | | 13 | |
| COD | mg/L | - | 17 | 18 | | 20 | | | 21 | | 9 | 14 | < 5 | | 15 | |
| Colour | colour unit | - | 22 | 26 | | 31 | | | 32 | | 16 | 27 | 24 | | 36 | |
| Specific Conductivity | umhos/cm | - | 343 | 364 | | 408 | | | 519 | | 658 | 497 | 678 | | 500 | |
| DOC | mg/L | - | 5.5 | 7.2 | | 8.5 | | | 10.2 | | 6.2 | 9.4 | 8.3 | | 4.5 | |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | | < 0.1 | | | < 0.1 | | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | | < 0.005 | | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | |
| Iron | mg/L | 0.3 | 0.05 | 0.04 | | 0.031 | | | 0.061 | | 0.043 | 0.058 | 0.17 | | 0.043 | |
| Magnesium | mg/L | - | 3.52 | 3.81 | | 4.58 | | | 6.21 | | 8.57 | 5.74 | 11.2 | | 5.36 | |
| Manganese | mg/L | - | 0.011 | 0.004 | | 0.015 | | | 0.015 | | 0.017 | 0.007 | 0.24 | | 0.011 | |
| Nitrate | mg/L | - | 0.21 | 0.24 | | 0.28 | | | **3.5** | | **7.07** | 1.52 | 0.22 | | 1.87 | |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | | < 0.05 | | | < 0.05 | | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | |
| pH Lab | pH unit | 6.5 - 8.5 | 8.21 | 8.08 | | 8.05 | | | 8.17 | | 7.88 | 8.09 | 8.08 | | 8.11 | |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.002 | | < 0.002 | | | < 0.002 | | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | |
| Total Phosphorus | mg/L | 0.03 | 0.01 | 0.02 | | 0.01 | | | **0.05** | | 0.02 | 0.02 | **0.06** | | 0.01 | |
| Potassium | mg/L | - | 1.4 | 1.2 | | 1 | | | 1.4 | | 1.3 | 1.9 | 0.6 | | 1.5 | |
| Sodium | mg/L | - | 3.4 | 3.9 | | 5 | | | 5.7 | | 5.7 | 5.6 | 19.7 | | 5 | |
| Sulphate | mg/L | - | 3 | 5 | | 6 | | | 10 | | 18 | 8 | 18 | | 9 | |
| TDS | mg/L | - | 185 | 190 | | 222 | | | 278 | | 345 | 260 | 390 | | 255 | |
| TKN | mg/L | - | 0.3 | 0.5 | | 0.5 | | | 0.6 | | 0.7 | 0.7 | 0.9 | | 2 | |
| Ammonia (NH3-N) | mg/L | - | 0.04 | 0.04 | | 0.01 | | | 0.02 | | 0.04 | 0.12 | 0.22 | | 1.8 | |
| Total Suspended Solids | mg/L | - | 3 | < 3 | | < 3 | | | < 3 | | < 3 | < 3 | 14 | | < 3 | |
| Turbidity | ntu | - | 0.6 | 0.7 | | 0.8 | | | 1.2 | | 0.6 | 0.9 | 3.9 | | 0.6 | |
| Hardness (CaCO3) | mg/L | - | 173 | 195 | | 224 | | | 274 | | 369 | 239 | 346 | | 255 | |
| Unionized Ammonia | mg/L | 0.02 | 0.0027 | < 0.01 | | < 0.01 | | | < 0.01 | | < 0.01 | < 0.01 | < 0.01 | | **0.0300** | |
| Aluminum | mg/L | 0.075 | 0.05 | 0.05 | | 0.05 | | | 0.03 | | 0.07 | 0.03 | 0.06 | | 0.03 | |
| Antimony | mg/L | 0.02 | < 0.0001 | 0.0004 | | 0.0003 | | | 0.0003 | | < 0.0001 | 0.0003 | 0.0004 | | 0.0004 | |
| Arsenic | mg/L | 0.005 | < 0.0001 | 0.0001 | | 0.0002 | | | 0.0002 | | 0.0001 | 0.0002 | 0.0002 | | 0.0002 | |
| Barium | mg/L | - | 0.018 | 0.021 | | 0.025 | | | 0.029 | | 0.048 | 0.027 | 0.054 | | 0.029 | |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | | < 0.002 | | | < 0.002 | | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | |
| Boron | mg/L | - | 0.006 | 0.008 | | < 0.005 | | | 0.007 | | 0.013 | 0.007 | 0.008 | | 0.007 | |
| Cadmium | mg/L | 0.0005 | < 0.000014 | < 0.000015 | | < 0.000015 | | | < 0.000015 | | < 0.000015 | < 0.000015 | < 0.000015 | | < 0.000015 | |
| Chromium (total) | mg/L | 0.002 | < 0.001 | < 0.001 | | < 0.001 | | | < 0.001 | | 0.001 | < 0.001 | < 0.001 | | 0.001 | |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | < 0.001 | < 0.001 | | < 0.001 | |
| Cobalt | mg/L | 0.0009 | < 0.0001 | 0.0002 | | < 0.0001 | | | < 0.0001 | | < 0.0001 | 0.0001 | 0.0003 | | 0.0001 | |
| Copper | mg/L | 0.005 | 0.0017 | 0.0008 | | 0.0007 | | | 0.0006 | | 0.0006 | 0.0008 | 0.0007 | | 0.0006 | |
| Lead | mg/L | 0.005 | 0.00002 | 0.00006 | | 0.00002 | | | < 0.00002 | | 0.00002 | 0.00004 | 0.00008 | | 0.00004 | |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | | < 0.00002 | | | < 0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | |
| Molybdenum | mg/L | 0.04 | 0.0001 | 0.0002 | | 0.0001 | | | 0.0001 | | < 0.0001 | 0.0001 | 0.0001 | | 0.0001 | |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | | < 0.01 | | | < 0.01 | | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | | < 0.001 | | | < 0.001 | | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.0001 | | < 0.0001 | | | < 0.0001 | | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | |
| Strontium | mg/L | - | 0.149 | 0.161 | | 0.195 | | | 0.231 | | 0.296 | 0.226 | 0.291 | | 0.222 | |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | | < 0.00005 | | | < 0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0003 | | 0.0003 | | | 0.0003 | | 0.0004 | 0.0002 | 0.0004 | | 0.0003 | |
| Zinc | mg/L | 0.02 | < 0.005 | 0.01 | | < 0.005 | | | 0.011 | | 0.01 | < 0.005 | 0.018 | | 0.011 | |
| Field pH | pH unit | - | 8.5 | 7.27 | | 7.87 | | | 7.23 | | 7.83 | 8.14 | 7.58 | | 7.75 | |
| Field Temp | deg C | - | 12.4 | 5.9 | | 6 | | | 6.2 | | 8.7 | 7.9 | 21.1 | | 11.2 | |
| Field Conductivity | us/cm | - | 355 | 500 | | 430 | | | 610 | | 600 | 415 | 525 | | 400 | |
| Dissolved Oxygen | mg/L | - | 5.56 | 13.64 | | 11.94 | | | 20.06 | | 7.98 | 9.84 | 6.55 | | 8.01 | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW16 12-Oct-23 | SW16 18-Apr-24 | SW16 11-Jul-24 | SW16 07-Oct-24 | SW16 22-Apr-25 | SW16-F 22-Apr-25 | SW16 30-Sep-25 | SW17 20-Jul-17 | SW17 23-Oct-17 | SW17 24-Apr-18 | SW17 24-Apr-19 | SW17 22-Oct-19 | SW17 23-Apr-20 | SW17 20-Jul-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 291 | 226 | 151 | Dry | 219 | | Dry | 166 | 177 | 95 | 88 | Dry | Dry | Dry |
| BOD | mg/L | - | <3 | <3 | <3 | | <3 | | | < 3 | 4 | < 3 | < 3 | | | |
| Calcium | mg/L | - | 112 | 87.1 | 55.2 | | 90.9 | 91.7 | | 79 | 66.1 | 40.3 | 38.1 | | | |
| Chloride | mg/L | - | 23.8 | 11.7 | 7.1 | | 11.4 | | | 7.1 | 9.6 | 4 | 5.3 | | | |
| COD | mg/L | - | 16 | 21 | 34 | | 24 | 24 | | 155 | 65 | 46 | 42 | | | |
| Colour | colour unit | - | 19 | 32 | 65 | | 23 | | | 145 | 88 | 135 | 132 | | | |
| Specific Conductivity | umhos/cm | - | 675 | 463 | 306 | | 462 | | | 349 | 382 | 192 | 201 | | | |
| DOC | mg/L | - | 8.9 | 9.2 | 10.6 | | 7.3 | | | 24 | 21.4 | 9.8 | 19.4 | | | |
| Fluoride | mg/L | - | <0.1 | <0.1 | <0.1 | | <0.1 | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | | |
| Cyanide (free) | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | | <0.005 | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | | |
| Iron | mg/L | 0.3 | 0.064 | 0.044 | 0.2 | | 0.047 | 0.032 | | **3.86** | 0.139 | **0.388** | 0.298 | | | |
| Magnesium | mg/L | - | 8.08 | 4.55 | 3.08 | | 6.05 | 6.06 | | 5.35 | 4.88 | 3.22 | 2.27 | | | |
| Manganese | mg/L | - | 0.021 | 0.005 | 0.029 | | 0.01 | 0.007 | | 2.05 | 0.052 | 0.077 | 0.146 | | | |
| Nitrate | mg/L | - | 2.19 | 0.34 | 0.08 | | 1.18 | | | < 0.05 | < 0.05 | < 0.05 | 0.11 | | | |
| Nitrite | mg/L | - | 0.05 | <0.05 | <0.05 | | <0.05 | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | | |
| pH Lab | pH unit | 6.5 - 8.5 | 8.08 | 8.25 | 7.22 | | 8.15 | | | 8.26 | 8.04 | 7.88 | 7.77 | | | |
| Phenols | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | | <0.001 | | | **0.009** | **0.006** | <0.001 | < 0.002 | | | |
| Total Phosphorus | mg/L | 0.03 | <0.1 | 0.01 | **0.06** | | 0.02 | 0.02 | | **0.3** | < 0.1 | **0.06** | **0.04** | | | |
| Potassium | mg/L | - | 2.8 | 1.1 | 3.2 | | 1.3 | 1.4 | | 2 | 3.2 | 1.4 | 2 | | | |
| Sodium | mg/L | - | 13.4 | 4.3 | 3 | | 4.6 | 4.7 | | 6 | 6.6 | 3.4 | 3.7 | | | |
| Sulphate | mg/L | - | 33 | 7 | 3 | | 10 | | | 2 | 1 | 2 | 1 | | | |
| TDS | mg/L | - | 377 | 253 | 166 | | 261 | | | 191 | 198 | 109 | 106 | | | |
| TKN | mg/L | - | 0.5 | 0.5 | 0.8 | | 0.5 | 0.5 | | 1.1 | 0.8 | 0.7 | 0.7 | | | |
| Ammonia (NH3-N) | mg/L | - | 0.06 | <0.05 | 0.1 | | 0.08 | 0.08 | | 0.07 | 0.03 | 0.03 | 0.09 | | | |
| Total Suspended Solids | mg/L | - | 8 | <3 | 7 | | 6 | | | 10 | 12 | 10 | 7 | | | |
| Turbidity | ntu | - | 1.4 | 0.8 | 2.2 | | 0.7 | | | 3.8 | 2.6 | 4.5 | 1.4 | | | |
| Hardness (CaCO3) | mg/L | - | 312 | 236 | 151 | | 252 | 254 | | 219 | 188 | 114 | 99 | | | |
| Unionized Ammonia | mg/L | 0.02 | <0.01 | <0.01 | <0.01 | | <0.01 | | | 0.0012 | 0.0001 | 0.0029 | < 0.01 | | | |
| Aluminum | mg/L | 0.075 | **0.09** | 0.06 | 0.07 | | 0.05 | 0.03 | | 0.05 | 0.04 | 0.04 | 0.04 | | | |
| Antimony | mg/L | 0.02 | <0.0001 | 0.0001 | 0.0005 | | 0.0004 | 0.0005 | | 0.0002 | 0.0001 | 0.0003 | 0.0002 | | | |
| Arsenic | mg/L | 0.005 | 0.0002 | 0.0002 | 0.0003 | | 0.0001 | 0.0001 | | 0.0033 | 0.0007 | 0.0004 | 0.0005 | | | |
| Barium | mg/L | - | 0.043 | 0.029 | 0.024 | | 0.031 | 0.031 | | 0.06 | 0.037 | 0.024 | 0.015 | | | |
| Beryllium | mg/L | 1.1 | <0.0001 | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | | |
| Boron | mg/L | - | 0.014 | 0.005 | 0.025 | | 0.008 | 0.01 | | 0.013 | 0.012 | < 0.005 | < 0.005 | | | |
| Cadmium | mg/L | 0.0005 | <0.000015 | <0.000015 | 0.000019 | | <0.000015 | <0.000015 | | 0.000165 | < 0.000014 | < 0.000014 | < 0.000015 | | | |
| Chromium (total) | mg/L | 0.002 | <0.001 | <0.001 | <0.001 | | <0.001 | <0.001 | | 0.002 | < 0.001 | < 0.001 | 0.001 | | | |
| Chromium (VI) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | | <0.001 | <0.001 | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0003 | 0.0002 | 0.0003 | | 0.0002 | 0.0002 | | **0.0035** | < 0.0001 | 0.0002 | 0.0002 | | | |
| Copper | mg/L | 0.005 | 0.0014 | 0.001 | 0.002 | | 0.0006 | 0.0006 | | **0.0119** | 0.0005 | 0.0008 | 0.0013 | | | |
| Lead | mg/L | 0.005 | 0.00008 | 0.00003 | 0.00008 | | 0.00003 | <0.00002 | | 0.00004 | 0.00021 | 0.00071 | 0.00019 | | | |
| Mercury | mg/L | 0.0002 | <0.00002 | <0.00002 | <0.00002 | | <0.00002 | <0.00002 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | | |
| Molybdenum | mg/L | 0.04 | 0.0001 | 0.0001 | <0.0001 | | 0.0001 | <0.0001 | | 0.0004 | 0.0002 | 0.0001 | 0.0002 | | | |
| Nickel | mg/L | 0.025 | 0.0008 | 0.0015 | 0.0009 | | 0.0007 | 0.0008 | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | | |
| Selenium | mg/L | 0.1 | <0.001 | <0.001 | <0.001 | | <0.001 | <0.001 | | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | | |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | | | |
| Strontium | mg/L | - | 0.305 | 0.22 | 0.148 | | 0.215 | 0.218 | | 0.207 | 0.169 | 0.103 | 0.079 | | | |
| Thallium | mg/L | 0.0003 | <0.00005 | <0.00005 | <0.00005 | | <0.00005 | <0.00005 | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | | |
| Vanadium | mg/L | 0.006 | 0.0005 | 0.0002 | 0.0007 | | 0.0003 | 0.0002 | | 0.0025 | 0.0003 | 0.0005 | 0.0004 | | | |
| Zinc | mg/L | 0.02 | 0.006 | 0.006 | <0.005 | | <0.005 | <0.005 | | **0.034** | **0.021** | **0.021** | 0.011 | | | |
| Field pH | pH unit | - | 8.1 | 8.55 | 7.49 | | 7.58 | | | 7.7 | 7.12 | 8.9 | | | | |
| Field Temp | deg C | - | 9.6 | 8.3 | 19.9 | | 11.3 | | | 18.4 | 13.5 | 5.7 | | | | |
| Field Conductivity | us/cm | - | 673 | 471 | 337 | | 373 | 373 | | 770 | 345 | 205 | | | | |
| Dissolved Oxygen | mg/L | - | 3.35 | 4.06 | 1.56 | | 7.58 | 7.58 | | 1.79 | 3.57 | 5.45 | | | | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW17 20-Oct-20 | SW17 20-Apr-21 | SW17 19-Jul-21 | SW17 28-Oct-21 | SW17 21-Apr-22 | SW17 20-Jul-22 | SW17 24-Oct-22 | SW17 20-Apr-23 | SW17 30-Aug-23 | SW17 12-Oct-23 | SW17 18-Apr-24 | SW17 11-Jul-24 | SW17 07-Oct-24 | SW17 22-Apr-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry | Dry | 188 | Dry | Dry | Dry | Dry | Dry | Dry | 209 | 125 | 129 | 204 | 130 |
| BOD | mg/L | - | | | < 6 | | | | | | | <3 | <3 | <3 | <3 | <3 |
| Calcium | mg/L | - | | | 74.8 | | | | | | | 75.2 | 42.8 | 59.8 | 78 | 49.9 |
| Chloride | mg/L | - | | | 12.9 | | | | | | | 15 | 5.2 | 24.8 | 12.4 | 8 |
| COD | mg/L | - | | | 58 | | | | | | | 71 | 48 | 56 | 227 | 56 |
| Colour | colour unit | - | | | 110 | | | | | | | 89 | 109 | 72 | 85 | 82 |
| Specific Conductivity | umhos/cm | - | | | 383 | | | | | | | 433 | 254 | 327 | 414 | 272 |
| DOC | mg/L | - | | | 24.1 | | | | | | | 25.8 | 15.5 | 15.4 | 22.3 | 14.3 |
| Fluoride | mg/L | - | | | < 0.1 | | | | | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cyanide (free) | mg/L | 0.005 | | | < 0.005 | | | | | | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Iron | mg/L | 0.3 | | | **0.549** | | | | | | | **0.552** | 0.099 | **1.4** | **1.89** | 0.167 |
| Magnesium | mg/L | - | | | 4.29 | | | | | | | 4.58 | 2.64 | 2.98 | 5.09 | 3.17 |
| Manganese | mg/L | - | | | 0.54 | | | | | | | 0.12 | 0.011 | 0.054 | 0.201 | 0.018 |
| Nitrate | mg/L | - | | | 0.07 | | | | | | | <0.05 | <0.05 | <0.05 | 0.09 | 0.05 |
| Nitrite | mg/L | - | | | < 0.05 | | | | | | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | | | 8.04 | | | | | | | 7.91 | 7.73 | 7.09 | 7.94 | 7.95 |
| Phenols | mg/L | 0.001 | | | < 0.002 | | | | | | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Total Phosphorus | mg/L | 0.03 | | | **0.05** | | | | | | | <0.1 | 0.03 | **0.19** | **0.36** | **0.06** |
| Potassium | mg/L | - | | | 2 | | | | | | | 5.5 | 1.3 | 5.1 | 5.2 | 2 |
| Sodium | mg/L | - | | | 5.6 | | | | | | | 5 | 3 | 4.2 | 4.6 | 4.1 |
| Sulphate | mg/L | - | | | < 1 | | | | | | | 1 | 2 | 2 | <1 | 3 |
| TDS | mg/L | - | | | 213 | | | | | | | 233 | 132 | 178 | 230 | 149 |
| TKN | mg/L | - | | | 0.9 | | | | | | | 1.3 | 0.7 | 1 | 4.3 | 1 |
| Ammonia (NH3-N) | mg/L | - | | | 0.05 | | | | | | | 0.34 | 0.09 | 0.07 | 0.12 | 0.28 |
| Total Suspended Solids | mg/L | - | | | 47 | | | | | | | 15 | <3 | 65 | 34 | 18 |
| Turbidity | ntu | - | | | 22.7 | | | | | | | 11.2 | 1.9 | 64.3 | 14.4 | 27.3 |
| Hardness (CaCO3) | mg/L | - | | | 205 | | | | | | | 207 | 118 | 162 | 216 | 138 |
| Unionized Ammonia | mg/L | 0.02 | | | < 0.01 | | | | | | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Aluminum | mg/L | 0.075 | | | 0.05 | | | | | | | 0.06 | 0.04 | **0.96** | **0.95** | 0.06 |
| Antimony | mg/L | 0.02 | | | 0.0004 | | | | | | | 0.0001 | <0.0001 | 0.0006 | 0.0004 | 0.0004 |
| Arsenic | mg/L | 0.005 | | | 0.0016 | | | | | | | 0.0007 | 0.0003 | 0.0007 | 0.0008 | 0.0003 |
| Barium | mg/L | - | | | 0.033 | | | | | | | 0.026 | 0.011 | 0.03 | 0.033 | 0.015 |
| Beryllium | mg/L | 1.1 | | | < 0.002 | | | | | | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | - | | | 0.011 | | | | | | | 0.008 | <0.005 | 0.02 | 0.008 | 0.006 |
| Cadmium | mg/L | 0.0005 | | | < 0.000015 | | | | | | | <0.000015 | <0.000015 | 0.000019 | 0.000053 | <0.000015 |
| Chromium (total) | mg/L | 0.002 | | | < 0.001 | | | | | | | <0.001 | <0.001 | <0.001 | 0.001 | 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt | mg/L | 0.0009 | | | 0.0008 | | | | | | | 0.0004 | 0.0001 | 0.0008 | 0.0009 | 0.0002 |
| Copper | mg/L | 0.005 | | | 0.001 | | | | | | | 0.0012 | 0.0006 | 0.0025 | 0.0042 | 0.0004 |
| Lead | mg/L | 0.005 | | | 0.00031 | | | | | | | 0.00034 | 0.00009 | 0.00134 | 0.00232 | 0.00014 |
| Mercury | mg/L | 0.0002 | | | < 0.00002 | | | | | | | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | | | 0.0005 | | | | | | | 0.0001 | <0.0001 | 0.0002 | 0.0001 | <0.0001 |
| Nickel | mg/L | 0.025 | | | < 0.01 | | | | | | | 0.0012 | 0.0007 | 0.001 | 0.0016 | 0.0006 |
| Selenium | mg/L | 0.1 | | | < 0.001 | | | | | | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Silver | mg/L | 0.0001 | | | < 0.0001 | | | | | | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Strontium | mg/L | - | | | 0.196 | | | | | | | 0.171 | 0.094 | 0.216 | 0.181 | 0.106 |
| Thallium | mg/L | 0.0003 | | | < 0.00005 | | | | | | | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Vanadium | mg/L | 0.006 | | | 0.0006 | | | | | | | 0.0004 | 0.0001 | 0.0011 | 0.0023 | 0.0002 |
| Zinc | mg/L | 0.02 | | | 0.019 | | | | | | | 0.006 | 0.008 | 0.011 | **0.021** | 0.007 |
| Field pH | pH unit | - | | | 6.98 | | | | | | | 7.39 | 8.03 | 7.49 | 7.84 | 6.44 |
| Field Temp | deg C | - | | | 21.8 | | | | | | | 7.9 | 7.4 | 10.4 | 17.1 | 8.2 |
| Field Conductivity | us/cm | - | | | 365 | | | | | | | 403 | 240 | 331 | 424 | 238 |
| Dissolved Oxygen | mg/L | - | | | 2.19 | | | | | | | 2.74 | 1.58 | 0.48 | 2.99 | 6.44 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | SW17-F 22-Apr-25 | SW17 22-Jul-25 | SW17 30-Sep-25 | WP2 (10m) 24-Apr-19 | WP2 (10m) 11-May-20 | WP2 (10m) 28-Apr-22 | WP2 (10m) 18-Apr-24 | WP2 (10m) 22-Apr-25 | WP2 (15m) 02-May-17 | WP2 (15m) 21-Jun-17 | WP2 (15m) 24-Apr-18 | WP2 (15m) 26-Apr-21 | WP2 (30m) 02-May-17 | WP2 (30m) 21-Jun-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | | Dry | Dry | 211 | 161 | 177 | 127 | 237 | 127 | 173 | 145 | 169 | 120 | 165 |
| BOD | mg/L | - | | | | < 3 | < 3 | < 3 | <3 | 9 | < 3 | < 3 | < 3 | 14 | < 3 | 4 |
| Calcium | mg/L | - | 53.8 | | | 74.5 | 67.6 | 62.8 | 46.4 | 85.8 | 47.9 | 68.7 | 52.5 | 69.6 | 44.9 | 60.9 |
| Chloride | mg/L | - | | | | 12 | 10.9 | 9.5 | 5.5 | 23.1 | 7 | 7.8 | 7.8 | 9 | 6.7 | 6.8 |
| COD | mg/L | - | 40 | | | 53 | 45 | 59 | 56 | 46 | 42 | 59 | 57 | 183 | 48 | 119 |
| Colour | colour unit | - | | | | 54 | 71 | 82 | 116 | 64 | 102 | 115 | 66 | 73 | 100 | 115 |
| Specific Conductivity | umhos/cm | - | | | | 459 | 363 | 361 | 259 | 499 | 275 | 367 | 293 | 349 | 260 | 344 |
| DOC | mg/L | - | | | | 19.3 | 17.3 | 19.8 | 19 | 37 | 15.5 | 21 | 12 | 23.3 | 15.1 | 21.4 |
| Fluoride | mg/L | - | | | | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | | | | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | 0.103 | | | **1.84** | 0.251 | **1.64** | 0.249 | **0.656** | 0.055 | **0.45** | **1.07** | **4.41** | 0.022 | 0.184 |
| Magnesium | mg/L | - | 3.4 | | | 4.96 | 3.79 | 4.05 | 2.95 | 6.24 | 2.95 | 4.53 | 4.14 | 4.47 | 2.82 | 4.07 |
| Manganese | mg/L | - | 0.012 | | | 0.17 | 0.034 | 0.525 | 0.08 | 0.05 | 0.005 | 0.07 | 0.115 | 0.492 | 0.004 | 0.103 |
| Nitrate | mg/L | - | | | | < 0.05 | 0.32 | < 0.05 | <0.05 | 0.94 | < 0.1 | < 0.05 | 0.13 | 0.08 | < 0.1 | < 0.05 |
| Nitrite | mg/L | - | | | | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.1 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | | | | 7.66 | 7.61 | 7.88 | 7.36 | 8.08 | 7.9 | 7.73 | 7.7 | 7.97 | 7.96 | 7.7 |
| Phenols | mg/L | 0.001 | | | | < 0.002 | < 0.002 | < 0.001 | <0.001 | **0.003** | **0.002** | **0.011** | < 0.001 | < 0.002 | **0.003** | **0.004** |
| Total Phosphorus | mg/L | 0.03 | 0.02 | | | **0.11** | **0.08** | **0.07** | **0.04** | **0.04** | < 0.1 | < 0.1 | **0.19** | **0.52** | < 0.1 | < 0.1 |
| Potassium | mg/L | - | 2.1 | | | 4.3 | 2 | 2.7 | 1.6 | 7.8 | 1.4 | 1.7 | 2.6 | 2.2 | 1.2 | 1.4 |
| Sodium | mg/L | - | 4.5 | | | 10.2 | 7.3 | 7 | 3.8 | 12.8 | 4.1 | 6.6 | 6 | 6.4 | 3.8 | 5.4 |
| Sulphate | mg/L | - | | | | < 1 | 3 | 2 | 2 | 2 | 3 | < 1 | 2 | 2 | 3 | < 1 |
| TDS | mg/L | - | | | | 236 | 192 | 197 | 139 | 284 | 143 | 194 | 163 | 200 | 135 | 178 |
| TKN | mg/L | - | 0.6 | | | 1.6 | 1.4 | 1.2 | 0.8 | 1.5 | 0.6 | 0.8 | 2.1 | 2.3 | 0.6 | 1.2 |
| Ammonia (NH3-N) | mg/L | - | 0.12 | | | 0.55 | 0.07 | 0.8 | 0.06 | 0.61 | < 0.01 | 0.03 | 0.31 | 0.06 | < 0.01 | 0.01 |
| Total Suspended Solids | mg/L | - | | | | 8 | 68 | 52 | 10 | 106 | < 3 | 12 | 4 | 260 | 3 | 70 |
| Turbidity | ntu | - | | | | 4.4 | 10.5 | 10.8 | 1.6 | 47 | 0.6 | 5.2 | 35.4 | 193 | 0.7 | 32.4 |
| Hardness (CaCO3) | mg/L | - | 148 | | | 220 | 185 | 174 | 128 | 240 | 140 | 197 | 148 | 187 | 131 | 188 |
| Unionized Ammonia | mg/L | 0.02 | | | | < 0.01 | < 0.01 | 0.0100 | <0.01 | <0.01 | -- | 0.0001 | 0.0015 | < 0.01 | -- | 0.0000 |
| Aluminum | mg/L | 0.075 | 0.03 | | | 0.04 | 0.05 | 0.02 | 0.04 | 0.07 | 0.02 | 0.06 | **0.09** | 0.06 | 0.02 | 0.06 |
| Antimony | mg/L | 0.02 | 0.0003 | | | < 0.0001 | < 0.0001 | 0.0003 | 0.0001 | 0.0004 | < 0.0001 | 0.0001 | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 |
| Arsenic | mg/L | 0.005 | 0.0003 | | | 0.001 | 0.0005 | 0.0006 | 0.0003 | 0.0004 | 0.0005 | 0.001 | 0.0007 | 0.0012 | 0.0005 | 0.001 |
| Barium | mg/L | - | 0.016 | | | 0.028 | 0.021 | 0.027 | 0.014 | 0.039 | 0.014 | 0.033 | 0.028 | 0.04 | 0.013 | 0.027 |
| Beryllium | mg/L | 1.1 | <0.0001 | | | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.007 | | | 0.051 | < 0.005 | 0.019 | 0.007 | 0.134 | < 0.005 | 0.015 | 0.013 | 0.015 | < 0.005 | 0.008 |
| Cadmium | mg/L | 0.0005 | <0.000015 | | | < 0.000015 | < 0.000015 | < 0.000015 | <0.000015 | <0.000015 | < 0.000014 | 0.000046 | 0.000041 | 0.000045 | < 0.000014 | < 0.000014 |
| Chromium (total) | mg/L | 0.002 | <0.001 | | | 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | <0.001 | | | | | < 0.001 | <0.001 | <0.001 | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0001 | | | 0.0007 | 0.0001 | **0.0012** | 0.0003 | 0.0006 | < 0.0001 | 0.0002 | 0.0003 | **0.0015** | < 0.0001 | 0.0001 |
| Copper | mg/L | 0.005 | 0.0004 | | | 0.0011 | 0.0008 | 0.0011 | 0.0032 | 0.0007 | 0.0003 | 0.0028 | **0.0062** | 0.0027 | 0.0002 | 0.0003 |
| Lead | mg/L | 0.005 | 0.00004 | | | 0.00018 | 0.00028 | 0.00049 | 0.00047 | 0.00012 | 0.00003 | 0.00133 | 0.00121 | 0.00193 | 0.00003 | 0.00012 |
| Mercury | mg/L | 0.0002 | <0.00002 | | | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | 0.00005 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | <0.0001 | | | 0.0003 | 0.0002 | < 0.0001 | <0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0002 |
| Nickel | mg/L | 0.025 | 0.0005 | | | < 0.01 | < 0.01 | < 0.01 | 0.0006 | 0.0018 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | <0.001 | | | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | <0.0001 | | | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | 0.115 | | | 0.183 | 0.136 | 0.132 | 0.103 | 0.205 | 0.106 | 0.176 | 0.136 | 0.148 | 0.1 | 0.154 |
| Thallium | mg/L | 0.0003 | <0.00005 | | | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | | | 0.0003 | 0.0003 | 0.0007 | 0.0002 | 0.0003 | < 0.0001 | 0.0004 | 0.0004 | 0.0027 | < 0.0001 | 0.0002 |
| Zinc | mg/L | 0.02 | 0.008 | | | 0.016 | 0.012 | 0.006 | <0.005 | <0.005 | < 0.005 | **0.029** | **0.024** | **0.04** | < 0.005 | **0.025** |
| Field pH | pH unit | - | | | | 8.01 | 7.23 | 8.23 | 8 | 7.82 | -- | 7.18 | 7.74 | 6.89 | -- | 7.23 |
| Field Temp | deg C | - | | | | 2.3 | 5.5 | 3.3 | 7.2 | 6.8 | -- | 16.1 | 1.1 | 3.4 | -- | 16 |
| Field Conductivity | us/cm | - | 238 | | | 468 | 356 | 317 | 287 | 222 | -- | 296 | 377.2 | 319 | -- | 279 |
| Dissolved Oxygen | mg/L | - | 6.44 | | | 4.5 | 1.23 | 4.55 | 5.58 | 4.84 | -- | 1.47 | 2.61 | 7.4 | -- | 1.83 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | WP2 (30m) 24-Apr-18 | WP2 (30m) 24-Apr-19 | WP2 (30m) 11-May-20 | WP2 (30m) 26-Apr-21 | WP2 (30m) 28-Apr-22 | WP2 (30m) 18-Apr-24 | WP2 (30m) 22-Apr-25 | WP3 (10m) 02-May-17 | WP3 (10m) 24-Apr-19 | WP3 (10m) 28-Apr-22 | WP3 (10m) 18-Apr-24 | WP3 (10m) 18-Apr-24 | WP3 (10m) 22-Apr-25 | WP3 (15m) 21-Jun-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 93 | 84 | 110 | 134 | 123 | 117 | 116 | 161 | 183 | 188 | 378 | 120 | 341 | 155 |
| BOD | mg/L | - | < 3 | < 3 | < 3 | 7 | < 3 | <3 | <3 | < 3 | < 3 | < 3 | 13 | <3 | 16 | < 3 |
| Calcium | mg/L | - | 37.7 | 34.3 | 45.4 | 61.4 | 42.9 | 45.2 | 45.6 | 58.9 | 72.3 | 66.5 | 118 | 46.2 | 115 | 58.6 |
| Chloride | mg/L | - | 4 | 4.2 | 8.1 | 7.9 | 6.7 | 5.1 | 7.3 | 8.4 | 10.5 | 10.3 | 23.8 | 5.7 | 14.5 | 5.5 |
| COD | mg/L | - | 34 | 55 | 46 | 238 | 39 | 48 | 58 | 40 | 52 | 40 | 71 | 39 | 82 | 79 |
| Colour | colour unit | - | 90 | 101 | 73 | 81 | 84 | 95 | 74 | 97 | 60 | 67 | 76 | 85 | 54 | 145 |
| Specific Conductivity | umhos/cm | - | 190 | 191 | 261 | 281 | 255 | 243 | 242 | 350 | 410 | 381 | 794 | 254 | 705 | 320 |
| DOC | mg/L | - | 12 | 18.2 | 17.5 | 20.4 | 18.8 | 19.4 | 14.7 | 11.8 | 5.2 | 18.3 | 29.8 | 17.7 | 20.3 | 23 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | <0.1 | <0.1 | 0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | <0.005 | <0.005 | < 0.005 |
| Iron | mg/L | 0.3 | 0.107 | 0.193 | 0.036 | **1.8** | 0.029 | 0.034 | **0.516** | **0.519** | **0.708** | 0.072 | **0.72** | 0.05 | **1.75** | 0.132 |
| Magnesium | mg/L | - | 3.32 | 2.08 | 2.67 | 3.62 | 2.91 | 2.95 | 3 | 3.72 | 4.77 | 4.41 | 10.3 | 2.97 | 9.5 | 3.94 |
| Manganese | mg/L | - | 0.031 | 0.03 | 0.015 | 1.27 | 0.009 | 0.003 | 0.066 | 0.017 | 0.054 | 0.004 | 0.137 | 0.004 | 0.138 | 0.012 |
| Nitrate | mg/L | - | < 0.05 | < 0.05 | 0.1 | < 0.05 | < 0.05 | <0.05 | 0.05 | 0.2 | 0.08 | 0.2 | 1.22 | <0.05 | 0.46 | < 0.05 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 | < 0.1 | < 0.05 | < 0.05 | <0.05 | <0.05 | <0.05 | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.67 | 7.34 | 7.63 | 7.89 | 7.78 | 7.28 | 7.89 | 8.06 | 7.97 | 8 | 8.04 | 7.39 | 8.17 | 7.87 |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | <0.001 | 0.001 | **0.005** | < 0.002 | < 0.001 | <0.001 | <0.001 | **0.002** | **0.006** |
| Total Phosphorus | mg/L | 0.03 | 0.03 | **0.08** | **0.11** | **0.47** | < 0.01 | 0.02 | **0.05** | < 0.1 | **0.1** | 0.01 | **0.09** | 0.02 | **0.19** | < 0.1 |
| Potassium | mg/L | - | 1.5 | 1.9 | 0.8 | 1.7 | 1.5 | 1.6 | 1.8 | 2.3 | 5 | 3.3 | 13.7 | 1.6 | 11.7 | 0.9 |
| Sodium | mg/L | - | 3.7 | 2.9 | 4.3 | 5.1 | 4.2 | 3.8 | 3.6 | 6.6 | 9.7 | 8.6 | 26.6 | 4 | 23.5 | 5.1 |
| Sulphate | mg/L | - | 1 | < 1 | 3 | 2 | 1 | 2 | 2 | 5 | 1 | 1 | 4 | 2 | 6 | < 1 |
| TDS | mg/L | - | 107 | 97 | 133 | 165 | 134 | 131 | 134 | 183 | 211 | 208 | 430 | 134 | 389 | 167 |
| TKN | mg/L | - | 0.5 | 0.9 | 1.5 | 6.4 | 3 | 0.6 | 0.9 | 0.7 | 2.1 | 0.6 | 4.1 | 0.6 | 2.8 | 0.8 |
| Ammonia (NH3-N) | mg/L | - | 0.02 | 0.07 | 0.03 | 0.04 | 1.99 | <0.05 | 0.08 | 0.1 | 1.12 | 0.15 | 2.54 | <0.05 | 1.15 | < 0.01 |
| Total Suspended Solids | mg/L | - | 12 | 9 | 85 | 190 | < 3 | 14 | 64 | 8 | < 3 | 3 | 68 | <3 | 480 | < 3 |
| Turbidity | ntu | - | 2.7 | 6.8 | 6.2 | 156 | 1.4 | 2.6 | 13.4 | 15.6 | 2 | 1.3 | 34.5 | 1.4 | 97.6 | 0.9 |
| Hardness (CaCO3) | mg/L | - | 108 | 94 | 124 | 153 | 119 | 125 | 126 | 169 | 200 | 184 | 338 | 128 | 327 | 178 |
| Unionized Ammonia | mg/L | 0.02 | 0.0001 | < 0.01 | < 0.01 | < 0.01 | **0.0400** | <0.01 | <0.01 | -- | < 0.01 | < 0.01 | **0.0600** | >100% | <0.01 | -- |
| Aluminum | mg/L | 0.075 | 0.05 | 0.05 | 0.03 | 0.04 | 0.02 | 0.03 | **0.1** | 0.05 | 0.05 | 0.02 | **0.09** | 0.03 | **0.13** | 0.04 |
| Antimony | mg/L | 0.02 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0005 | 0.0001 | 0.0003 | 0.0005 | < 0.0001 | 0.0001 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | < 0.0001 |
| Arsenic | mg/L | 0.005 | 0.0004 | 0.0006 | 0.0004 | 0.0011 | 0.0003 | 0.0002 | 0.0003 | 0.0006 | 0.0007 | 0.0003 | 0.0005 | 0.0002 | 0.0005 | 0.0011 |
| Barium | mg/L | - | 0.021 | 0.011 | 0.013 | 0.039 | 0.011 | 0.012 | 0.016 | 0.026 | 0.027 | 0.019 | 0.042 | 0.013 | 0.053 | 0.026 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | <0.0001 | <0.0001 | < 0.002 |
| Boron | mg/L | - | < 0.005 | 0.012 | < 0.005 | 0.011 | 0.006 | <0.005 | 0.007 | 0.026 | 0.053 | 0.026 | 0.204 | 0.006 | 0.129 | 0.009 |
| Cadmium | mg/L | 0.0005 | 0.000044 | 0.00002 | < 0.000015 | 0.000196 | < 0.000015 | <0.000015 | 0.000036 | < 0.000014 | < 0.000015 | < 0.000015 | <0.000015 | <0.000015 | 0.000018 | < 0.000014 |
| Chromium (total) | mg/L | 0.002 | < 0.001 | 0.001 | < 0.001 | 0.002 | < 0.001 | <0.001 | <0.001 | 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | < 0.001 |
| Chromium (VI) | mg/L | 0.001 | | | | | < 0.001 | <0.001 | <0.001 | | | < 0.001 | <0.001 | <0.001 | <0.001 | |
| Cobalt | mg/L | 0.0009 | 0.0004 | 0.0002 | < 0.0001 | **0.0015** | < 0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0005 | 0.0002 | 0.0009 | 0.0002 | 0.0009 | < 0.0001 |
| Copper | mg/L | 0.005 | **0.0082** | 0.001 | 0.0006 | 0.0035 | 0.0002 | 0.0003 | 0.0008 | 0.0009 | 0.0012 | 0.0006 | 0.001 | 0.0005 | 0.0009 | 0.0002 |
| Lead | mg/L | 0.005 | 0.00099 | 0.00045 | 0.00022 | **0.00835** | 0.00006 | 0.00004 | 0.00129 | 0.00039 | 0.00034 | 0.00004 | 0.00036 | 0.00005 | 0.00072 | 0.00004 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | <0.00002 | <0.00002 | 0.00003 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 | <0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0001 | 0.0002 | 0.0002 | 0.0004 | < 0.0001 | <0.0001 | <0.0001 | 0.0003 | 0.0003 | 0.0001 | 0.0001 | <0.0001 | 0.0002 | 0.0001 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0006 | 0.0007 | < 0.01 | < 0.01 | < 0.01 | 0.0025 | 0.0005 | 0.0017 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | <0.001 | <0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | < 0.00002 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.00002 |
| Strontium | mg/L | - | 0.102 | 0.071 | 0.092 | 0.135 | 0.091 | 0.101 | 0.098 | 0.137 | 0.172 | 0.149 | 0.348 | 0.103 | 0.309 | 0.152 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 | <0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0002 | < 0.0001 | 0.0012 | < 0.0001 | <0.0001 | 0.0003 | 0.0008 | 0.0003 | 0.0001 | 0.0002 | <0.0001 | 0.0003 | 0.0002 |
| Zinc | mg/L | 0.02 | **0.021** | 0.012 | 0.006 | **0.058** | < 0.005 | <0.005 | 0.013 | 0.007 | 0.019 | < 0.005 | 0.006 | <0.005 | 0.014 | **0.031** |
| Field pH | pH unit | - | 7.73 | 8.13 | 7.27 | 7.14 | 8.2 | 7.98 | 7.39 | -- | 7.75 | 7.98 | 8.17 | 8.06 | 7.28 | 7.44 |
| Field Temp | deg C | - | -0.2 | 1.5 | 5.2 | 3.3 | 4.3 | 7.6 | 7.2 | -- | 1.7 | 5.9 | 7.3 | 7.7 | 6.4 | 16.8 |
| Field Conductivity | us/cm | - | 230.2 | 175 | 218 | 250 | 232 | 238 | 217 | -- | 470 | 369 | 570 | 249 | 217 | 264 |
| Dissolved Oxygen | mg/L | - | 5.95 | 3.36 | 6.61 | 7.1 | 3.85 | 6.17 | 5.25 | -- | 6.36 | 5.66 | 8.81 | 6.66 | 5.5 | 0.7 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | WP3 (15m) 24-Apr-18 | WP3 (15m) 27-Apr-20 | WP3 (15m) 26-Apr-21 | WP3 (20m) 21-Jun-17 | WP3 (25m) 02-May-17 | WP3 (25m) 24-Apr-19 | WP3 (30m) 24-Apr-18 | WP3 (30m) 27-Apr-20 | WP3 (30m) 26-Apr-21 | WP3 (30m) 28-Apr-22 | WP3 (30m) 22-Apr-25 | WP4 (10m) 26-Oct-17 | WP4 (20m) 02-May-17 | WP4 (20m) 24-Apr-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 117 | 180 | 297 | 153 | 111 | 80 | 92 | 111 | 152 | 121 | 122 | 1130 | 311 | 151 |
| BOD | mg/L | - | < 3 | < 3 | 5 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | <3 | 8 | < 3 | < 3 |
| Calcium | mg/L | - | 47.4 | 81.4 | 110 | 56.6 | 42.7 | 32.8 | 37.3 | 53.3 | 62.1 | 42 | 47.2 | 245 | 101 | 45.2 |
| Chloride | mg/L | - | 5.6 | 14.2 | 23.9 | 6.8 | 6.9 | 4.2 | 4.3 | 9 | 9.6 | 6.7 | 6.8 | **215** | 19.1 | 5 |
| COD | mg/L | - | 37 | 36 | 99 | 79 | 48 | 49 | 40 | 37 | 42 | 44 | 42 | 279 | 48 | 60 |
| Colour | colour unit | - | 75 | 60 | 59 | 155 | 105 | 89 | 104 | 70 | 66 | 76 | 75 | 65 | 61 | 80 |
| Specific Conductivity | umhos/cm | - | 236 | 424 | 633 | 324 | 245 | 181 | 191 | 264 | 322 | 251 | 248 | 3040 | 683 | 303 |
| DOC | mg/L | - | 11.5 | 14.8 | 20 | 28.6 | 16.6 | 18 | 12 | 14.8 | 18.5 | 18.5 | 14.6 | 30.7 | 14.6 | 15.4 |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | <0.1 | < 0.1 | 0.2 | < 0.1 |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 | < 0.005 | < 0.005 | < 0.005 |
| Iron | mg/L | 0.3 | 0.274 | 0.07 | **0.69** | 0.141 | 0.038 | 0.105 | 0.104 | 0.058 | **0.533** | 0.053 | 0.232 | 0.005 | **0.434** | 0.146 |
| Magnesium | mg/L | - | 4.08 | 4.82 | 7.93 | 3.42 | 2.65 | 2.11 | 3.04 | 3.21 | 3.72 | 2.75 | 3.1 | 47 | 8.83 | 6.31 |
| Manganese | mg/L | - | 0.047 | 0.015 | 0.099 | 0.011 | 0.008 | 0.008 | 0.032 | 0.012 | 0.066 | 0.011 | 0.015 | 0.106 | 0.066 | 0.165 |
| Nitrate | mg/L | - | < 0.05 | 0.28 | 0.66 | < 0.05 | < 0.1 | < 0.05 | < 0.05 | 0.09 | 0.08 | < 0.05 | <0.05 | < 0.05 | 1.1 | < 0.05 |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | < 0.05 | **0.3** | < 0.05 |
| pH Lab | pH unit | 6.5 - 8.5 | 7.76 | 7.9 | 8.14 | 7.78 | 7.9 | 7.75 | 7.64 | 7.66 | 8.02 | 7.82 | 8.02 | 7.66 | 8.12 | 7.8 |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.002 | < 0.002 | **0.006** | **0.005** | < 0.002 | < 0.001 | < 0.002 | < 0.002 | < 0.001 | **0.002** | **0.01** | **0.006** | < 0.001 |
| Total Phosphorus | mg/L | 0.03 | **0.04** | 0.02 | **0.12** | < 0.1 | < 0.1 | **0.05** | 0.03 | 0.01 | **0.04** | 0.02 | **0.04** | < 0.1 | < 0.1 | **0.58** |
| Potassium | mg/L | - | 2.3 | 3.8 | 8.1 | 0.7 | 0.9 | 1.7 | 1.5 | 1.5 | 1.9 | 1.5 | 1.9 | 139 | 11.5 | 10.8 |
| Sodium | mg/L | - | 5.6 | 11.2 | 22.4 | 4.6 | 3.7 | 2.9 | 3.3 | 5.2 | 6.3 | 4.1 | 4.1 | 164 | 24.9 | 6 |
| Sulphate | mg/L | - | 1 | 8 | 4 | < 1 | 3 | < 1 | 2 | 5 | 2 | 1 | 2 | 20 | 6 | < 1 |
| TDS | mg/L | - | 137 | 231 | 355 | 164 | 127 | 92 | 106 | 141 | 177 | 131 | 139 | 1592 | 367 | 165 |
| TKN | mg/L | - | 0.8 | 0.6 | 2.1 | 1 | 1 | 0.8 | 0.4 | 0.5 | 0.7 | 0.8 | 0.6 | 82.2 | 3 | 4.1 |
| Ammonia (NH3-N) | mg/L | - | 0.36 | 0.03 | 0.07 | 0.02 | < 0.01 | 0.08 | 0.02 | 0.02 | 0.03 | 0.16 | 0.12 | 66.6 | 2.12 | 0.67 |
| Total Suspended Solids | mg/L | - | 3 | 7 | 110 | < 3 | < 3 | < 3 | 4 | 6 | 6 | 3 | 6 | 90 | 22 | 88 |
| Turbidity | ntu | - | 1.7 | 6.1 | 67.2 | 0.5 | 0.4 | 0.8 | 0.8 | 0.8 | 20.2 | 0.3 | 2 | 83.1 | 10.9 | 78.8 |
| Hardness (CaCO3) | mg/L | - | 135 | 223 | 308 | 181 | 126 | 91 | 106 | 146 | 170 | 116 | 131 | 806 | 291 | 139 |
| Unionized Ammonia | mg/L | 0.02 | 0.0012 | < 0.01 | < 0.01 | 0.0002 | -- | < 0.01 | 0.0001 | < 0.01 | < 0.01 | < 0.01 | <0.01 | **0.1161** | -- | < 0.01 |
| Aluminum | mg/L | 0.075 | 0.05 | 0.05 | 0.07 | 0.05 | 0.03 | 0.03 | 0.05 | 0.03 | 0.05 | 0.02 | 0.03 | **0.1** | 0.04 | 0.07 |
| Antimony | mg/L | 0.02 | < 0.0001 | < 0.0001 | 0.0003 | < 0.0001 | 0.0004 | 0.0003 | < 0.0001 | < 0.0001 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | < 0.0001 |
| Arsenic | mg/L | 0.005 | 0.0005 | 0.0004 | 0.0006 | 0.0015 | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0005 | 0.0003 | 0.0002 | 0.0011 | 0.0006 | 0.0009 |
| Barium | mg/L | - | 0.026 | 0.025 | 0.039 | 0.02 | 0.013 | 0.011 | 0.018 | 0.016 | 0.021 | 0.012 | 0.016 | 0.734 | 0.049 | 0.025 |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | <0.0001 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | - | 0.012 | 0.067 | 0.104 | 0.006 | < 0.005 | 0.009 | < 0.005 | 0.015 | 0.015 | 0.005 | 0.009 | 0.596 | 0.176 | 0.122 |
| Cadmium | mg/L | 0.0005 | < 0.000015 | < 0.000015 | 0.000036 | < 0.000014 | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 | 0.000074 | < 0.000015 | <0.000015 | 0.000032 | < 0.000014 | 0.000052 |
| Chromium (total) | mg/L | 0.002 | < 0.001 | 0.001 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.001 | < 0.001 | <0.001 | 0.001 | < 0.001 | 0.002 |
| Chromium (VI) | mg/L | 0.001 | | | | | | | | | | < 0.001 | <0.001 | | | |
| Cobalt | mg/L | 0.0009 | 0.0004 | 0.0003 | 0.0006 | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 | 0.0002 | < 0.0001 | 0.0002 | < 0.005 | 0.0007 | 0.0002 |
| Copper | mg/L | 0.005 | 0.0003 | 0.0009 | 0.0011 | < 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0007 | 0.0007 | 0.0002 | 0.0003 | 0.0016 | 0.0012 | **0.01** |
| Lead | mg/L | 0.005 | 0.0001 | 0.0001 | 0.00118 | 0.00004 | 0.00003 | 0.0001 | 0.00012 | 0.00013 | 0.00251 | 0.00011 | 0.00044 | 0.00131 | 0.00024 | 0.00274 |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0001 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | < 0.0001 | 0.0002 | 0.0002 | < 0.0001 | <0.0001 | < 0.0001 | 0.0005 | 0.0005 |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.0007 | < 0.01 | < 0.01 | < 0.01 |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | <0.001 | 0.001 | < 0.001 | < 0.001 |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | 0.00002 | < 0.00002 | < 0.00002 |
| Strontium | mg/L | - | 0.127 | 0.177 | 0.278 | 0.141 | 0.095 | 0.071 | 0.094 | 0.109 | 0.138 | 0.09 | 0.102 | 0.615 | 0.297 | 0.15 |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | < 0.0001 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0002 | 0.0006 | 0.0002 | < 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | < 0.0001 | 0.0001 | 0.0034 | 0.0004 | 0.0002 |
| Zinc | mg/L | 0.02 | **0.028** | 0.007 | **0.024** | 0.007 | 0.005 | 0.013 | **0.021** | 0.008 | **0.023** | < 0.005 | <0.005 | **4.93** | < 0.005 | **0.028** |
| Field pH | pH unit | - | 7.61 | 7.56 | 7.29 | 7.47 | -- | 8 | 7.71 | 7.45 | 6.84 | 8 | 7.28 | 6.89 | -- | 7.63 |
| Field Temp | deg C | - | 0 | 8.7 | 5.9 | 16.7 | -- | 1.6 | -0.3 | 9.1 | 5.6 | 6.2 | 6.8 | 12.4 | -- | 6.2 |
| Field Conductivity | us/cm | - | 272.2 | 491 | 456 | 264 | -- | 164 | 199.5 | 253 | 294 | 226 | 590 | 1304 | -- | 268.6 |
| Dissolved Oxygen | mg/L | - | 72.1 | 8 | 7.9 | 1.82 | -- | 4 | 6.49 | 5.33 | 0.97 | 3.11 | 8.93 | -- | -- | 3.93 |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | WP4 (25m) 24-Apr-18 | WP4 (25m) 28-Apr-22 | WP4 (30m) 29-Apr-16 | WP4 (30m) 02-May-17 | WP4 (30m) 24-Apr-18 | WP4 (30m) 12-Apr-19 | WP4 (30m) 24-Apr-19 | WP4 (35m) 24-Apr-19 | WP4 (30m) 22-Oct-19 | WP4 (30m) 23-Apr-20 | WP4 (30m) 20-Jul-20 | WP4 (30m) 20-Oct-20 | WP4 (30m) 20-Apr-21 | WP4 (30m) 27-Oct-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 346 | 409 | 307 | 227 | 143 | 126 | 126 | 100 | Dry | 195 | Dry | Dry | 356 | Dry |
| BOD | mg/L | - | < 3 | 9 | < 3 | 3 | < 3 | < 3 | < 3 | < 3 | | 5 | | | 12 | |
| Calcium | mg/L | - | 97.2 | 138 | 107 | 74 | 53.2 | 51 | 48.2 | 38.9 | | 93.8 | | | 293 | |
| Chloride | mg/L | - | 14.8 | 15.9 | 30.4 | 13 | 8.7 | 8.2 | 6.7 | 5.2 | | 19.6 | | | 24.9 | |
| COD | mg/L | - | 88 | 314 | 66 | 55 | 56 | 41 | 41 | 50 | | 121 | | | 285 | |
| Colour | colour unit | - | 70 | 53 | 56 | 76 | 60 | 56 | 53 | 70 | | 49 | | | 67 | |
| Specific Conductivity | umhos/cm | - | 673 | 775 | 675 | 500 | 295 | 289 | 282 | 226 | | 478 | | | 765 | |
| DOC | mg/L | - | 9.2 | 26 | 17.8 | 13 | 10.4 | 13.2 | 15.6 | 15.5 | | 14.8 | | | 25.4 | |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | | < 0.1 | | | < 0.1 | |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | | < 0.005 | |
| Iron | mg/L | 0.3 | 0.244 | **17.4** | **0.502** | 0.281 | **0.844** | 0.188 | 0.18 | 0.14 | | **1.45** | | | **18.7** | |
| Magnesium | mg/L | - | 12.4 | 11.6 | 8.76 | 5.56 | 4.37 | 3.32 | 3.06 | 2.48 | | 7.33 | | | 13.6 | |
| Manganese | mg/L | - | 0.668 | 0.516 | 0.317 | 0.056 | 0.126 | 0.068 | 0.011 | 0.011 | | 0.46 | | | 5.36 | |
| Nitrate | mg/L | - | 0.07 | < 0.05 | 0.2 | 0.4 | 0.06 | < 0.05 | 0.1 | 0.07 | | 0.63 | | | < 0.05 | |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | < 0.1 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | | | < 0.05 | |
| pH Lab | pH unit | 6.5 - 8.5 | 7.84 | 7.89 | 7.95 | 8.18 | 7.83 | 7.72 | 7.93 | 7.86 | | 7.77 | | | 7.97 | |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.001 | **0.008** | **0.006** | < 0.001 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | | | < 0.002 | |
| Total Phosphorus | mg/L | 0.03 | **0.33** | **0.76** | < 0.1 | < 0.1 | **0.2** | **0.09** | **0.06** | **0.07** | | **0.2** | | | **0.67** | |
| Potassium | mg/L | - | 18.3 | 11.6 | 10 | 6.8 | 3.3 | 3.2 | 2.9 | 2.2 | | 6.2 | | | 13.3 | |
| Sodium | mg/L | - | 21.7 | 22.2 | 25.7 | 15.7 | 8 | 6.7 | 5.5 | 4 | | 17.4 | | | 28.5 | |
| Sulphate | mg/L | - | 2 | < 1 | 4 | 6 | < 1 | 1 | < 1 | 1 | | 13 | | | 12 | |
| TDS | mg/L | - | 376 | 467 | 372 | 261 | 166 | 150 | 144 | 116 | | 276 | | | 434 | |
| TKN | mg/L | - | 2.8 | 8.7 | 1.8 | 1.6 | 2.6 | 1.3 | 1 | 0.9 | | 2.1 | | | 6 | |
| Ammonia (NH3-N) | mg/L | - | 0.47 | 2.99 | 0.27 | 0.45 | 0.84 | 0.4 | 0.3 | 0.12 | | 0.06 | | | 0.1 | |
| Total Suspended Solids | mg/L | - | 150 | 340 | 108 | 10 | 18 | 10 | 4 | 7 | | 120 | | | 130 | |
| Turbidity | ntu | - | 97.7 | 143 | 7.5 | 7.8 | 2.4 | 18.9 | 0.7 | 1.1 | | 184 | | | 243 | |
| Hardness (CaCO3) | mg/L | - | 294 | 394 | 305 | 224 | 151 | 140 | 133 | 107 | | 231 | | | 788 | |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | 0.0200 | 0.0083 | -- | 0.0184 | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | | | < 0.01 | |
| Aluminum | mg/L | 0.075 | **0.08** | 0.04 | **0.1** | 0.03 | 0.04 | 0.04 | 0.03 | 0.03 | | 0.05 | | | 0.02 | |
| Antimony | mg/L | 0.02 | 0.0001 | 0.0004 | 0.0002 | 0.0004 | 0.0003 | 0.0003 | < 0.0001 | < 0.0001 | | 0.0003 | | | < 0.0005 | |
| Arsenic | mg/L | 0.005 | 0.001 | 0.002 | 0.0007 | 0.0006 | 0.0005 | 0.0004 | 0.0005 | 0.0005 | | 0.0007 | | | **0.0056** | |
| Barium | mg/L | - | 0.043 | 0.08 | 0.045 | 0.027 | 0.029 | 0.017 | 0.016 | 0.013 | | 0.053 | | | 0.279 | |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | | < 0.002 | | | < 0.002 | |
| Boron | mg/L | - | 0.185 | 0.191 | 0.077 | 0.095 | 0.02 | 0.028 | 0.028 | 0.018 | | 0.094 | | | 0.302 | |
| Cadmium | mg/L | 0.0005 | 0.00006 | 0.000095 | 0.00017 | < 0.000014 | 0.000018 | < 0.000015 | < 0.000015 | 0.000019 | | 0.000067 | | | **0.00136** | |
| Chromium (total) | mg/L | 0.002 | 0.001 | < 0.001 | 0.0005 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | 0.001 | | | **0.004** | |
| Chromium (VI) | mg/L | 0.001 | | < 0.001 | | | | | | | | | | | | |
| Cobalt | mg/L | 0.0009 | 0.0006 | **0.0014** | < 0.005 | 0.0004 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | | 0.0007 | | | **0.0087** | |
| Copper | mg/L | 0.005 | **0.0081** | 0.0019 | 0.0038 | 0.001 | 0.0008 | 0.0004 | 0.0009 | 0.001 | | 0.0016 | | | **0.011** | |
| Lead | mg/L | 0.005 | 0.00235 | 0.00277 | 0.00089 | 0.0003 | 0.00067 | 0.00032 | 0.00014 | 0.00024 | | 0.00235 | | | **0.022** | |
| Mercury | mg/L | 0.0002 | < 0.00002 | 0.00002 | < 0.00002 | 0.00005 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | | < 0.00002 | | | < 0.00002 | |
| Molybdenum | mg/L | 0.04 | 0.0004 | 0.0001 | 0.0003 | 0.0004 | 0.0001 | 0.0002 | 0.0003 | 0.0002 | | 0.0004 | | | < 0.0005 | |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | | < 0.01 | | | < 0.01 | |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | | < 0.001 | | | < 0.005 | |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.0001 | 0.00004 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | | < 0.0001 | | | < 0.0001 | |
| Strontium | mg/L | - | 0.296 | 0.398 | 0.315 | 0.205 | 0.139 | 0.112 | 0.111 | 0.089 | | 0.24 | | | 0.699 | |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | 0.00006 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | | < 0.00005 | | | < 0.0003 | |
| Vanadium | mg/L | 0.006 | 0.0002 | 0.0009 | 0.0004 | 0.0003 | 0.0003 | 0.0001 | 0.0002 | 0.0002 | | 0.0006 | | | **0.0079** | |
| Zinc | mg/L | 0.02 | **0.03** | **0.03** | **0.022** | 0.007 | 0.02 | 0.012 | 0.019 | 0.018 | | **0.043** | | | **0.346** | |
| Field pH | pH unit | - | 7.06 | 7.61 | 8.4 | -- | 8.36 | 7.91 | 7.72 | 7.88 | | 7.61 | | | 6.9 | |
| Field Temp | deg C | - | 3.8 | 7.6 | 5.1 | -- | 2 | 1.4 | 1.2 | 1.4 | | 1 | | | 5.3 | |
| Field Conductivity | us/cm | - | 783.7 | 626 | 530 | -- | 316 | 300 | 332 | 210 | | 505 | | | 750 | |
| Dissolved Oxygen | mg/L | - | 0.39 | 3.29 | 7.01 | -- | 4.26 | 13.2 | 7.58 | 7.6 | | 5.7 | | | | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | WP4 (30m) 21-Apr-22 | WP4 (30m) 28-Apr-22 | WP4 (30m) 20-Jul-22 | WP4 (30m) 24-Oct-22 | WP4 (30m) 20-Apr-23 | WP4 (30m) 30-Aug-23 | WP4 (30m) 12-Oct-23 | WP4 (30m) 18-Apr-24 | WP4 (15m) 18-Apr-24 | WP4 (30m) 18-Apr-24 | WP4 (30m) 11-Jul-24 | WP4 (30m) 07-Oct-24 | WP4 (30m) 22-Apr-25 | WP4 (30m) 22-Jul-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity | mg/L | - | 308 | 417 | Dry | Dry | Dry | Dry | Dry | Dry | 290 | 316 | 185 | Dry | Dry | Dry |
| BOD | mg/L | - | 12 | 13 | | | | | | | <3 | 4 | <3 | | | |
| Calcium | mg/L | - | 96.7 | 129 | | | | | | | 104 | 103 | 59.6 | | | |
| Chloride | mg/L | - | 16.6 | 16.5 | | | | | | | 2.5 | 2.7 | 2.1 | | | |
| COD | mg/L | - | 117 | 177 | | | | | | | 50 | 119 | 106 | | | |
| Colour | colour unit | - | 59 | 53 | | | | | | | 76 | 101 | 180 | | | |
| Specific Conductivity | umhos/cm | - | 656 | 787 | | | | | | | 547 | 598 | 359 | | | |
| DOC | mg/L | - | 30.2 | 24.6 | | | | | | | 17.4 | 25.4 | 30.8 | | | |
| Fluoride | mg/L | - | < 0.1 | < 0.1 | | | | | | | <0.1 | <0.1 | <0.1 | | | |
| Cyanide (free) | mg/L | 0.005 | < 0.005 | < 0.005 | | | | | | | <0.005 | <0.005 | <0.005 | | | |
| Iron | mg/L | 0.3 | **4.16** | **5.21** | | | | | | | **0.436** | **0.535** | 0.292 | | | |
| Magnesium | mg/L | - | 8.44 | 10.7 | | | | | | | 9.42 | 12.6 | 5.83 | | | |
| Manganese | mg/L | - | 2.87 | 2.05 | | | | | | | 0.059 | 0.272 | 0.082 | | | |
| Nitrate | mg/L | - | 0.12 | < 0.05 | | | | | | | 0.06 | <0.05 | <0.05 | | | |
| Nitrite | mg/L | - | < 0.05 | < 0.05 | | | | | | | <0.05 | <0.05 | <0.05 | | | |
| pH Lab | pH unit | 6.5 - 8.5 | 7.94 | 7.93 | | | | | | | 8.09 | 8.14 | 7.31 | | | |
| Phenols | mg/L | 0.001 | < 0.001 | < 0.001 | | | | | | | <0.001 | <0.001 | <0.001 | | | |
| Total Phosphorus | mg/L | 0.03 | **0.45** | **0.5** | | | | | | | **0.1** | **0.14** | **0.15** | | | |
| Potassium | mg/L | - | 10.6 | 11.5 | | | | | | | 5.7 | 15.2 | 12.9 | | | |
| Sodium | mg/L | - | 17.6 | 21.5 | | | | | | | 4.6 | 9.5 | 6.7 | | | |
| Sulphate | mg/L | - | < 1 | < 1 | | | | | | | 2 | 1 | 1 | | | |
| TDS | mg/L | - | 343 | 450 | | | | | | | 302 | 335 | 200 | | | |
| TKN | mg/L | - | 5.4 | 6.7 | | | | | | | 1.6 | 2.2 | 1.8 | | | |
| Ammonia (NH3-N) | mg/L | - | 1.32 | 2.78 | | | | | | | 0.41 | 0.08 | 0.08 | | | |
| Total Suspended Solids | mg/L | - | 128 | 240 | | | | | | | 66 | 58 | 70 | | | |
| Turbidity | ntu | - | 63.4 | 98.8 | | | | | | | 19.4 | 35.2 | 12.5 | | | |
| Hardness (CaCO3) | mg/L | - | 277 | 366 | | | | | | | 298 | 309 | 173 | | | |
| Unionized Ammonia | mg/L | 0.02 | < 0.01 | **0.0300** | | | | | | | <0.01 | <0.01 | <0.01 | | | |
| Aluminum | mg/L | 0.075 | 0.02 | 0.04 | | | | | | | 0.06 | 0.07 | **0.11** | | | |
| Antimony | mg/L | 0.02 | 0.0004 | 0.0004 | | | | | | | 0.0006 | 0.0005 | 0.0006 | | | |
| Arsenic | mg/L | 0.005 | 0.0016 | 0.0016 | | | | | | | 0.0005 | 0.0009 | 0.0014 | | | |
| Barium | mg/L | - | 0.073 | 0.079 | | | | | | | 0.047 | 0.045 | 0.026 | | | |
| Beryllium | mg/L | 1.1 | < 0.002 | < 0.002 | | | | | | | <0.0001 | <0.0001 | <0.0001 | | | |
| Boron | mg/L | - | 0.12 | 0.15 | | | | | | | 0.156 | 0.192 | 0.116 | | | |
| Cadmium | mg/L | 0.0005 | 0.000017 | 0.000035 | | | | | | | 0.000051 | 0.000065 | 0.000023 | | | |
| Chromium (total) | mg/L | 0.002 | < 0.001 | < 0.001 | | | | | | | <0.001 | <0.001 | <0.001 | | | |
| Chromium (VI) | mg/L | 0.001 | < 0.001 | < 0.001 | | | | | | | <0.001 | <0.001 | <0.001 | | | |
| Cobalt | mg/L | 0.0009 | **0.0031** | **0.0023** | | | | | | | 0.0005 | 0.0007 | 0.0004 | | | |
| Copper | mg/L | 0.005 | 0.0012 | 0.0009 | | | | | | | 0.0038 | 0.0016 | 0.0015 | | | |
| Lead | mg/L | 0.005 | 0.00074 | 0.0011 | | | | | | | 0.00089 | 0.00144 | 0.0005 | | | |
| Mercury | mg/L | 0.0002 | < 0.00002 | < 0.00002 | | | | | | | <0.00002 | 0.00002 | <0.00002 | | | |
| Molybdenum | mg/L | 0.04 | 0.0003 | 0.0002 | | | | | | | 0.0009 | 0.0005 | 0.0007 | | | |
| Nickel | mg/L | 0.025 | < 0.01 | < 0.01 | | | | | | | 0.0018 | 0.0017 | 0.0008 | | | |
| Selenium | mg/L | 0.1 | < 0.001 | < 0.001 | | | | | | | <0.001 | <0.001 | <0.001 | | | |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | | | | | | | <0.0001 | <0.0001 | <0.0001 | | | |
| Strontium | mg/L | - | 0.293 | 0.377 | | | | | | | 0.32 | 0.318 | 0.163 | | | |
| Thallium | mg/L | 0.0003 | < 0.00005 | < 0.00005 | | | | | | | <0.00005 | <0.00005 | <0.00005 | | | |
| Vanadium | mg/L | 0.006 | 0.0005 | 0.0005 | | | | | | | 0.0007 | 0.0006 | 0.0008 | | | |
| Zinc | mg/L | 0.02 | 0.009 | 0.014 | | | | | | | **0.021** | 0.016 | 0.009 | | | |
| Field pH | pH unit | - | 7.7 | 7.69 | | | | | | | 7.96 | 8.17 | 7.31 | | | |
| Field Temp | deg C | - | 4.7 | 11.1 | | | | | | | 7.7 | 8.5 | 20.1 | | | |
| Field Conductivity | us/cm | - | 555 | 616 | | | | | | | 620 | 620 | 327 | | | |
| Dissolved Oxygen | mg/L | - | 5.5 | 2.87 | | | | | | | 6.21 | 6.86 | 0.77 | | | |

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

## Surface Water Quality - General Parameters

| Parameters | Units | PWQO | WP4 (30m) 30-Sep-25 |
|---|---|---|---|
| Total Alkalinity | mg/L | - | Dry |
| BOD | mg/L | - | |
| Calcium | mg/L | - | |
| Chloride | mg/L | - | |
| COD | mg/L | - | |
| Colour | colour unit | - | |
| Specific Conductivity | umhos/cm | - | |
| DOC | mg/L | - | |
| Fluoride | mg/L | - | |
| Cyanide (free) | mg/L | 0.005 | |
| Iron | mg/L | 0.3 | |
| Magnesium | mg/L | - | |
| Manganese | mg/L | - | |
| Nitrate | mg/L | - | |
| Nitrite | mg/L | - | |
| pH Lab | pH unit | 6.5 - 8.5 | |
| Phenols | mg/L | 0.001 | |
| Total Phosphorus | mg/L | 0.03 | |
| Potassium | mg/L | - | |
| Sodium | mg/L | - | |
| Sulphate | mg/L | - | |
| TDS | mg/L | - | |
| TKN | mg/L | - | |
| Ammonia (NH3-N) | mg/L | - | |
| Total Suspended Solids | mg/L | - | |
| Turbidity | ntu | - | |
| Hardness (CaCO3) | mg/L | - | |
| Unionized Ammonia | mg/L | 0.02 | |
| Aluminum | mg/L | 0.075 | |
| Antimony | mg/L | 0.02 | |
| Arsenic | mg/L | 0.005 | |
| Barium | mg/L | - | |
| Beryllium | mg/L | 1.1 | |
| Boron | mg/L | - | |
| Cadmium | mg/L | 0.0005 | |
| Chromium (total) | mg/L | 0.002 | |
| Chromium (VI) | mg/L | 0.001 | |
| Cobalt | mg/L | 0.0009 | |
| Copper | mg/L | 0.005 | |
| Lead | mg/L | 0.005 | |
| Mercury | mg/L | 0.0002 | |
| Molybdenum | mg/L | 0.04 | |
| Nickel | mg/L | 0.025 | |
| Selenium | mg/L | 0.1 | |
| Silver | mg/L | 0.0001 | |
| Strontium | mg/L | - | |
| Thallium | mg/L | 0.0003 | |
| Vanadium | mg/L | 0.006 | |
| Zinc | mg/L | 0.02 | |
| Field pH | pH unit | - | |
| Field Temp | deg C | - | |
| Field Conductivity | us/cm | - | |
| Dissolved Oxygen | mg/L | - | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW7 17-Apr-17 | MW7 25-Apr-18 | MW7 8-May-18 | MW7 11-Apr-19 | MW7 23-Apr-20 | MW7 19-Apr-21 | MW7 21-Apr-22 | MW7 19-Apr-23 | MW7 17-Apr-24 | MW7 23-Apr-25 | MW12 17-Apr-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | -- | < 2 | < 2 | < 5 | < 5 | < 5 | <5 | <5 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.3 |
| Chloroethane | µg/L | | < 0.1 | **22.8** | -- | **7** | **19** | **12** | | | | | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | < 0.2 |
| Benzene | µg/L | 5 | **3.6** | **4.7** | **4.5** | **3** | **5.4** | **4** | **3.6** | **3.8** | **3.6** | <0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | **1.4** | **0.7** | < 0.5 | **0.5** | **0.5** | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | < 0.1 |
| Chlorobenzene | µg/L | | **12.3** | **17.8** | < 0.5 | **11.9** | **18** | **16.4** | **19.8** | **18** | **19.5** | <0.5 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | **3.7** | **3** | **2.7** | **1** | **1** | **0.5** | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.5 | **1.4** | **1.6** | **1.6** | **2** | **1.7** | **2** | <0.5 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | **1.2** | < 0.5 | **0.7** | **0.7** | **0.8** | **0.8** | **0.7** | **0.8** | <0.5 | < 0.1 |
| m/p-Xylene | µg/L | | **12.8** | **31** | **36.8** | **19.5** | **24.6** | **25** | **27.8** | **23.1** | **22** | <1 | < 0.4 |
| o-Xylene | µg/L | | **3.7** | **4.5** | **5.6** | **3** | **4.4** | **3.7** | **2.9** | **2.7** | **1.9** | <0.5 | < 0.1 |
| Total Xylene | µg/L | 0.3 | **16.5** | **35.5** | **42.3** | **22.5** | **28.9** | **28.7** | **30.7** | **25.8** | | | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.2 |
| Acetone | µg/L | | **21** | **12** | **40** | < 30 | **60** | **40** | < 30 | < 30 | <30 | <30 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | < 0.1 |
| Methyl ethyl ketone | µg/L | | **3** | **4** | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | < 1 |
| Dichloromethane | µg/L | 50 | | < 0.3 | < 5 | < 5 | < 5 | < 2 | | | | | -- |
| Trichloroethylene | µg/L | 5 | | | | | | | < 0.5 | < 0.5 | <0.5 | <0.5 | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW12 23-Oct-17 | MW12 25-Apr-18 | MW12 15-Oct-18 | MW12 11-Apr-19 | MW12 21-Oct-19 | MW12 22-Apr-20 | MW12 19-Oct-20 | MW12 19-Apr-21 | MW12 27-Oct-21 | MW12 20-Apr-22 | MW12 26-Oct-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |
| Methyl tert-Butyl Ether | µg/L | | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | < 0.5 | < 0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW12 19-Apr-23 | MW12 12-Oct-23 | MW12 17-Apr-24 | MW12 7-Oct-24 | MW12 23-Apr-25 | MW12 1-Oct-25 | MW14 3-Oct-16 | MW14 17-Apr-17 | MW14 23-Oct-17 | MW14 25-Apr-18 | MW14 15-Oct-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 |
| Chloroethane | µg/L | | | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | <2 | <2 | <2 | <2 | < 1 | | | < 1 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | **0.6** | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Chloroform | µg/L | | < 1 | < 1 | <1 | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | | | < 0.1 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.2 | < 0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | <1 | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| Acetone | µg/L | | < 30 | < 30 | <30 | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 2 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | <2 | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | <20 | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Dichloromethane | µg/L | 50 | | | | | | | -- | -- | -- | < 0.3 | < 0.3 |
| Trichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW14 11-Apr-19 | MW14 21-Oct-19 | MW14 22-Apr-20 | MW14 19-Oct-20 | MW14 19-Apr-21 | MW14 27-Oct-21 | MW14 20-Apr-22 | MW14 26-Oct-22 | MW14 19-Apr-23 | MW14 12-Oct-23 | MW14 17-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | | < 0.5 | | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 |
| Dichloromethane | µg/L | 50 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | | | | |
| Trichloroethylene | µg/L | 5 | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW14 7-Oct-24 | MW14 23-Apr-25 | MW15 3-Oct-16 | MW15 17-Apr-17 | MW15 23-Oct-17 | MW15 25-Apr-18 | MW15 15-Oct-18 | MW15 11-Apr-19 | MW15 21-Oct-19 | MW15 22-Apr-20 | MW15 19-Oct-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | <2 | <2 | < 1 | | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | <0.5 | -- | | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | <0.5 | <0.5 | -- | | | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | <30 | <30 | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | | | -- | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | <0.5 | <0.5 | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
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# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW15 19-Apr-21 | MW15 27-Oct-21 | MW15 20-Apr-22 | MW15 26-Oct-22 | MW15 19-Apr-23 | MW15 12-Oct-23 | MW15 17-Apr-24 | MW15 7-Oct-24 | MW15 23-Apr-25 | MW15A 3-Oct-16 | MW15A 17-Apr-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.3 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | **0.4** |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | < 3 | < 3 | | | | | | | | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | | | < 0.5 | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 1 | |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | **0.5** | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | **0.5** | **0.4** |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | | < 0.4 | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | <2 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 | < 1 | < 1 |
| Dichloromethane | µg/L | 50 | < 2 | < 2 | | | | | | | | -- | -- |
| Trichloroethylene | µg/L | 5 | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | |

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Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW15A 23-Oct-17 | MW15A 25-Apr-18 | MW15A 15-Oct-18 | MW15A 11-Apr-19 | MW15A 21-Oct-19 | MW15A 22-Apr-20 | MW15A 19-Oct-20 | MW15A 19-Apr-21 | MW15A 27-Oct-21 | MW15A 20-Apr-22 | MW15A 26-Oct-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 2 | **0.2** | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |
| Methyl tert-Butyl Ether | µg/L | | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | **0.6** | < 0.1 | < 0.5 | < 0.5 | **0.6** | **0.7** | **0.6** | < 0.5 | < 0.5 | < 0.5 | **0.6** |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | < 0.5 | < 0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW15A 19-Apr-23 | MW15A 12-Oct-23 | MW15A 17-Apr-24 | MW15A 7-Oct-24 | MW15A 23-Apr-25 | MW15A 1-Oct-25 | MW15B 3-Oct-16 | MW15B 17-Apr-17 | MW15B 23-Oct-17 | MW15B 8-May-18 | MW15B 15-Oct-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | | < 0.06 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | **0.3** | < 0.2 | < 0.5 | < 0.5 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | | | | | | | < 0.1 | < 0.1 | < 0.1 | | < 0.08 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | <2 | <2 | <2 | <2 | < 1 | | | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 1 | < 1 | <1 | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | <1 | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | | | | | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 30 | < 30 | <30 | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | <2 | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | <20 | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | | | | | | | -- | -- | -- | < 5 | < 0.3 |
| Trichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW15B 11-Apr-19 | MW15B 21-Oct-19 | MW15B 22-Apr-20 | MW15B 19-Oct-20 | MW15B 19-Apr-21 | MW15B 27-Oct-21 | MW15B 20-Apr-22 | MW15B 26-Oct-22 | MW15B 19-Apr-23 | MW15B 12-Oct-23 | MW15B 17-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | | < 0.5 | | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 |
| Dichloromethane | µg/L | 50 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | | | | |
| Trichloroethylene | µg/L | 5 | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW15B 7-Oct-24 | MW15B 23-Apr-25 | MW15B 1-Oct-25 | MW16 27-Apr-16 | MW26 27-Apr-16 | MW16 3-Oct-16 | MW16 3-Oct-16 | MW26 3-Oct-16 | MW16 17-Apr-17 | MW26 17-Apr-17 | MW16 23-Oct-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | <0.2 | <0.2 | <0.2 | **0.3** | **0.3** | < 0.2 | < 0.2 | < 0.2 | < 0.2 | **0.2** | < 0.2 |
| Bromomethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 1 | | | |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | <0.5 | <0.5 | **1.5** | **1.5** | < 0.1 | **1** | **1** | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | **1.5** | **1.5** | < 0.1 | **1** | **1** | < 0.1 | **1.4** | < 0.1 |
| Chloroform | µg/L | | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | -- | | -- | |
| 1,2-Dichloropropane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Toluene | µg/L | 24 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | 0.3 | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| Styrene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Acetone | µg/L | | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Dichloromethane | µg/L | 50 | | | | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW26 23-Oct-17 | MW16 25-Apr-18 | MW26 25-Apr-18 | MW16 15-Oct-18 | MW26 15-Oct-18 | MW16 11-Apr-19 | MW26 11-Apr-19 | MW26 21-Oct-19 | MW16 22-Apr-20 | MW26 22-Apr-20 | MW16 19-Oct-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 0.06 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 0.08 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | | < 1 | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | **1.1** | < 0.1 | **0.9** | < 0.5 | < 0.5 | < 0.5 | **1.1** | **1.2** | < 0.5 | **3.3** | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | -- | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW26 19-Oct-20 | MW26 19-Apr-21 | MW26 27-Oct-21 | MW16 20-Apr-22 | MW26 20-Apr-22 | MW26 24-Oct-22 | MW16 26-Oct-22 | MW16 19-Apr-23 | MW26 19-Apr-23 | MW16 12-Oct-23 | MW26 12-Oct-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | | | | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | | < 0.5 | < 0.5 | | |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | **1.1** | **1** | **0.8** | < 0.5 | **0.6** | **0.7** | < 0.5 | < 0.5 | **0.6** | < 0.5 | **1.2** |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | < 5 | < 2 | < 2 | | | | | | | | |
| Trichloroethylene | µg/L | 5 | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW26 17-Apr-24 | MW26 7-Oct-24 | MW16 23-Apr-25 | MW26 23-Apr-25 | MW26 30-Sep-25 | MW26-I 27-Apr-16 | MW26-I 3-Oct-16 | MW26-I 17-Apr-17 | MW26-I 23-Oct-17 | MW26-I 25-Apr-18 | MW26-I 15-Oct-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | <5 | <5 | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 |
| Vinyl Chloride | µg/L | 2 | <0.2 | <0.2 | <0.2 | **0.2** | <0.2 | **0.6** | **0.4** | **0.5** | **0.2** | **0.5** | < 0.5 |
| Bromomethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 |
| Chloroethane | µg/L | | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 |
| Trichloro-fluromethane | µg/L | | <5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | <2 | <2 | <2 | <2 | <2 | < 1 | < 1 | | | < 1 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **3.5** | **3** | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | **0.5** | <0.5 | **1.5** | **3.7** | **1.5** | **3.5** | **3** | **3.2** | **2.9** | **4.3** | **3.3** |
| Chloroform | µg/L | | <1 | <1 | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | < 0.1 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Bromodichloromethane | µg/L | | <2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Toluene | µg/L | 24 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | < 0.2 | < 0.5 |
| Dibromochloromethane | µg/L | | <2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Chlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| m/p-Xylene | µg/L | | <1 | <1 | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 |
| o-Xylene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Total Xylene | µg/L | 0.3 | | | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 |
| Styrene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| Acetone | µg/L | | <30 | <30 | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 2 | < 2 | < 30 |
| 1,2-Dibromoethane | µg/L | | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 |
| Methyl ethyl ketone | µg/L | | <2 | <2 | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | <20 | <20 | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Dichloromethane | µg/L | 50 | | | | | | -- | -- | -- | -- | < 0.3 | < 0.3 |
| Trichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | | | |

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Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW26-I 11-Apr-19 | MW26-I 21-Oct-19 | MW26-1 22-Apr-20 | MW26-1 19-Oct-20 | MW26-1 19-Apr-21 | MW26-1 27-Oct-21 | MW26-1 20-Apr-22 | MW26-1 24-Oct-22 | MW26-1 19-Apr-23 | MW26-1 12-Oct-23 | MW26-1 17-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | **0.2** | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | **3.2** | **3.3** | **3.2** | **3** | **2** | **2.2** | **1.5** | **1.8** | **1.6** | **3.2** | **1.6** |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 |
| Dichloromethane | µg/L | 50 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | | | | |
| Trichloroethylene | µg/L | 5 | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |

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Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW26-1 | MW26-1 | MW26-1 | MW26-II | MW26-II | MW26-II | MW26-II | MW26-II | MW26-II | MW26-II | MW26-2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 7-Oct-24 | 23-Apr-25 | 30-Sep-25 | 27-Apr-16 | 3-Oct-16 | 17-Apr-17 | 23-Oct-17 | 15-Oct-18 | 11-Apr-19 | 21-Oct-19 | 22-Apr-20 |
| Methyl Chloride | µg/L | | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | <0.2 | **0.3** | <0.2 | **0.7** | **0.5** | **0.6** | **0.4** | < 0.5 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | <2 | <2 | <2 | < 1 | < 1 | | | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | <0.5 | <0.5 | **2.4** | **2.2** | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | **1.8** | **3.9** | **1.9** | **2.4** | **2.2** | **2.3** | **2.3** | **2.4** | **2.2** | **2.6** | **1.6** |
| Chloroform | µg/L | | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | | | | -- | -- | -- | -- | < 0.3 | < 5 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW26-2 19-Oct-20 | MW26-2 19-Apr-21 | MW26-2 27-Oct-21 | MW26-2 20-Apr-22 | MW26-2 24-Oct-22 | MW26-2 19-Apr-23 | MW26-2 12-Oct-23 | MW26-2 17-Apr-24 | MW26-2 7-Oct-24 | MW26-2 23-Apr-25 | MW26-2 30-Sep-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | **0.2** | < 0.2 | < 0.2 | **0.4** | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | | | | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | **2.8** | **1.9** | **1.9** | **1.6** | **2.2** | **1.6** | **3.2** | **1.4** | **1.8** | <0.5 | <0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 | <20 |
| Dichloromethane | µg/L | 50 | < 5 | < 2 | < 2 | | | | | | | | |
| Trichloroethylene | µg/L | 5 | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

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# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW27-I 27-Apr-16 | MW27-I 7-Jul-16 | MW27-I 3-Oct-16 | MW27-I 22-Feb-17 | MW27-I 20-Jul-17 | MW27-I 23-Oct-17 | MW27-I 25-Apr-18 | MW27-I 15-Oct-18 | MW27-I 11-Apr-19 | MW27-I 21-Oct-19 | MW27-I 22-Apr-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 1 | < 1 | < 1 | | | | < 1 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | **20.2** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **0.6** | **0.8** | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | -- | -- | -- | -- | | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | **1** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | -- | -- | -- | | | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | **1** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | **0.7** | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | **0.2** | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | **0.9** | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | **13** | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | **4** | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | -- | -- | -- | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW27-I 19-Oct-20 | MW27-I 19-Apr-21 | MW27-I 27-Oct-21 | MW27-I 20-Apr-22 | MW27-I 26-Oct-22 | MW27-I 19-Apr-23 | MW27-I 12-Oct-23 | MW27-I 17-Apr-24 | MW27-I 7-Oct-24 | MW27-II 27-Apr-16 | MW27-II 7-Jul-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | < 0.3 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | | | | | | | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | < 1 | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | **3.5** | **0.9** | **1.3** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | -- | -- |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | -- | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | < 0.4 | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | < 1 | < 1 |
| Dichloromethane | µg/L | 50 | < 5 | < 2 | < 2 | | | | | | | -- | -- |
| Trichloroethylene | µg/L | 5 | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW27-II 3-Oct-16 | MW27-II 22-Feb-17 | MW27-II 17-Apr-17 | MW27-II 20-Jul-17 | MW27-II 23-Oct-17 | MW27-II 26-Apr-18 | MW27-II 15-Oct-18 | MW27-II 11-Apr-19 | MW27-II 21-Oct-19 | MW27-II 22-Apr-20 | MW27-II 19-Oct-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 1 | | | | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | -- | -- | -- | -- | -- | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | -- | -- | -- | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | **4** | < 2 | < 2 | **5** | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | **1** | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | -- | -- | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW27-II 19-Apr-21 | MW27-II 27-Oct-21 | MW27-II 20-Apr-22 | MW27-II 26-Oct-22 | MW27-II 19-Apr-23 | MW27-II 12-Oct-23 | MW27-II 17-Apr-24 | MW27-II 23-Apr-25 | MW 27-II 1-Oct-25 | MW27-III 21-Jan-16 | MW27-III 27-Apr-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.3 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | < 3 | < 3 | | | | | | | | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 1 | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | -- |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | | < 0.4 | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | <2 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 | < 1 | < 1 |
| Dichloromethane | µg/L | 50 | < 2 | < 2 | | | | | | | | -- | -- |
| Trichloroethylene | µg/L | 5 | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW27-III 7-Jul-16 | MW27-III 3-Oct-16 | MW27-III 22-Feb-17 | MW27-III 17-Apr-17 | MW27-III 20-Jul-17 | MW27-III 23-Oct-17 | MW27-III 25-Apr-18 | MW27-III 15-Oct-18 | MW27-III 11-Apr-19 | MW27-III 21-Oct-19 | MW27-III 22-Apr-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 1 | < 1 | | | | | < 1 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | -- | -- | -- | -- | -- | -- | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | -- | -- | -- | -- | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | -- | -- | -- | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW27-III 19-Oct-20 | MW27-III 27-Oct-21 | MW27-III 20-Apr-22 | MW27-III 26-Oct-22 | MW27-III 19-Apr-23 | MW27-III 12-Oct-23 | MW27-III 17-Apr-24 | MW27-III 7-Oct-24 | MW27-III 23-Apr-25 | MW 27-III 1-Oct-25 | MW28-I 21-Jan-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.3 |
| Chloroethane | µg/L | | < 3 | < 3 | | | | | | | | | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 | <1 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | <1 | < 0.4 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | | | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 | <30 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | | | < 0.1 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | <2 | <2 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 | <20 | < 1 |
| Dichloromethane | µg/L | 50 | < 5 | < 2 | | | | | | | | | -- |
| Trichloroethylene | µg/L | 5 | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW28-I 27-Apr-16 | MW28-I 7-Jul-16 | MW28-I 3-Oct-16 | MW28-I 22-Feb-17 | MW28-I 17-Apr-17 | MW28-I 20-Jul-17 | MW28-I 23-Oct-17 | MW28-I 25-Apr-18 | MW28-I 15-Oct-18 | MW28-I 11-Apr-19 | MW28-I 21-Oct-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 1 | < 1 | < 1 | | | | | < 1 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | -- | -- | -- | -- | -- | -- | -- | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | -- | -- | -- | -- | -- | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | -- | -- | -- | -- | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW28-I 22-Apr-20 | MW28-I 19-Oct-20 | MW28-I 19-Apr-21 | MW28-I 27-Oct-21 | MW28-I 20-Apr-22 | MW28-I 26-Oct-22 | MW28-I 19-Apr-23 | MW28-I 12-Oct-23 | MW28-I 17-Apr-24 | MW28-I 7-Oct-24 | MW28-I 23-Apr-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | < 3 | | | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 | <0.5 | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 |
| Dichloromethane | µg/L | 50 | < 5 | < 5 | < 2 | < 2 | | | | | | | |
| Trichloroethylene | µg/L | 5 | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW28-I | MW28-II | MW28-II | MW28-II | MW28-II | MW28-II | MW28-II | MW28-II | MW28-II | MW28-II | MW28-II |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-Oct-25 | 21-Jan-16 | 27-Apr-16 | 7-Jul-16 | 3-Oct-16 | 22-Feb-17 | 17-Apr-17 | 20-Jul-17 | 23-Oct-17 | 25-Apr-18 | 15-Oct-18 |
| Methyl Chloride | µg/L | | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 |
| Vinyl Chloride | µg/L | 2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| Bromomethane | µg/L | | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 |
| Chloroethane | µg/L | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 |
| Trichloro-fluromethane | µg/L | | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | <2 | < 1 | < 1 | < 1 | < 1 | | | | | < 1 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Chloroform | µg/L | | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | -- | -- | -- | -- | -- | -- | -- | -- | < 0.1 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Bromodichloromethane | µg/L | | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Toluene | µg/L | 24 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | <0.5 | -- | -- | -- | -- | -- | -- | -- | -- | < 0.2 | < 0.5 |
| Dibromochloromethane | µg/L | | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Chlorobenzene | µg/L | | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| m/p-Xylene | µg/L | | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 |
| o-Xylene | µg/L | | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Total Xylene | µg/L | 0.3 | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 |
| Styrene | µg/L | | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| Acetone | µg/L | | <30 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 30 |
| 1,2-Dibromoethane | µg/L | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 |
| Methyl ethyl ketone | µg/L | | <2 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | <20 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Dichloromethane | µg/L | 50 | | -- | -- | -- | -- | -- | -- | -- | -- | < 0.3 | < 0.3 |
| Trichloroethylene | µg/L | 5 | <0.5 | | | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW28-II 11-Apr-19 | MW28-II 21-Oct-19 | MW28-II 22-Apr-20 | MW28-II 19-Oct-20 | MW28-II 19-Apr-21 | MW28-II 27-Oct-21 | MW28-II 20-Apr-22 | MW28-II 26-Oct-22 | MW28-II 19-Apr-23 | MW28-II 12-Oct-23 | MW28-II 17-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **0.6** | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 |
| Dichloromethane | µg/L | 50 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | | | | |
| Trichloroethylene | µg/L | 5 | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW28-II 7-Oct-24 | MW28-II 23-Apr-25 | MW28-II 1-Oct-25 | MW28-III 21-Jan-16 | MW28-III 27-Apr-16 | MW28-III 7-Jul-16 | MW28-III 3-Oct-16 | MW28-III 22-Feb-17 | MW28-III 17-Apr-17 | MW28-III 20-Jul-17 | MW28-III 23-Oct-17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | | | | |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chloroform | µg/L | | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloropropane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Toluene | µg/L | 24 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | 0.3 | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| Styrene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Acetone | µg/L | | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Dichloromethane | µg/L | 50 | | | | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | | | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW28-III 25-Apr-18 | MW28-III 15-Oct-18 | MW28-III 11-Apr-19 | MW28-III 21-Oct-19 | MW28-III 22-Apr-20 | MW28-III 19-Oct-20 | MW28-III 19-Apr-21 | MW28-III 27-Oct-21 | MW28-III 20-Apr-22 | MW28-III 26-Oct-22 | MW28-III 19-Apr-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.06 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.08 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | | |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | **6** | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | < 0.3 | < 0.3 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | | |
| Trichloroethylene | µg/L | 5 | | | | | | | | | < 0.5 | < 0.5 | < 0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | MW28-III 12-Oct-23 | MW28-III 17-Apr-24 | MW28-III 7-Oct-24 | MW28-III 23-Apr-25 | MW28-III 1-Oct-25 | WP1 28-Apr-16 | WP1 4-Oct-16 | WP1 18-Apr-17 | WP1 23-Oct-17 | WP1 25-Apr-18 | WP1 16-Oct-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | <5 | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| Bromomethane | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 |
| Chloroethane | µg/L | | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 |
| Trichloro-fluromethane | µg/L | | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | <2 | <2 | <2 | <2 | < 1 | < 1 | | | < 1 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Chloroform | µg/L | | < 1 | <1 | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | < 0.1 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Bromodichloromethane | µg/L | | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- | < 0.2 | < 0.5 |
| Dibromochloromethane | µg/L | | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 |
| Chlorobenzene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| m/p-Xylene | µg/L | | < 1.0 | <1 | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 |
| o-Xylene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 |
| Styrene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 |
| Acetone | µg/L | | < 30 | <30 | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 2 | **4** | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 20 | <2 | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | <20 | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 |
| Dichloromethane | µg/L | 50 | | | | | | -- | -- | -- | -- | < 0.3 | < 0.3 |
| Trichloroethylene | µg/L | 5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP1 11-Apr-19 | WP1 22-Oct-19 | WP1 23-Apr-20 | WP1 20-Oct-20 | WP1 20-Apr-21 | WP1 27-Oct-21 | WP1 20-Apr-22 | WP1 24-Oct-22 | WP1 19-Apr-23 | WP1 12-Oct-23 | WP1 18-Apr-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **2.1** | < 0.5 | < 0.5 | <0.5 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 |
| Dichloromethane | µg/L | 50 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | | | | |
| Trichloroethylene | µg/L | 5 | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP1 7-Oct-24 | WP1 23-Apr-25 | WP1 30-Sep-25 | WP2 28-Apr-16 | WP2 18-Apr-17 | WP2 24-Oct-17 | WP2 24-Apr-18 | WP2 16-Oct-18 | WP2 22-Oct-19 | WP2 23-Apr-20 | WP2 20-Oct-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | **1.3** |
| Chloroethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | <2 | <2 | <2 | < 1 | | | < 1 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | <0.5 | <0.5 | ` | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | <30 | <30 | <30 | **11** | **9** | < 2 | **11** | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | <2 | <2 | <2 | < 1 | **2** | < 1 | **1** | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | | | | -- | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | | | | | | | | |

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Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP2 20-Apr-21 | WP2 27-Oct-21 | WP2 21-Apr-22 | WP2 24-Oct-22 | WP2 19-Apr-23 | WP2 12-Oct-23 | WP2 18-Apr-24 | WP2 7-Oct-24 | WP2 23-Apr-25 | WP3 28-Apr-16 | WP3 4-Oct-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.3 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | < 3 | < 3 | | | | | | | | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 1 | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | -- |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | | < 0.4 | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | **14** | <2 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 | < 1 | < 1 |
| Dichloromethane | µg/L | 50 | < 2 | < 2 | | | | | | | | -- | -- |
| Trichloroethylene | µg/L | 5 | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP3 18-Apr-17 | WP3 23-Oct-17 | WP3 24-Apr-18 | WP3 16-Oct-18 | WP3 12-Apr-19 | WP3 22-Oct-19 | WP3 23-Apr-20 | WP3 20-Oct-20 | WP3 20-Apr-21 | WP3 27-Oct-21 | WP3 21-Apr-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | -- | -- | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | **11** | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | | < 0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP3 24-Oct-22 | WP3 19-Apr-23 | WP3 12-Oct-23 | WP3 18-Apr-24 | WP3 7-Oct-24 | WP3 23-Apr-25 | WP3 30-Sep-25 | WP4 28-Apr-16 | WP4 4-Oct-16 | WP4 18-Apr-17 | WP4 24-Apr-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | | | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | | < 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | < 1 | < 1 | | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | <1 | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | **3.6** | <0.5 | <0.5 | **0.6** | **0.7** | < 0.5 | **0.5** | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.1 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.2 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | **0.6** | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | **2** | <1 | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | **0.7** | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | **2.7** | | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | **39** | <30 | <30 | <30 | <30 | **7** | **11** | **3** | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | <2 | <2 | <2 | <2 | < 1 | < 1 | **1** | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | <20 | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 |
| Dichloromethane | µg/L | 50 | | | | | | | | -- | -- | -- | < 0.3 |
| Trichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP4 16-Oct-18 | WP4 12-Apr-19 | WP4 22-Oct-19 | WP4 23-Apr-20 | WP4 20-Oct-20 | WP4 20-Apr-21 | WP4 27-Oct-21 | WP4 21-Apr-22 | WP4 24-Oct-22 | WP4 19-Apr-23 | WP4 12-Oct-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.06 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 2 | < 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | **1.1** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.08 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | < 0.3 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | | | | |
| Trichloroethylene | µg/L | 5 | | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP4 18-Apr-24 | WP4 7-Oct-24 | WP4 23-Apr-25 | WP4 30-Sep-25 | WP5 27-Apr-16 | WP5 18-Apr-17 | WP5 24-Oct-17 | WP5 23-Apr-18 | WP5 16-Oct-18 | WP5 12-Apr-19 | WP5 22-Apr-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | <5 | <5 | <5 | <5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.06 | < 2 | < 2 |
| Vinyl Chloride | µg/L | 2 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.08 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | <2 | <2 | <2 | <2 | < 1 | | | < 1 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | <1 | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | <0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | <0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | <2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | <5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | <1 | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | | | | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | <30 | <30 | <30 | <30 | < 2 | **4** | < 2 | < 2 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | <2 | <2 | <2 | <2 | < 1 | **1** | < 1 | < 1 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | <20 | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | | | | | -- | -- | -- | < 0.3 | < 0.3 | < 5 | < 5 |
| Trichloroethylene | µg/L | 5 | <0.5 | <0.5 | <0.5 | <0.5 | | | | | | | |

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Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP5 19-Oct-20 | WP5 20-Apr-21 | WP5 27-Oct-21 | WP5 21-Apr-22 | WP5 26-Oct-22 | WP5 19-Apr-23 | WP5 12-Oct-23 | WP5 18-Apr-24 | WP5 7-Oct-24 | WP5 23-Apr-25 | WP6 28-Apr-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 2 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.3 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.3 |
| Chloroethane | µg/L | | < 3 | < 3 | < 3 | | | | | | | | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | | <0.5 | <0.5 | <0.5 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.4 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | < 0.4 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | | < 0.4 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | | < 0.1 |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | <2 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 | < 1 |
| Dichloromethane | µg/L | 50 | < 5 | < 2 | < 2 | | | | | | | | -- |
| Trichloroethylene | µg/L | 5 | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP6 4-Oct-16 | WP6 18-Apr-17 | WP6 24-Oct-17 | WP6 24-Apr-18 | WP6 12-Apr-19 | WP6 22-Oct-19 | WP6 23-Apr-20 | WP6 20-Oct-20 | WP6 20-Apr-21 | WP6 27-Oct-21 | WP6 21-Apr-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethene | µg/L | 14 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 1 | | | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | -- | -- | -- | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | |
| 1,2-Dichloropropane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | 80 | -- | -- | -- | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | 0.3 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 50 | -- | -- | -- | < 0.3 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | |
| Trichloroethylene | µg/L | 5 | | | | | | | | | | | < 0.5 |

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Bold indicates detection

# Ground Water Chemistry Summary - VOC

| Parameters | Units | ODWQS | WP6 24-Oct-22 | WP6 19-Apr-23 | WP6 12-Oct-23 | WP6 18-Apr-24 | WP6 7-Oct-24 | WP6-F 7-Oct-24 | WP6 23-Apr-25 | WP6-F 23-Apr-25 | WP6 30-Sep-25 | WP6 (DUP) 30-Sep-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | µg/L | 2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Bromomethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroethane | µg/L | | | | | | | | | | | |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | µg/L | 14 | | < 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Methyl tert-Butyl Ether | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1-Dichloro-ethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cis 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon Tetrachloride | µg/L | 5 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Benzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichloroethane | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1-Dichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichloropropane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 24 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethene | µg/L | 80 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Chlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 2.4 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Bromoform | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,3-Dichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,4-Dichlorobenzene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2-Dichlorobenzene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| o-Xylene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Total Xylene | µg/L | 0.3 | < 1.1 | < 1.1 | < 1.1 | | | | | | | |
| Styrene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| 1,2,4 Trichlorobenzene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | | | | | | | |
| Methyl ethyl ketone | µg/L | | < 20 | < 20 | < 20 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 |
| Dichloromethane | µg/L | 50 | | | | | | | | | | |
| Trichloroethylene | µg/L | 5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 29-Apr-16 | 24-Aug-16 | 18-Apr-17 | 23-Apr-18 | 18-Jul-18 | 12-Apr-19 | 8-Jul-19 | 23-Apr-20 | 20-Jul-20 | 20-Apr-21 |
| Methyl Chloride | µg/L | | -- | -- | -- | < 0.3 | < 0.3 | < 2 | < 2 | < 2 | < 2 | < 5 |
| Vinyl Chloride | µg/L | 600 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | 0.9 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethylene | µg/L | 40 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | 200 | < 1 | < 1 | < 1 | < 1 | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | 800 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 70 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethylene | µg/L | 20 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | 100 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 0.8 | < 0.5 | < 0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | | -- | -- | -- | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | 15 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | 60 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | 2.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 4 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 2.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | 40 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | | < 0.4 | < 0.4 | -- | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | 400 | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 100 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 5 | < 5 | < 5 | < 5 | < 2 |
| Trichloroethylene | µg/L | 20 | | | | | | | | | | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 | SW2 | SW3 | SW3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 19-Jul-21 | 21-Apr-22 | 20-Jul-22 | 20-Apr-23 | 30-Aug-23 | 17-Apr-24 | 11-Jul-24 | 22-Apr-25 | 11-May-16 | 24-Aug-16 |
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | -- | -- |
| Vinyl Chloride | µg/L | 600 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | 0.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | < 3 | | | | | | | | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 40 | < 0.5 | | | | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | 200 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 1 | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | < 1 | < 1 | <1 | <1 | <1 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | 800 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 70 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 |
| Trichloroethylene | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,2-Dichloropropane | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | 200 | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Toluene | µg/L | 0.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | |
| Tetrachloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | 15 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | 60 | < 5 | < 5 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | |
| 1,3-Dichlorobenzene | µg/L | 2.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 2.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | 40 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | | | | < 0.4 | < 0.4 |
| Styrene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | < 30 | < 30 | <30 | <30 | <30 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | | | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | 400 | < 20 | < 20 | < 20 | < 20 | < 20 | <2 | <2 | <2 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | < 20 | < 20 | <20 | <20 | <20 | < 1 | < 1 |
| Dichloromethane | µg/L | 100 | < 2 | | | | | | | | < 0.3 | < 0.3 |
| Trichloroethylene | µg/L | 20 | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW3 | SW3 | SW3 | SW3 | SW3 | SW3 | SW3 | SW3 | SW3 | SW3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 18-Apr-17 | 20-Jul-17 | 24-Apr-18 | 18-Jul-18 | 12-Apr-19 | 8-Jul-19 | 23-Apr-20 | 20-Jul-20 | 20-Apr-21 | 19-Jul-21 |
| Methyl Chloride | µg/L | | -- | -- | < 0.3 | < 0.3 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 600 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | 0.9 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethylene | µg/L | 40 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl tert-Butyl Ether | µg/L | 200 | < 1 | < 1 | < 1 | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | 800 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 70 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethylene | µg/L | 20 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | 100 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 0.8 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | | -- | -- | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | 15 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | 60 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | 2.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 4 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 2.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | 40 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | | | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | < 2 | < 2 | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | 400 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 100 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 |
| Trichloroethylene | µg/L | 20 | | | | | | | | | | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW3 | SW3 | SW3 | SW3 | SW3 | SW3 | SW4 | SW4 | SW4 | SW4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 21-Apr-22 | 19-Apr-23 | 30-Aug-23 | 17-Apr-24 | 11-Jul-24 | 22-Apr-25 | 29-Apr-16 | 24-Aug-16 | 18-Apr-17 | 20-Jul-17 |
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | -- | -- | -- | -- |
| Vinyl Chloride | µg/L | 600 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | 0.9 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Chloroethane | µg/L | | | | | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | µg/L | 40 | | | | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl tert-Butyl Ether | µg/L | 200 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloro-ethane | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,2-Dichloroethene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | <1 | <1 | <1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| 1,1,1-Trichloroethane | µg/L | 800 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Carbon Tetrachloride | µg/L | | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | <0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 70 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| Trichloroethylene | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,2-Dichloropropane | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Bromodichloromethane | µg/L | 200 | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Toluene | µg/L | 0.8 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | <0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | | | |
| Tetrachloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | -- | -- | -- | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | <2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chlorobenzene | µg/L | 15 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Ethylbenzene | µg/L | 8 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | 60 | < 5 | < 5 | < 5 | <5 | <5 | <5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | | | |
| 1,3-Dichlorobenzene | µg/L | 2.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,4-Dichlorobenzene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | µg/L | 2.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | <1 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| o-Xylene | µg/L | 40 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Total Xylene | µg/L | | < 1.1 | < 1.1 | < 1.1 | | | | < 0.4 | < 0.4 | -- | < 0.4 |
| Styrene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Acetone | µg/L | | < 30 | < 30 | < 30 | <30 | <30 | <30 | < 2 | < 2 | < 2 | < 2 |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Methyl ethyl ketone | µg/L | 400 | < 20 | < 20 | < 20 | <2 | <2 | <2 | < 1 | < 1 | < 1 | < 1 |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | <20 | <20 | <20 | < 1 | < 1 | < 1 | < 1 |
| Dichloromethane | µg/L | 100 | | | | | | | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Trichloroethylene | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | | | | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW4 26-Oct-17 | SW4 24-Apr-18 | SW4 18-Jul-18 | SW4 12-Apr-19 | SW4 8-Jul-19 | SW4 23-Apr-20 | SW4 20-Jul-20 | SW4 20-Apr-21 | SW4 19-Jul-21 | SW4 21-Apr-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | -- | < 0.3 | < 0.3 | < 2 | < 2 | < 2 | < 2 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 600 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Bromomethane | µg/L | 0.9 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | |
| Trichloro-fluromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1-Dichloroethylene | µg/L | 40 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | |
| Methyl tert-Butyl Ether | µg/L | 200 | < 1 | < 1 | < 1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Trans 1,2-Dichloroethene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloro-ethane | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Cis 1,2-Dichloroethene | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | µg/L | 800 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Benzene | µg/L | 100 | **0.7** | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | µg/L | 70 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethylene | µg/L | 20 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | µg/L | 100 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | 200 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Cis 1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| T1,3-Dichloropropene | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 0.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethene | µg/L | | -- | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromochloromethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Chlorobenzene | µg/L | 15 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromoform | µg/L | 60 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 1,1,2,2 Tetrachloroethane | µg/L | | | | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | µg/L | 2.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | µg/L | 4 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichlorobenzene | µg/L | 2.5 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| m/p-Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | µg/L | 40 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Total Xylene | µg/L | | < 0.4 | < 0.4 | < 0.4 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| Styrene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Acetone | µg/L | | **4** | < 2 | < 2 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| 1,2-Dibromoethane | µg/L | | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl ethyl ketone | µg/L | 400 | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | | < 1 | < 1 | < 1 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Dichloromethane | µg/L | 100 | < 0.3 | < 0.3 | < 0.5 | < 5 | < 5 | < 5 | < 5 | < 2 | < 2 | |
| Trichloroethylene | µg/L | 20 | | | | | | | | | | < 0.5 |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW4 | SW4 | SW4 | SW4 | SW4 | SW4 | SW12 | SW12 | SW12 (10m) | SW13 | SW13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 20-Jul-22 | 19-Apr-23 | 30-Aug-23 | 17-Apr-24 | 11-Jul-24 | 22-Apr-25 | 20-Jul-17 | 24-Apr-18 | 22-Apr-25 | 20-Jul-17 | 24-Apr-18 |
| Methyl Chloride | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | | -- | -- | | -- | -- |
| Vinyl Chloride | µg/L | 600 | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | | -- | -- | | -- | -- |
| Bromomethane | µg/L | 0.9 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Chloroethane | µg/L | | | | | | | | -- | -- | | -- | -- |
| Trichloro-fluromethane | µg/L | | < 5 | < 5 | < 5 | <5 | <5 | | -- | -- | | -- | -- |
| 1,1-Dichloroethylene | µg/L | 40 | | | | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Methyl tert-Butyl Ether | µg/L | 200 | < 2 | < 2 | < 2 | <2 | <2 | | -- | -- | | -- | -- |
| Trans 1,2-Dichloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| 1,1-Dichloro-ethane | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Cis 1,2-Dichloroethene | µg/L | 200 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Chloroform | µg/L | | < 1 | < 1 | < 1 | <1 | <1 | | -- | -- | | -- | -- |
| 1,1,1-Trichloroethane | µg/L | 800 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Carbon Tetrachloride | µg/L | | < 0.2 | < 0.2 | < 0.2 | <0.2 | <0.2 | | -- | -- | | -- | -- |
| Benzene | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| 1,2-Dichloroethane | µg/L | 70 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Trichloroethylene | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| 1,2-Dichloropropane | µg/L | 100 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Bromodichloromethane | µg/L | 200 | < 2 | < 2 | < 2 | <2 | <2 | | -- | -- | | -- | -- |
| Cis 1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| T1,3-Dichloropropene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Toluene | µg/L | 0.8 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | <0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | | | | | |
| Tetrachloroethene | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Dibromochloromethane | µg/L | | < 2 | < 2 | < 2 | <2 | <2 | | -- | -- | | -- | -- |
| Chlorobenzene | µg/L | 15 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Ethylbenzene | µg/L | 8 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Bromoform | µg/L | 60 | < 5 | < 5 | < 5 | <5 | <5 | | -- | -- | | -- | -- |
| 1,1,2,2 Tetrachloroethane | µg/L | | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | | | | | |
| 1,3-Dichlorobenzene | µg/L | 2.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| 1,4-Dichlorobenzene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| 1,2-Dichlorobenzene | µg/L | 2.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| m/p-Xylene | µg/L | | < 1.0 | < 1.0 | < 1.0 | <1 | <1 | | -- | -- | | -- | -- |
| o-Xylene | µg/L | 40 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Total Xylene | µg/L | | < 1.1 | < 1.1 | < 1.1 | | | | -- | -- | | -- | -- |
| Styrene | µg/L | 4 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | -- | -- | | -- | -- |
| Acetone | µg/L | | < 30 | < 30 | < 30 | <30 | <30 | | -- | -- | | -- | -- |
| 1,2-Dibromoethane | µg/L | | < 0.2 | < 0.2 | < 0.2 | | | | -- | -- | | -- | -- |
| Methyl ethyl ketone | µg/L | 400 | < 20 | < 20 | < 20 | <2 | <2 | | -- | -- | | -- | -- |
| Methyl Isobutyl Ketone | µg/L | | < 20 | < 20 | < 20 | <20 | <20 | | -- | -- | | -- | -- |
| Dichloromethane | µg/L | 100 | | | | | | | -- | -- | | -- | -- |
| Trichloroethylene | µg/L | 20 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | | | | | | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW13 (10m) 17-Apr-24 | SW13 (10m) 11-Jul-24 | SW13 (10m) 22-Apr-25 | SW14 18-Apr-17 | SW14 20-Jul-17 | SW14 26-Oct-17 | SW14 24-Apr-18 | SW14 12-Apr-19 | SW14 8-Jul-19 | SW14 23-Apr-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | | | | -- | -- | -- | -- | | | |
| Vinyl Chloride | µg/L | 600 | | | | -- | -- | -- | -- | | | |
| Bromomethane | µg/L | 0.9 | | | | -- | -- | -- | -- | | | |
| Chloroethane | µg/L | | | | | -- | -- | -- | -- | | | |
| Trichloro-fluromethane | µg/L | | | | | -- | -- | -- | -- | | | |
| 1,1-Dichloroethylene | µg/L | 40 | | | | -- | -- | -- | -- | | | |
| Methyl tert-Butyl Ether | µg/L | 200 | | | | -- | -- | -- | -- | | | |
| Trans 1,2-Dichloroethene | µg/L | | | | | -- | -- | -- | -- | | | |
| 1,1-Dichloro-ethane | µg/L | 200 | | | | -- | -- | -- | -- | | | |
| Cis 1,2-Dichloroethene | µg/L | 200 | | | | -- | -- | -- | -- | | | |
| Chloroform | µg/L | | | | | -- | -- | -- | -- | | | |
| 1,1,1-Trichloroethane | µg/L | 800 | | | | -- | -- | -- | -- | | | |
| Carbon Tetrachloride | µg/L | | | | | -- | -- | -- | -- | | | |
| Benzene | µg/L | 100 | | | | -- | -- | -- | -- | | | |
| 1,2-Dichloroethane | µg/L | 70 | | | | -- | -- | -- | -- | | | |
| Trichloroethylene | µg/L | 20 | | | | -- | -- | -- | -- | | | |
| 1,2-Dichloropropane | µg/L | 100 | | | | -- | -- | -- | -- | | | |
| Bromodichloromethane | µg/L | 200 | | | | -- | -- | -- | -- | | | |
| Cis 1,3-Dichloropropene | µg/L | | | | | -- | -- | -- | -- | | | |
| T1,3-Dichloropropene | µg/L | | | | | -- | -- | -- | -- | | | |
| Toluene | µg/L | 0.8 | <0.5 | <0.5 | <0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | | | | | | | | | | |
| Tetrachloroethene | µg/L | | | | | -- | -- | -- | -- | | | |
| Dibromochloromethane | µg/L | | | | | -- | -- | -- | -- | | | |
| Chlorobenzene | µg/L | 15 | | | | -- | -- | -- | -- | | | |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | | | | -- | -- | -- | -- | | | |
| Ethylbenzene | µg/L | 8 | | | | -- | -- | -- | -- | | | |
| Bromoform | µg/L | 60 | | | | -- | -- | -- | -- | | | |
| 1,1,2,2 Tetrachloroethane | µg/L | | | | | | | | | | | |
| 1,3-Dichlorobenzene | µg/L | 2.5 | | | | -- | -- | -- | -- | | | |
| 1,4-Dichlorobenzene | µg/L | 4 | | | | -- | -- | -- | -- | | | |
| 1,2-Dichlorobenzene | µg/L | 2.5 | | | | -- | -- | -- | -- | | | |
| m/p-Xylene | µg/L | | | | | -- | -- | -- | -- | | | |
| o-Xylene | µg/L | 40 | | | | -- | -- | -- | -- | | | |
| Total Xylene | µg/L | | | | | -- | -- | -- | -- | | | |
| Styrene | µg/L | 4 | | | | -- | -- | -- | -- | | | |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | | | | -- | -- | -- | -- | | | |
| Acetone | µg/L | | | | | -- | -- | -- | -- | | | |
| 1,2-Dibromoethane | µg/L | | | | | -- | -- | -- | -- | | | |
| Methyl ethyl ketone | µg/L | 400 | | | | -- | -- | -- | -- | | | |
| Methyl Isobutyl Ketone | µg/L | | | | | -- | -- | -- | -- | | | |
| Dichloromethane | µg/L | 100 | | | | -- | -- | -- | -- | | | |
| Trichloroethylene | µg/L | 20 | | | | | | | | | | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Surface Water Chemistry Summary
# - VOC

| Parameters | Units | PWQO | SW14 20-Apr-21 | SW14 19-Jul-21 | SW14 21-Apr-22 | SW14 20-Jul-22 | SW14 19-Apr-23 | SW14 17-Apr-24 | SW14 11-Jul-24 | SW14 7-Oct-24 | SW14 22-Apr-25 | SW15 24-Apr-18 | SW15 (10m) 22-Apr-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Chloride | µg/L | | | | | | | | | <5 | | -- | |
| Vinyl Chloride | µg/L | 600 | | | | | | | | <0.2 | | -- | |
| Bromomethane | µg/L | 0.9 | | | | | | | | <0.5 | | -- | |
| Chloroethane | µg/L | | | | | | | | | | | -- | |
| Trichloro-fluromethane | µg/L | | | | | | | | | <5 | | -- | |
| 1,1-Dichloroethylene | µg/L | 40 | | | | | | | | <0.5 | | -- | |
| Methyl tert-Butyl Ether | µg/L | 200 | | | | | | | | <2 | | -- | |
| Trans 1,2-Dichloroethene | µg/L | | | | | | | | | <0.5 | | -- | |
| 1,1-Dichloro-ethane | µg/L | 200 | | | | | | | | <0.5 | | -- | |
| Cis 1,2-Dichloroethene | µg/L | 200 | | | | | | | | <0.5 | | -- | |
| Chloroform | µg/L | | | | | | | | | <1 | | -- | |
| 1,1,1-Trichloroethane | µg/L | 800 | | | | | | | | <0.5 | | -- | |
| Carbon Tetrachloride | µg/L | | | | | | | | | <0.2 | | -- | |
| Benzene | µg/L | 100 | | | | | | | | **3.6** | | -- | |
| 1,2-Dichloroethane | µg/L | 70 | | | | | | | | <0.5 | | -- | |
| Trichloroethylene | µg/L | 20 | | | | | | | | <0.5 | | -- | |
| 1,2-Dichloropropane | µg/L | 100 | | | | | | | | <0.5 | | -- | |
| Bromodichloromethane | µg/L | 200 | | | | | | | | <2 | | -- | |
| Cis 1,3-Dichloropropene | µg/L | | | | | | | | | <0.5 | | -- | |
| T1,3-Dichloropropene | µg/L | | | | | | | | | <0.5 | | -- | |
| Toluene | µg/L | 0.8 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <0.5 | <1.1 | <0.5 | < 0.5 | <0.5 |
| 1,1,2-Trichloroethane | µg/L | | | | | | | | | <0.5 | | | |
| Tetrachloroethene | µg/L | | | | | | | | | <0.5 | | -- | |
| Dibromochloromethane | µg/L | | | | | | | | | <2 | | -- | |
| Chlorobenzene | µg/L | 15 | | | | | | | | **18.4** | | -- | |
| 1,1,1,2 Tetrachloroethane | µg/L | 20 | | | | | | | | <0.5 | | -- | |
| Ethylbenzene | µg/L | 8 | | | | | | | | <0.5 | | -- | |
| Bromoform | µg/L | 60 | | | | | | | | <5 | | -- | |
| 1,1,2,2 Tetrachloroethane | µg/L | | | | | | | | | <0.5 | | | |
| 1,3-Dichlorobenzene | µg/L | 2.5 | | | | | | | | <0.5 | | -- | |
| 1,4-Dichlorobenzene | µg/L | 4 | | | | | | | | **1.7** | | -- | |
| 1,2-Dichlorobenzene | µg/L | 2.5 | | | | | | | | **0.6** | | -- | |
| m/p-Xylene | µg/L | | | | | | | | | **17** | | -- | |
| o-Xylene | µg/L | 40 | | | | | | | | **2** | | -- | |
| Total Xylene | µg/L | | | | | | | | | | | -- | |
| Styrene | µg/L | 4 | | | | | | | | <0.5 | | -- | |
| 1,2,4 Trichlorobenzene | µg/L | 0.5 | | | | | | | | <0.5 | | -- | |
| Acetone | µg/L | | | | | | | | | **43** | | -- | |
| 1,2-Dibromoethane | µg/L | | | | | | | | | | | -- | |
| Methyl ethyl ketone | µg/L | 400 | | | | | | | | <2 | | -- | |
| Methyl Isobutyl Ketone | µg/L | | | | | | | | | <20 | | -- | |
| Dichloromethane | µg/L | 100 | | | | | | | | | | -- | |
| Trichloroethylene | µg/L | 20 | | | | | | | | <0.5 | | | |

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

# Fenelon Landfill Site - PFAS Results

| Location ID | Guideline* | MW7 | MW11A | MW13 | MW15 | MW15A | MW15B | MW18 | MW18A | MW18B | MW19 | MW22B | MW26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 |
| Eicosafluoro-3-oxaundecane-1-sulfonic acid, 11-chloro- [11Cl-PF3OUdS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Ethyl perfluorooctanesulfonamide, n- [NEtFOSA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Ethyl perfluorooctanesulfonamidoacetic acid, n- [NEtFOSAA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Ethyl perfluorooctanesulfonamidoethanol, n- [NEtFOSE] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Fluorotelomer carboxylic acid, 3:3 [3:3 FTCA] | | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Fluorotelomer carboxylic acid, 5:3 [5:3 FTCA] | | **0.122** | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.298** | <0.020 |
| Fluorotelomer carboxylic acid, 7:3 [7:3 FTCA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Fluorotelomer sulfonic acid, 4:2 [4:2 FTS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Fluorotelomer sulfonic acid, 6:2 [6:2 FTS] | 0.2 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Fluorotelomer sulfonic acid, 8:2 [8:2 FTS] | 0.2 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Hexadecafluoro-3-oxanonane-1-sulfonic acid, 9-chloro- [9Cl-PF3ONS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Hexafluoropropylene oxide dimer acid [HFPO-DA] | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Methyl perfluorooctanesulfonamide, N- [NMeFOSA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Methyl perfluorooctanesulfonamidoacetic acid, n- [NMeFOSAA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Methyl perfluorooctanesulfonamidoethanol, n- [NMeFOSE] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Nonafluoro-3,6-dioxaheptanoic acid [NFDHA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluoro-3-methoxypropanoic acid [PFMPA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluoro-4-methoxybutanoic acid [PFMBA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorobutanesulfonic acid [PFBS] | 15 | <0.100 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.100 | <0.020 |
| Perfluorobutanoic acid [PFBA] | | <0.50 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.50 | <0.50 | <0.50 | <1.00 | <0.50 |
| Perfluorodecane sulfonic acid [PFDS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorodecanoic acid [PFDA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorododecanesulfonic acid [PFDoS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorododecanoic acid [PFDoA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluoroheptanesulfonic acid [PFHpS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluoroheptanoic acid [PFHpA] | | **0.192** | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.100 | <0.020 |
| Perfluorohexanesulfonic acid [PFHxS] | 600 | **0.06** | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.31** | <0.020 |
| Perfluorohexanoic acid [PFHxA] | | **0.304** | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.024** | **0.036** | **0.03** | **0.24** | <0.020 |
| Perfluorononanesulfonic acid [PFNS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorononanoic acid [PFNA] | 0.02 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorononanoic acid, 4,8-dioxa-3H- [ADONA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorooctanesulfonamide [PFOSA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorooctanesulfonic acid [PFOS] | 0.6 / 0.0068 (SW) | **0.06** | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.030 | <0.020 |
| Perfluorooctanoic acid [PFOA] | 0.2 | **0.376** | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.058** | <0.020 |
| Perfluoropentanesulfonic acid [PFPeS] | | <0.100 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluoropentanoic acid [PFPeA] | | <0.300 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.100 | <0.100 | <0.100 | <0.300 | <0.020 |
| Perfluorotetradecanoic acid [PFTeDA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluorotridecanoic acid [PFTrDA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| Perfluoroundecanoic acid [PFUnA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| perfluoro(2-ethoxyethane)sulfonic acid [PFEESA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 |
| PFAS, total | 0.03** | **1.11** | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | 0.024 | 0.036 | 0.03 | **0.906** | <1.1 |

* Guideline for Canadian Drinking Water Quality

** Health Canada Objective

Bold & Underlined - Detected

Shaded - Exceeds Guideline

All values in ug/L

# Fenelon Landfill Site - PFAS Results

| Location ID | Guideline* | MW-26-2 | MW27-I | MW27-II | MW27-III | MW28-I | MW28-II | MW28-III | WP2-10 | WP3-10 | WP4-10 | MW26-1 | WP-1 (30m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 11-Oct-23 | 25-Oct-23 |
| Eicosafluoro-3-oxaundecane-1-sulfonic acid, 11-chloro- [11Cl-PF3OUdS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Ethyl perfluorooctanesulfonamide, n- [NEtFOSA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Ethyl perfluorooctanesulfonamidoacetic acid, n- [NEtFOSAA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Ethyl perfluorooctanesulfonamidoethanol, n- [NEtFOSE] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Fluorotelomer carboxylic acid, 3:3 [3:3 FTCA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Fluorotelomer carboxylic acid, 5:3 [5:3 FTCA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.822** | <0.020 | <0.020 | |
| Fluorotelomer carboxylic acid, 7:3 [7:3 FTCA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Fluorotelomer sulfonic acid, 4:2 [4:2 FTS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Fluorotelomer sulfonic acid, 6:2 [6:2 FTS] | 0.2 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.054** | <0.020 | <0.020 | |
| Fluorotelomer sulfonic acid, 8:2 [8:2 FTS] | 0.2 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Hexadecafluoro-3-oxanonane-1-sulfonic acid, 9-chloro- [9Cl-PF3ONS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Hexafluoropropylene oxide dimer acid [HFPO-DA] | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | |
| Methyl perfluorooctanesulfonamide, N- [NMeFOSA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Methyl perfluorooctanesulfonamidoacetic acid, n- [NMeFOSAA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Methyl perfluorooctanesulfonamidoethanol, n- [NMeFOSE] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Nonafluoro-3,6-dioxaheptanoic acid [NFDHA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluoro-3-methoxypropanoic acid [PFMPA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluoro-4-methoxybutanoic acid [PFMBA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | Dry |
| Perfluorobutanesulfonic acid [PFBS] | 15 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.100 | <0.020 | <0.020 | |
| Perfluorobutanoic acid [PFBA] | | <0.50 | <0.50 | <0.10 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.00 | <0.50 | <0.50 | |
| Perfluorodecane sulfonic acid [PFDS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorodecanoic acid [PFDA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorododecanesulfonic acid [PFDoS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorododecanoic acid [PFDoA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluoroheptanesulfonic acid [PFHpS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluoroheptanoic acid [PFHpA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.028** | **0.25** | **0.068** | <0.020 | |
| Perfluorohexanesulfonic acid [PFHxS] | 600 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.02** | **0.12** | **0.036** | <0.020 | |
| Perfluorohexanoic acid [PFHxA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.044** | **0.51** | **0.066** | <0.020 | |
| Perfluorononanesulfonic acid [PFNS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorononanoic acid [PFNA] | 0.02 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorononanoic acid, 4,8-dioxa-3H- [ADONA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorooctanesulfonamide [PFOSA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorooctanesulfonic acid [PFOS] | 0.6 / 0.0068 (SW) | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.042** | **0.072** | **0.11** | <0.020 | |
| Perfluorooctanoic acid [PFOA] | 0.2 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | **0.1** | **0.244** | **0.426** | <0.020 | |
| Perfluoropentanesulfonic acid [PFPeS] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluoropentanoic acid [PFPeA] | | <0.100 | <0.100 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.100 | <0.300 | <0.100 | <0.100 | |
| Perfluorotetradecanoic acid [PFTeDA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluorotridecanoic acid [PFTrDA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| Perfluoroundecanoic acid [PFUnA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| perfluoro(2-ethoxyethane)sulfonic acid [PFEESA] | | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | |
| PFAS, total | 0.03** | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | **0.234** | **2.072** | **0.706** | <1.1 | |

* Guideline for Canadian Drinking Water Quality

** Health Canada Objective

Bold & Underlined - Detected

Shaded - Exceeds Guideline

All values in ug/L

# Fenelon Landfill Site - PFAS Results

| Location ID | Guideline* | WP-1 (30m) | WP-2 (30m) | WP-2 (30m) | WP-3 (30m) | WP-3 (30m) | WP-4 (30m) | WP-4 (30m) | WP-5 (30m) | WP-5 (30m) |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 22-Apr-25 | 25-Oct-23 | 22-Apr-25 | 25-Oct-23 | 22-Apr-25 | 25-Oct-23 | 22-Apr-25 | 25-Oct-23 | 22-Apr-25 |
| Eicosafluoro-3-oxaundecane-1-sulfonic acid, 11-chloro- [11Cl-PF3OUdS] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Ethyl perfluorooctanesulfonamide, n- [NEtFOSA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Ethyl perfluorooctanesulfonamidoacetic acid, n- [NEtFOSAA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Ethyl perfluorooctanesulfonamidoethanol, n- [NEtFOSE] | | <0.003 | <0.020 | <0.003 | <0.020 | <0.003 | | | | <0.003 |
| Fluorotelomer carboxylic acid, 3:3 [3:3 FTCA] | | | <0.020 | | <0.020 | | | | | |
| Fluorotelomer carboxylic acid, 5:3 [5:3 FTCA] | | | <0.020 | | <0.020 | | | | | |
| Fluorotelomer carboxylic acid, 7:3 [7:3 FTCA] | | | <0.020 | | <0.020 | | | | | |
| Fluorotelomer sulfonic acid, 4:2 [4:2 FTS] | | <0.002 | <0.020 | <0.002 | <0.020 | <0.002 | | | | <0.002 |
| Fluorotelomer sulfonic acid, 6:2 [6:2 FTS] | 0.2 | <0.002 | <0.020 | <0.002 | <0.020 | <0.002 | | | | <0.002 |
| Fluorotelomer sulfonic acid, 8:2 [8:2 FTS] | 0.2 | <0.002 | <0.020 | <0.002 | <0.020 | <0.002 | | | | <0.002 |
| Hexadecafluoro-3-oxanonane-1-sulfonic acid, 9-chloro- [9Cl-PF3ONS] | | | <0.020 | | <0.020 | | | | | |
| Hexafluoropropylene oxide dimer acid [HFPO-DA] | | <0.001 | <1.0 | <0.001 | <1.0 | <0.001 | | | | <0.001 |
| Methyl perfluorooctanesulfonamide, N- [NMeFOSA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Methyl perfluorooctanesulfonamidoacetic acid, n- [NMeFOSAA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Methyl perfluorooctanesulfonamidoethanol, n- [NMeFOSE] | | <0.003 | <0.020 | <0.003 | <0.020 | <0.003 | | | | <0.003 |
| Nonafluoro-3,6-dioxaheptanoic acid [NFDHA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluoro-3-methoxypropanoic acid [PFMPA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluoro-4-methoxybutanoic acid [PFMBA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | Dry | Dry | Dry | <0.001 |
| Perfluorobutanesulfonic acid [PFBS] | 15 | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.0089** |
| Perfluorobutanoic acid [PFBA] | | **0.004** | <0.10 | **0.0041** | <0.10 | **0.004** | | | | **0.0335** |
| Perfluorodecane sulfonic acid [PFDS] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluorodecanoic acid [PFDA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluorododecanesulfonic acid [PFDoS] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluorododecanoic acid [PFDoA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluoroheptanesulfonic acid [PFHpS] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluoroheptanoic acid [PFHpA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.033** |
| Perfluorohexanesulfonic acid [PFHxS] | 600 | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.0086** |
| Perfluorohexanoic acid [PFHxA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.0312** |
| Perfluorononanesulfonic acid [PFNS] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluorononanoic acid [PFNA] | 0.02 | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.0018** |
| Perfluorononanoic acid, 4,8-dioxa-3H- [ADONA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluorooctanesulfonamide [PFOSA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.0015** |
| Perfluorooctanesulfonic acid [PFOS] | 0.6 / 0.0068 (SW) | <0.001 | <0.020 | <0.001 | <0.020 | **0.0016** | | | | **0.0448** |
| Perfluorooctanoic acid [PFOA] | 0.2 | <0.001 | <0.020 | <0.001 | <0.020 | **0.0021** | | | | **0.164** |
| Perfluoropentanesulfonic acid [PFPeS] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.0031** |
| Perfluoropentanoic acid [PFPeA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | **0.0313** |
| Perfluorotetradecanoic acid [PFTeDA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluorotridecanoic acid [PFTrDA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| Perfluoroundecanoic acid [PFUnA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| perfluoro(2-ethoxyethane)sulfonic acid [PFEESA] | | <0.001 | <0.020 | <0.001 | <0.020 | <0.001 | | | | <0.001 |
| PFAS, total | 0.03** | **0.004** | <1.1 | **0.0041** | <1.1 | **0.0077** | | | | **0.3617** |

* Guideline for Canadian Drinking Water Quality

** Health Canada Objective

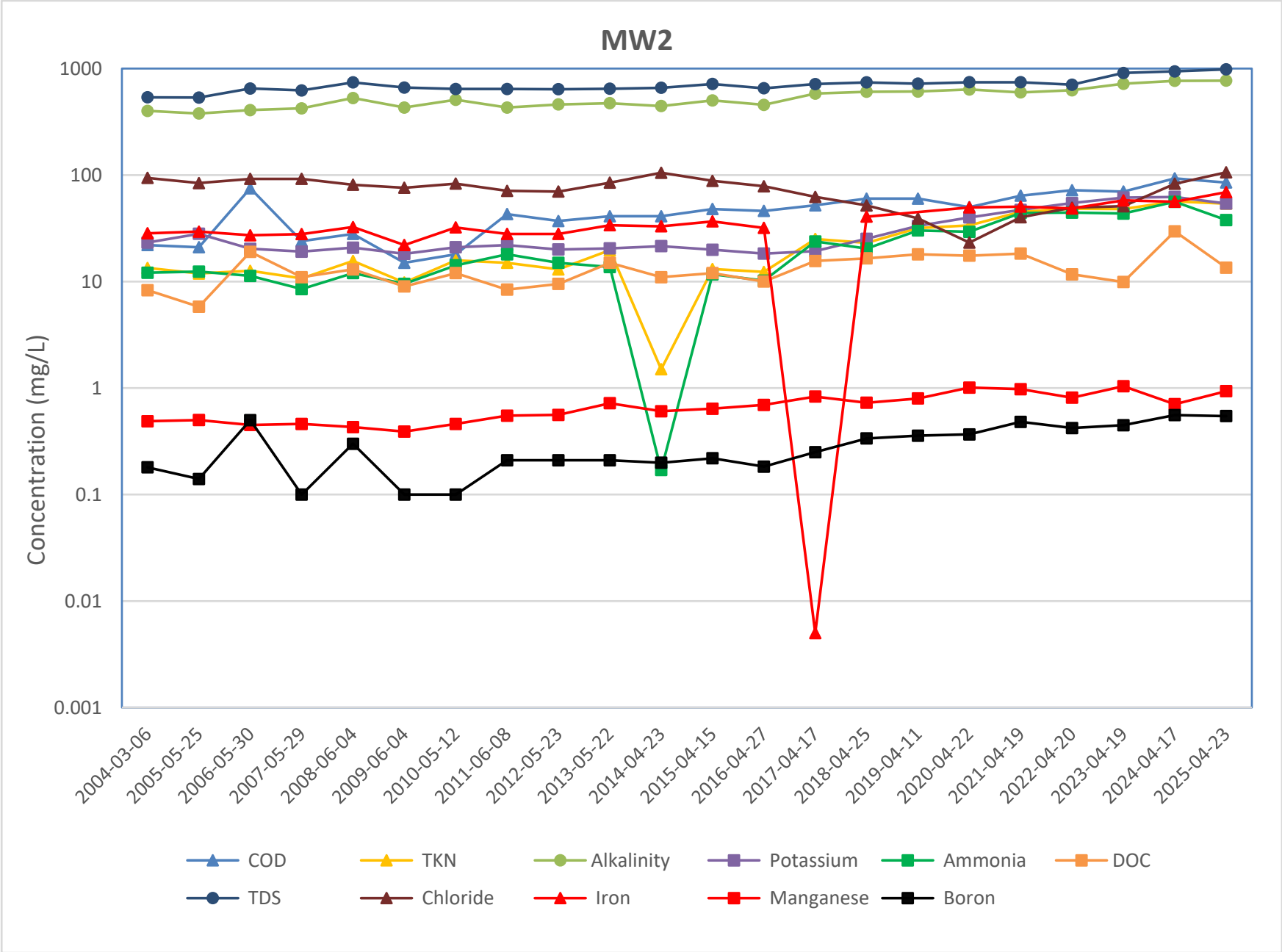
Bold & Underlined - Detected

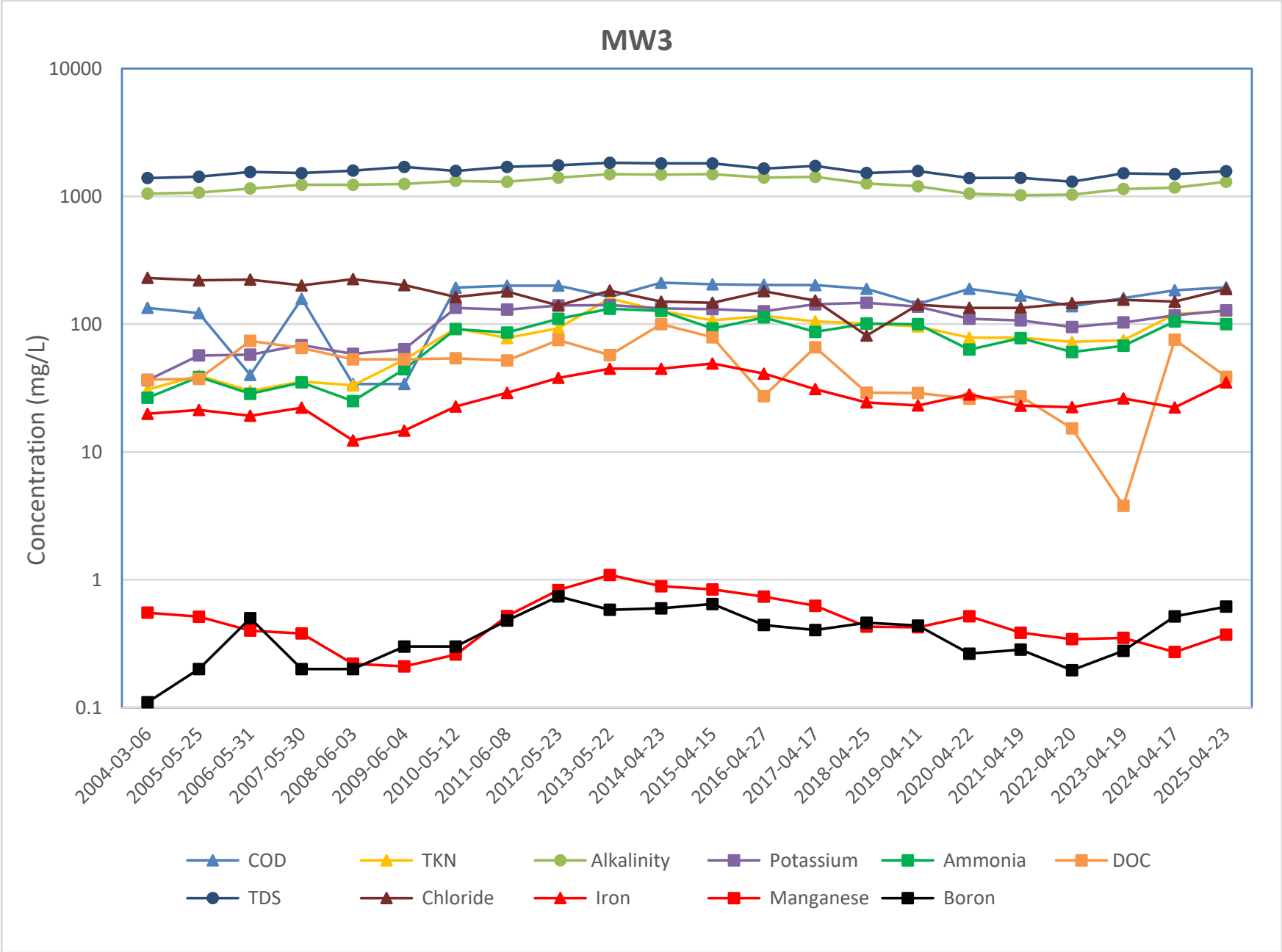
Shaded - Exceeds Guideline

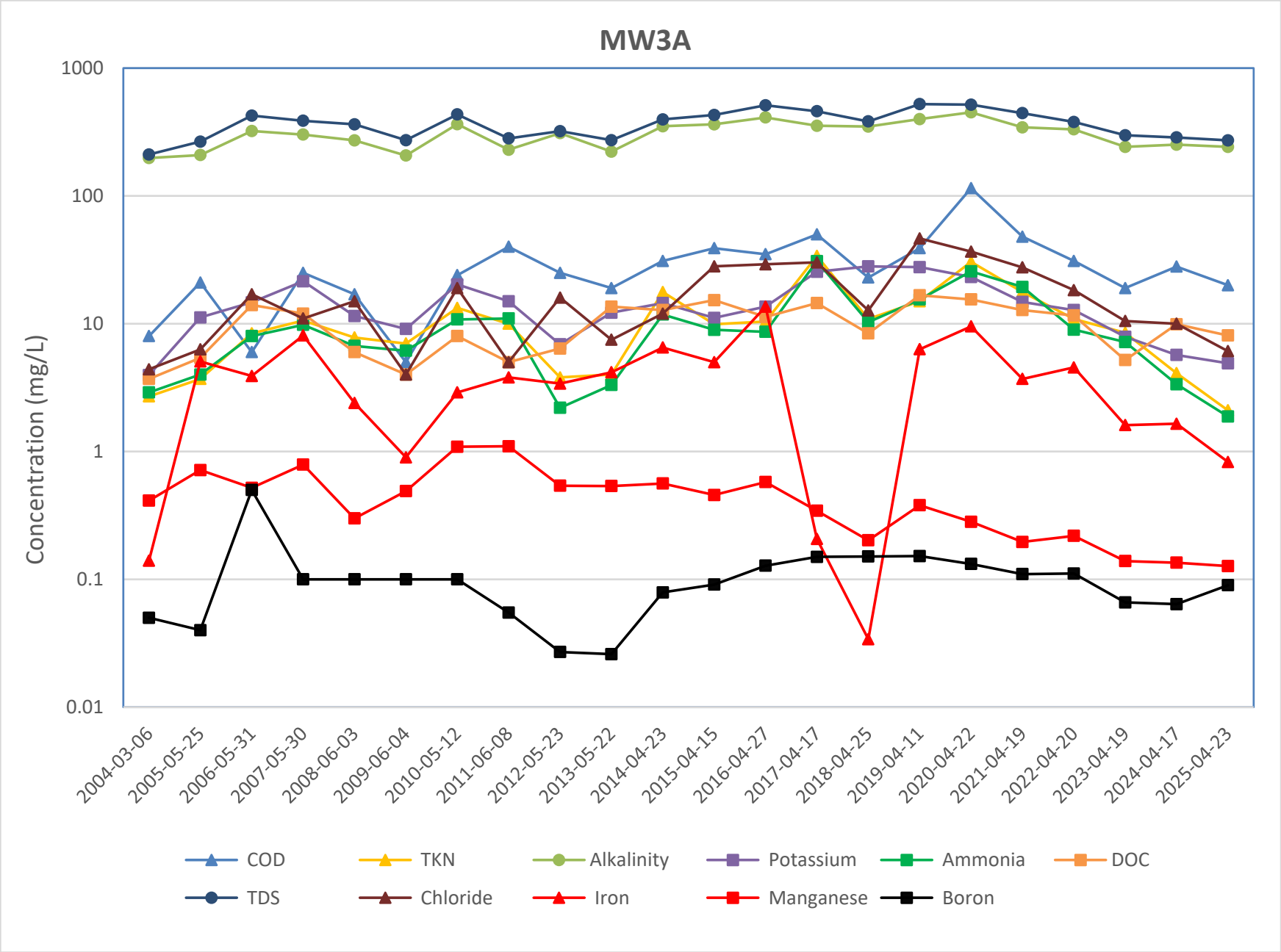
All values in ug/L

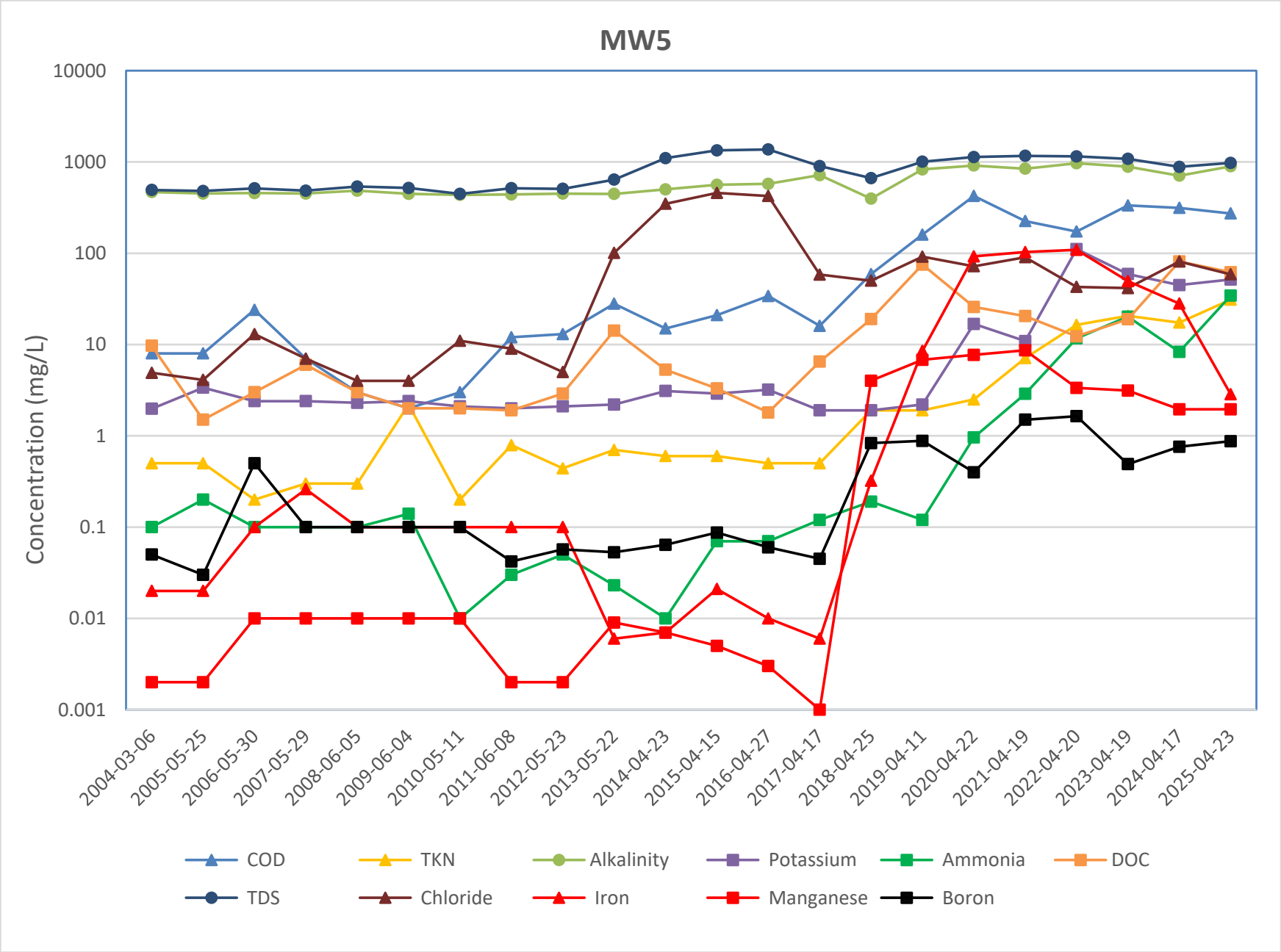
# APPENDIX F

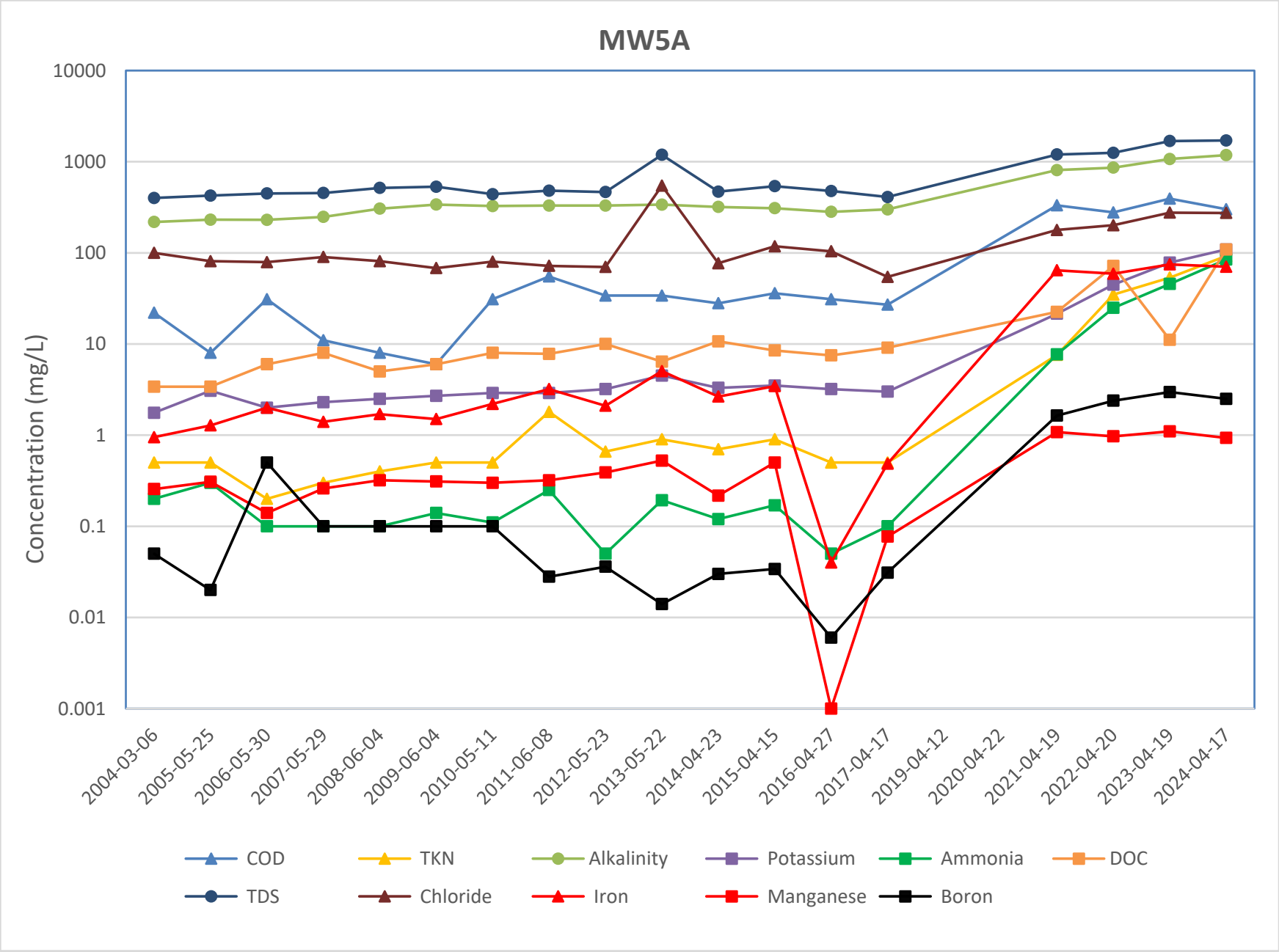
## Chemistry Over Time Graphs

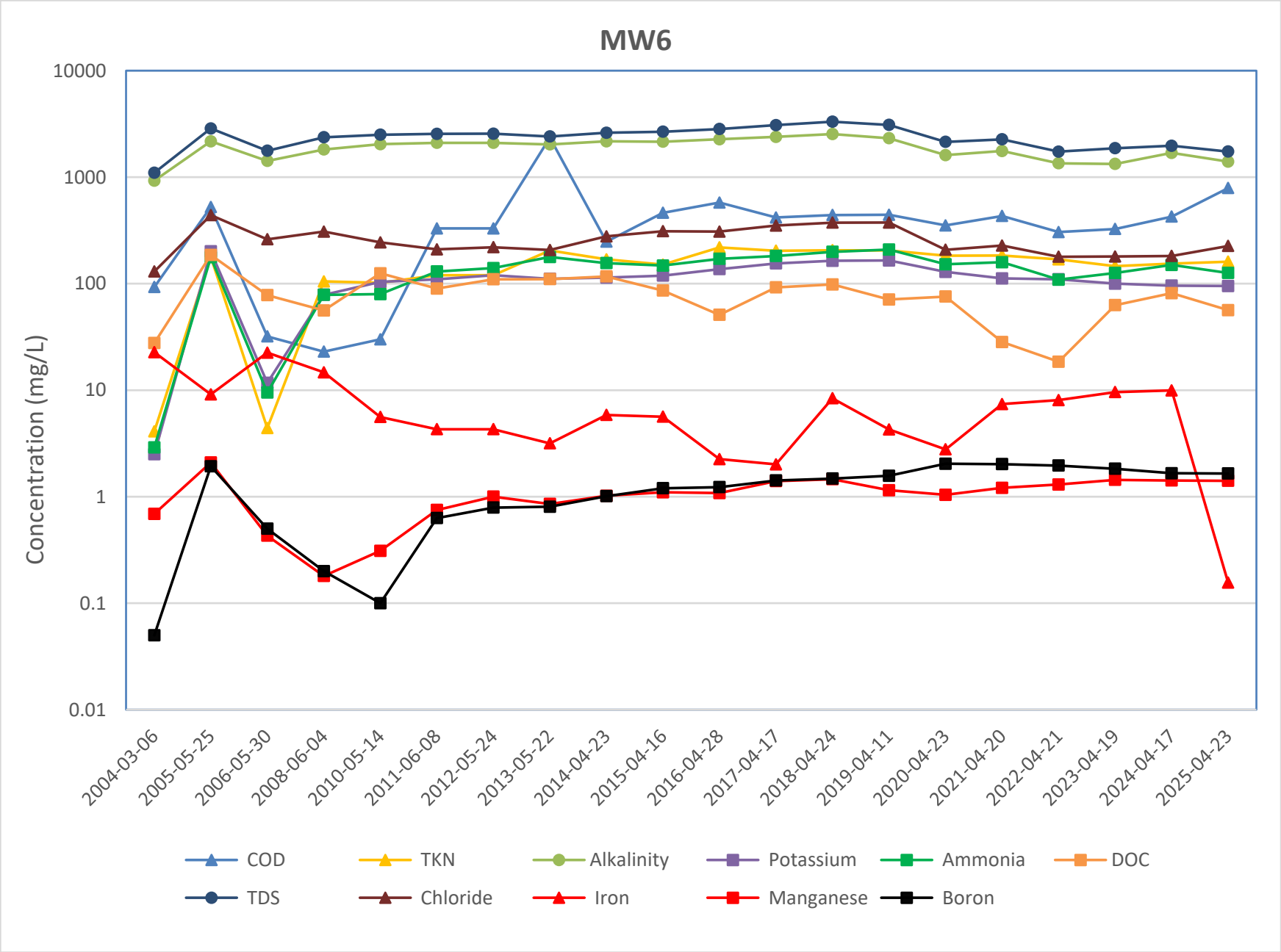

MW2
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2005-05-25
2006-05-30
2007-05-29
2008-06-04
2009-06-04
2010-05-12
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

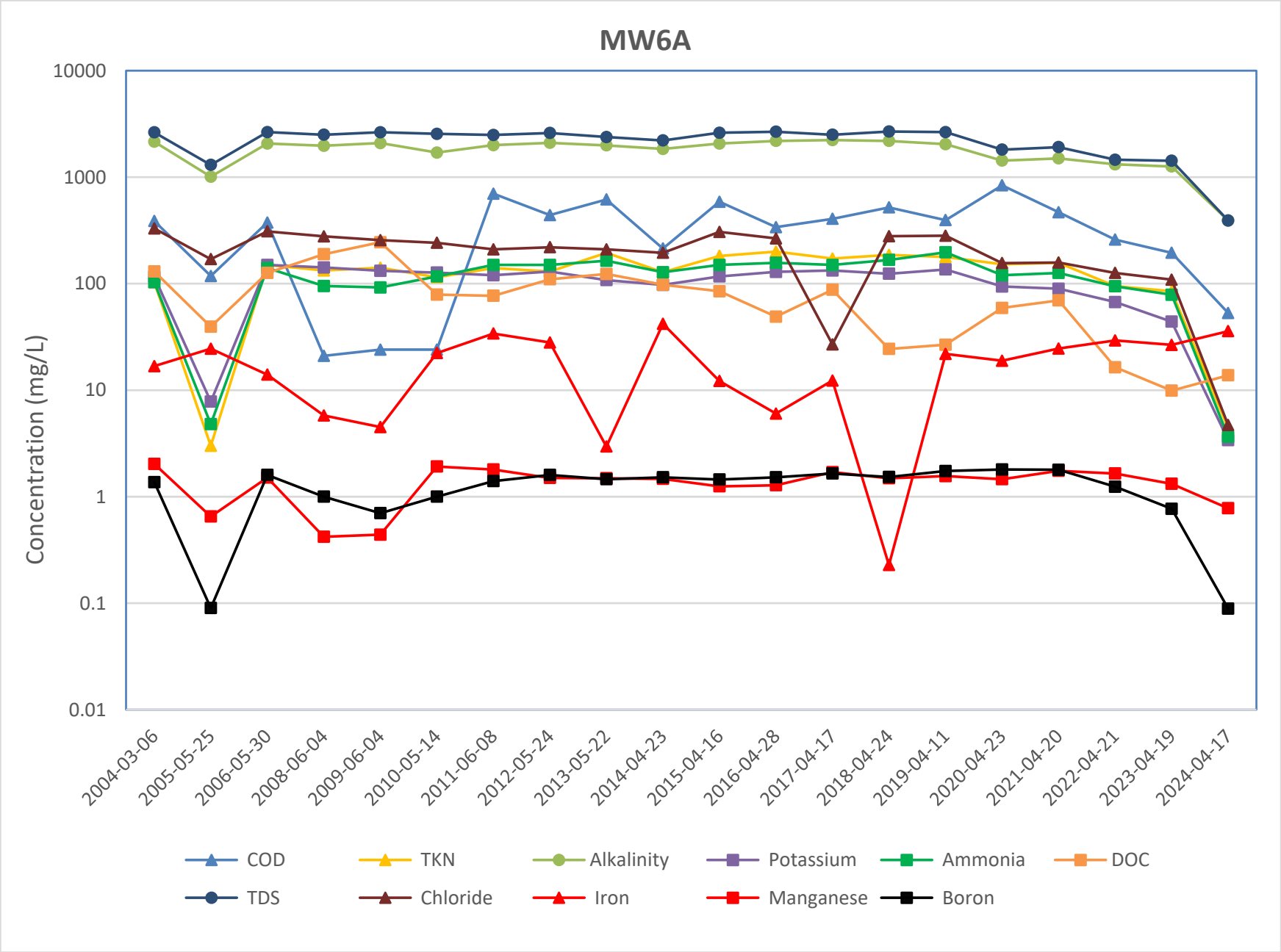

MW3
Concentration (mg/L)
10000
1000
100
10
1
0.1
2004-03-06
2005-05-25
2006-05-31
2007-05-30
2008-06-03
2009-06-04
2010-05-12
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW3A
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2004-03-06
2005-05-25
2006-05-31
2007-05-30
2008-06-03
2009-06-04
2010-05-12
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW5
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2005-05-25
2006-05-30
2007-05-29
2008-06-05
2009-06-04
2010-05-11
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW5A
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2005-05-25
2006-05-30
2007-05-29
2008-06-04
2009-06-04
2010-05-11
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2019-04-12
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW6
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
2004-03-06
2005-05-25
2006-05-30
2008-06-04
2010-05-14
2011-06-08
2012-05-24
2013-05-22
2014-04-23
2015-04-16
2016-04-28
2017-04-17
2018-04-24
2019-04-11
2020-04-23
2021-04-20
2022-04-21
2023-04-19
2024-04-17
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW6A
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
2004-03-06
2005-05-25
2006-05-30
2008-06-04
2009-06-04
2010-05-14
2011-06-08
2012-05-24
2013-05-22
2014-04-23
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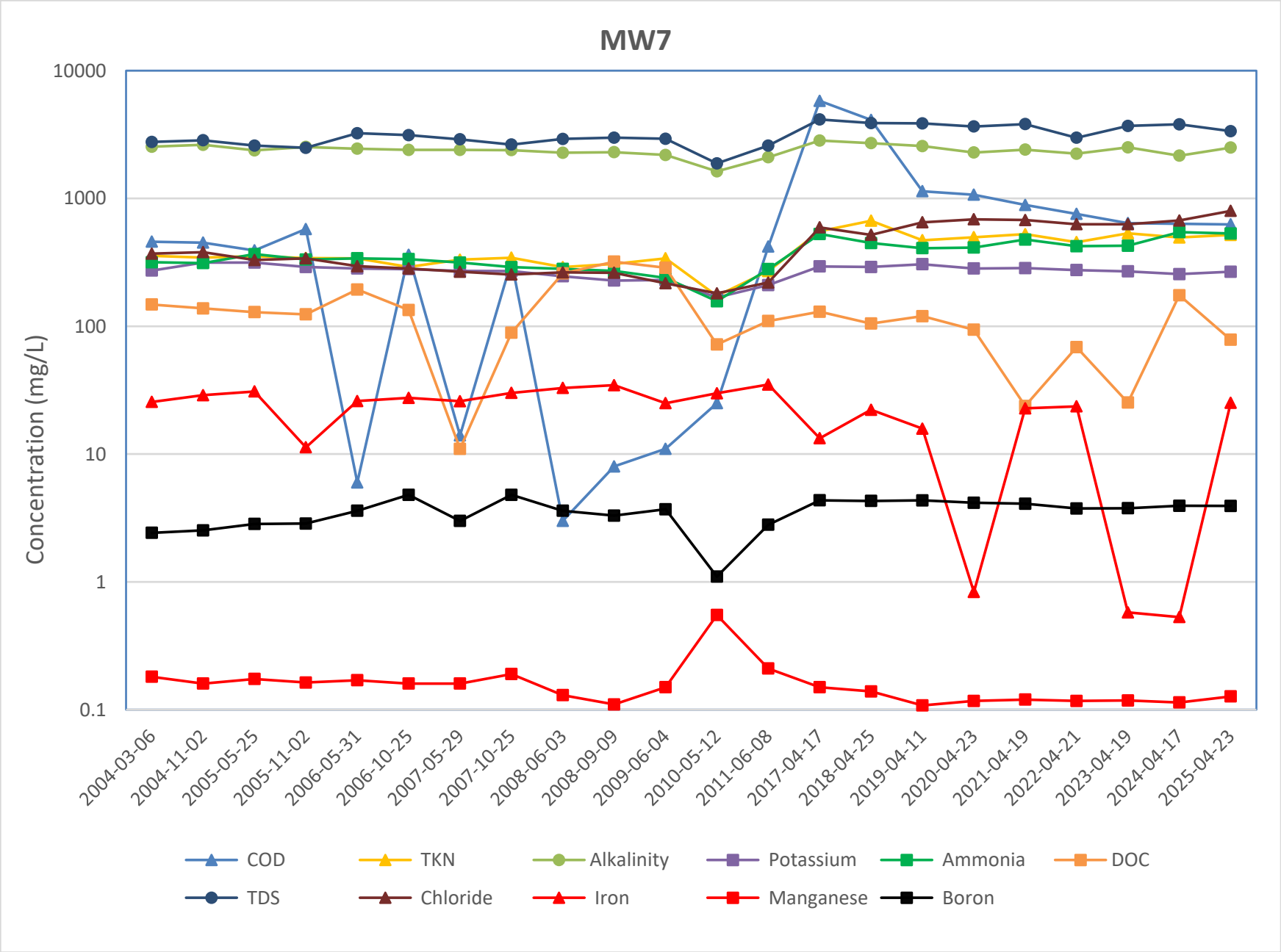
2017-04-17
2018-04-24
2019-04-11
2020-04-23
2021-04-20
2022-04-21
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW7
Concentration (mg/L)
10000
1000
100
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0.1
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2004-11-02
2005-05-25
2005-11-02
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2006-10-25
2007-05-29
2007-10-25
2008-06-03
2008-09-09
2009-06-04
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2018-04-25
2019-04-11
2020-04-23
2021-04-19
2022-04-21
2023-04-19
2024-04-17
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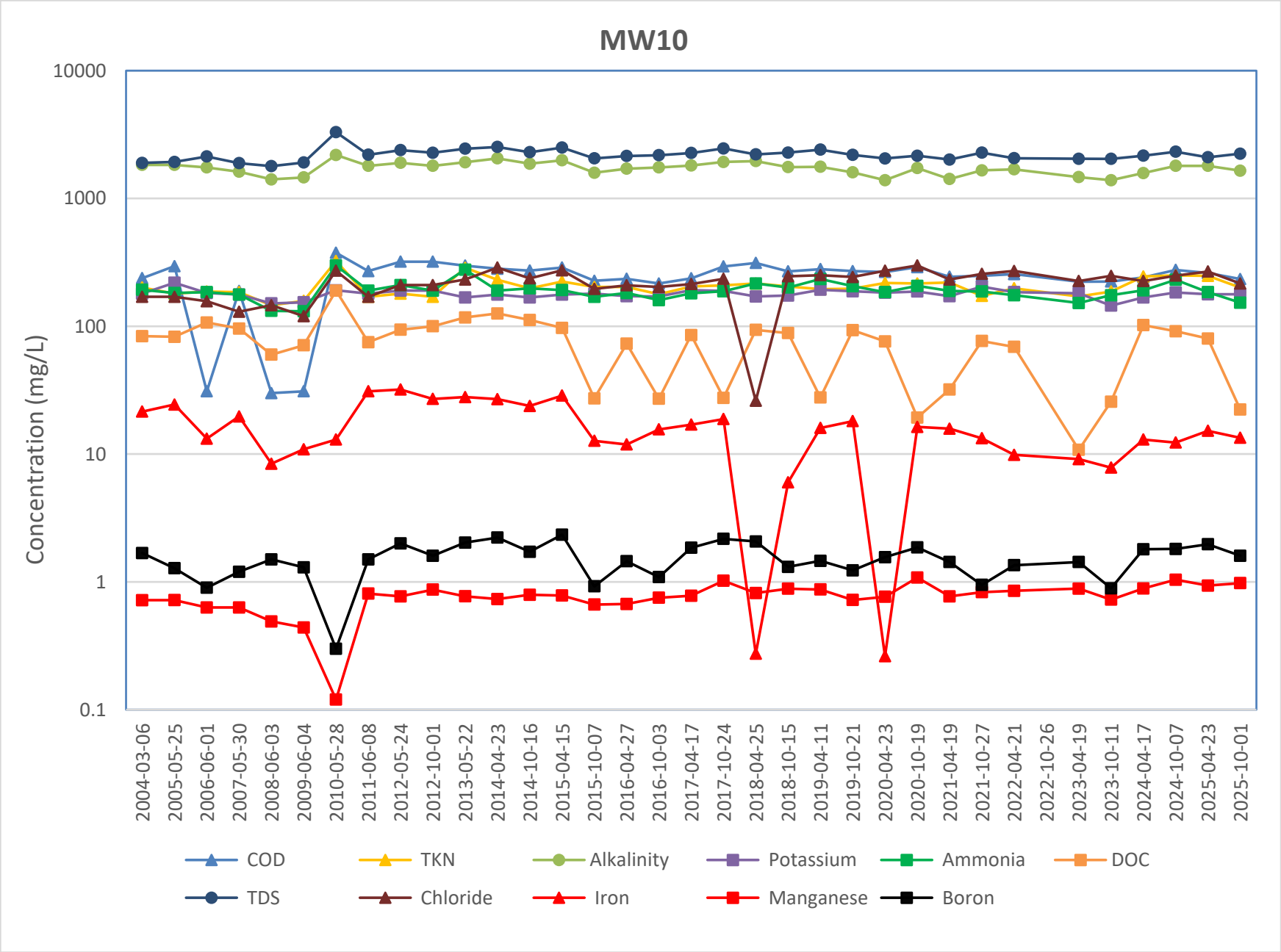
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW10
Concentration (mg/L)
10000
1000
100
10
1
0.1
2004-03-06
2005-05-25
2006-06-01
2007-05-30
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2009-06-04
2010-05-28
2011-06-08
2012-05-24
2012-10-01
2013-05-22
2014-04-23
2014-10-16
2015-04-15
2015-10-07
2016-04-27
2016-10-03
2017-04-17
2017-10-24
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-23
2020-10-19
2021-04-19
2021-10-27
2022-04-21
2022-10-26
2023-04-19
2023-10-11
2024-04-17
2024-10-07
2025-04-23
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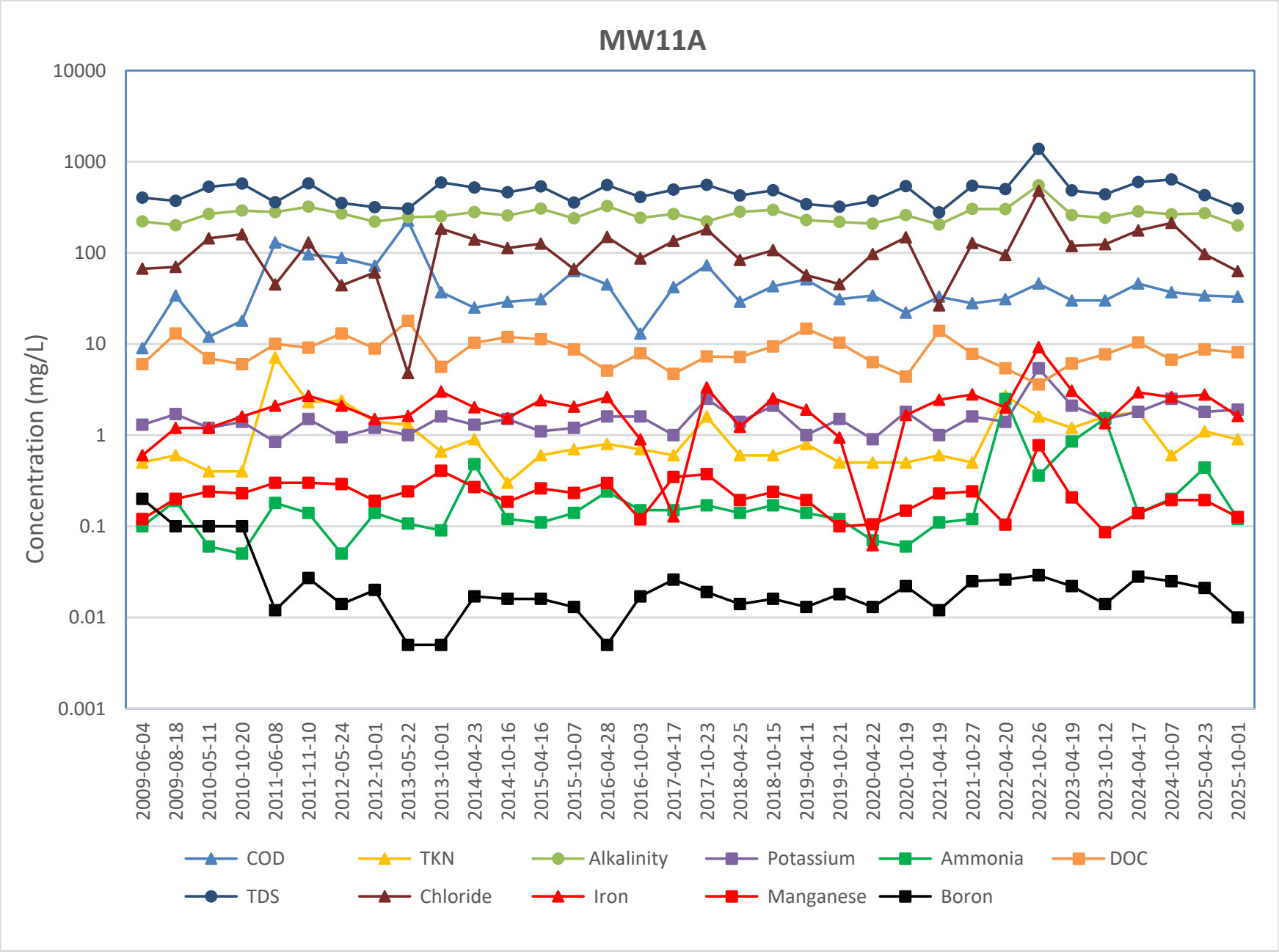
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW11A
Concentration (mg/L)
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1000
100
10
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0.1
0.01
0.001
2009-06-04
2009-08-18
2010-05-11
2010-10-20
2011-06-08
2011-11-10
2012-05-24
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
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DOC
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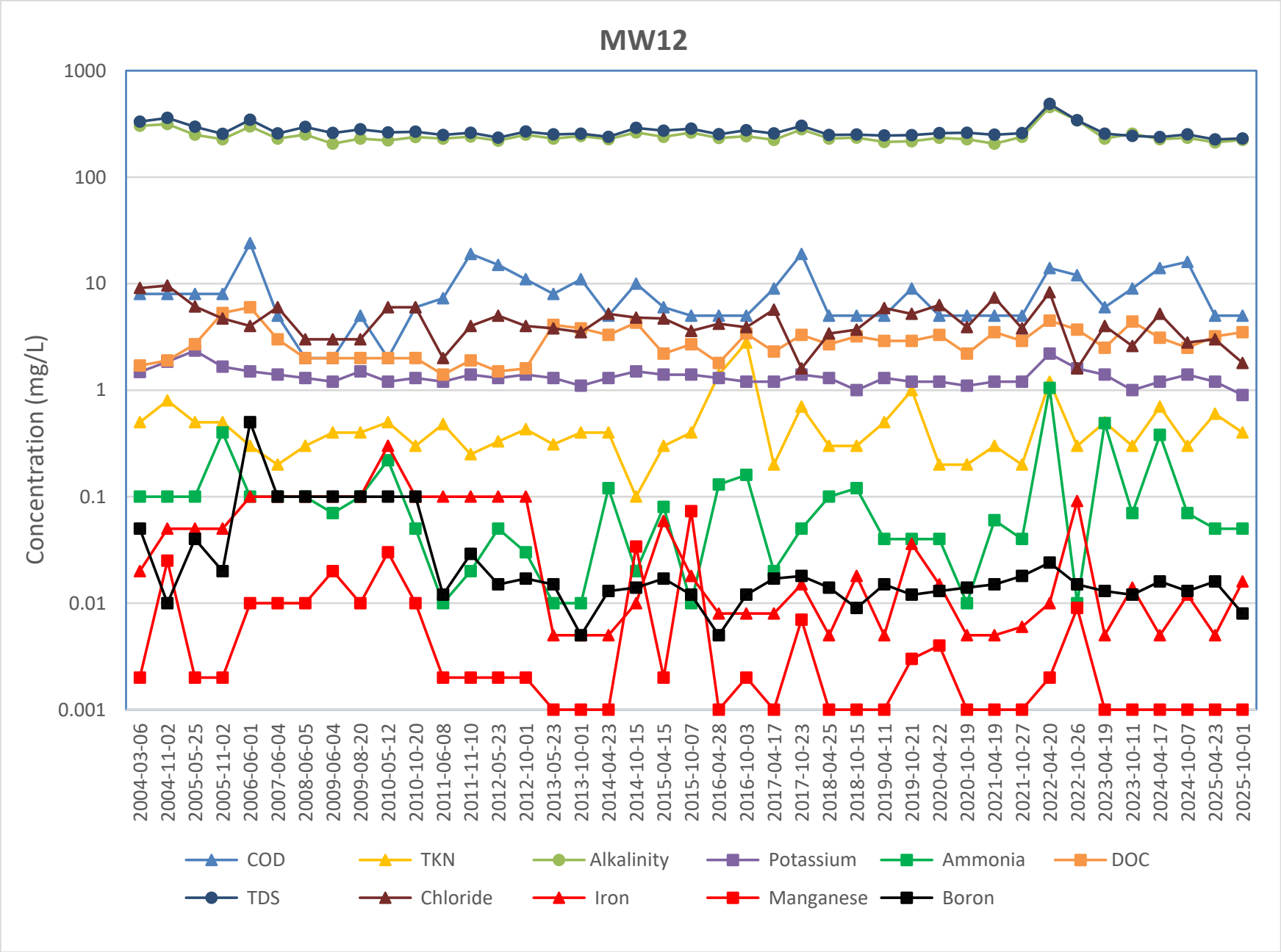
Chloride
Iron
Manganese
Boron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Concentration (mg/L)
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0.1
0.01
0.001
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2004-11-02
2005-05-25
2005-11-02
2006-06-01
2007-06-04
2008-06-05
2009-06-04
2009-08-20
2010-05-12
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2011-06-08
2011-11-10
2012-05-23
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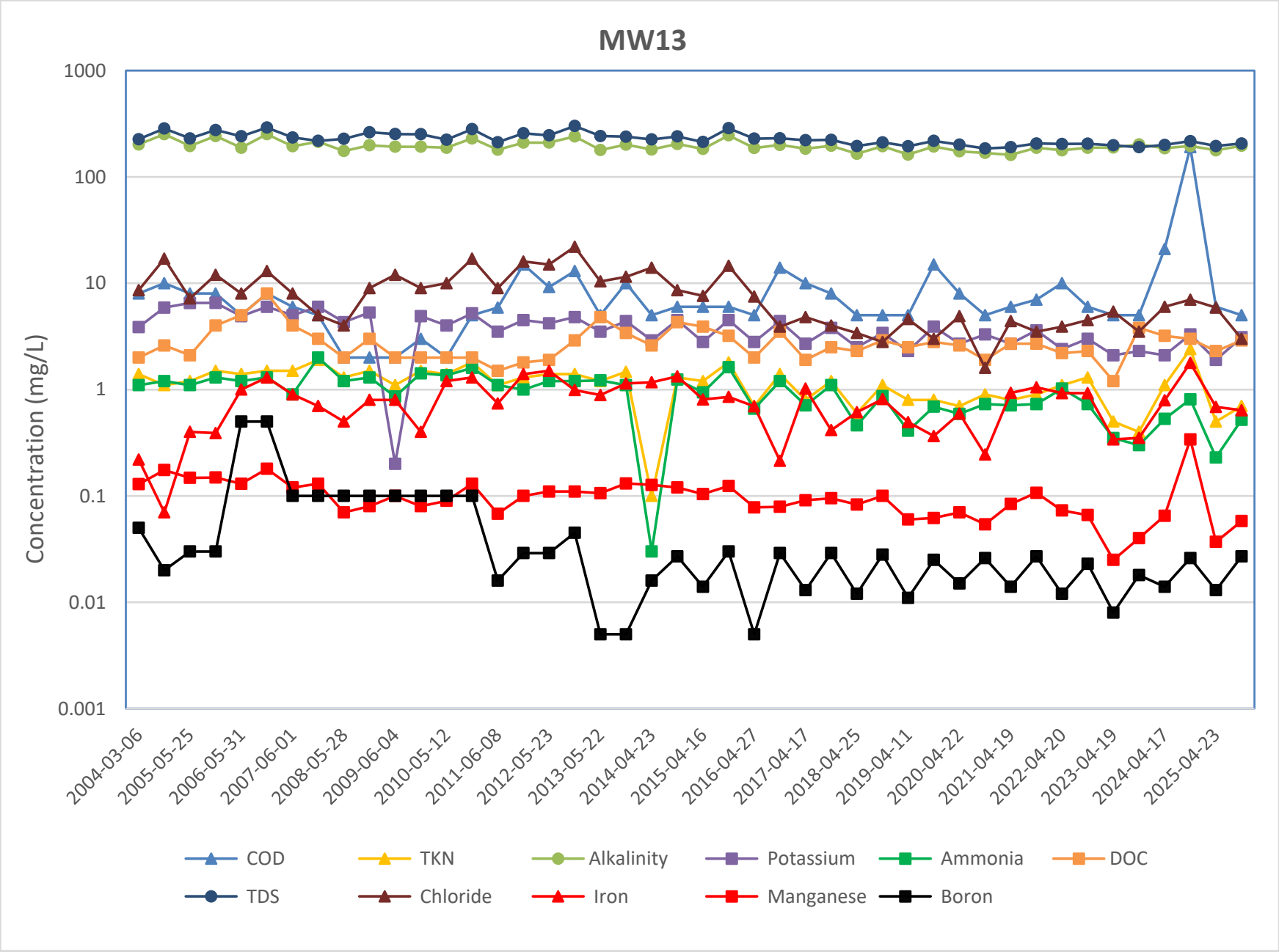
2013-05-23
2013-10-01
2014-04-23
2014-10-15
2015-04-15
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-11
2024-04-17
2024-10-07
2025-04-23
2025-10-01
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron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Concentration (mg/L)
1000
100
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0.1
0.01
0.001
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2005-05-25
2006-05-31
2007-06-01
2008-05-28
2009-06-04
2010-05-12
2011-06-08
2012-05-23
2013-05-22
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COD
TKN
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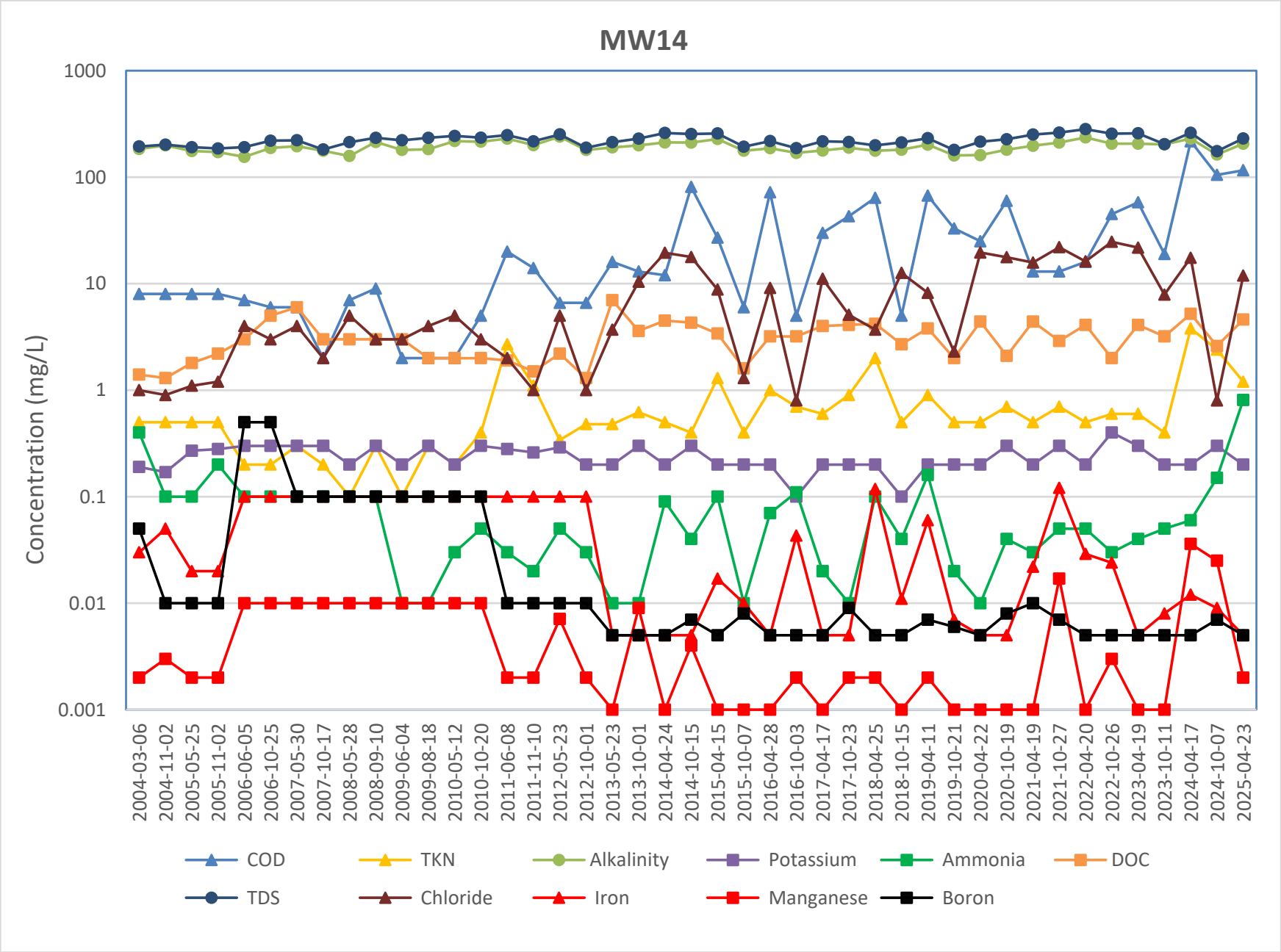
DOC
TDS
Chloride
Iron
Manganese
Boron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Concentration (mg/L)
1000
100
10
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0.1
0.01
0.001
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2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-10-25
2007-05-30
2007-10-17
2008-05-28
2008-09-10
2009-06-04
2009-08-18
2010-05-12
2010-10-20
2011-06-08
2011-11-10
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2013-10-01
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-25
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2021-04-19
2021-10-27
2022-04-20
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2023-10-11
2024-04-17
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Potassium
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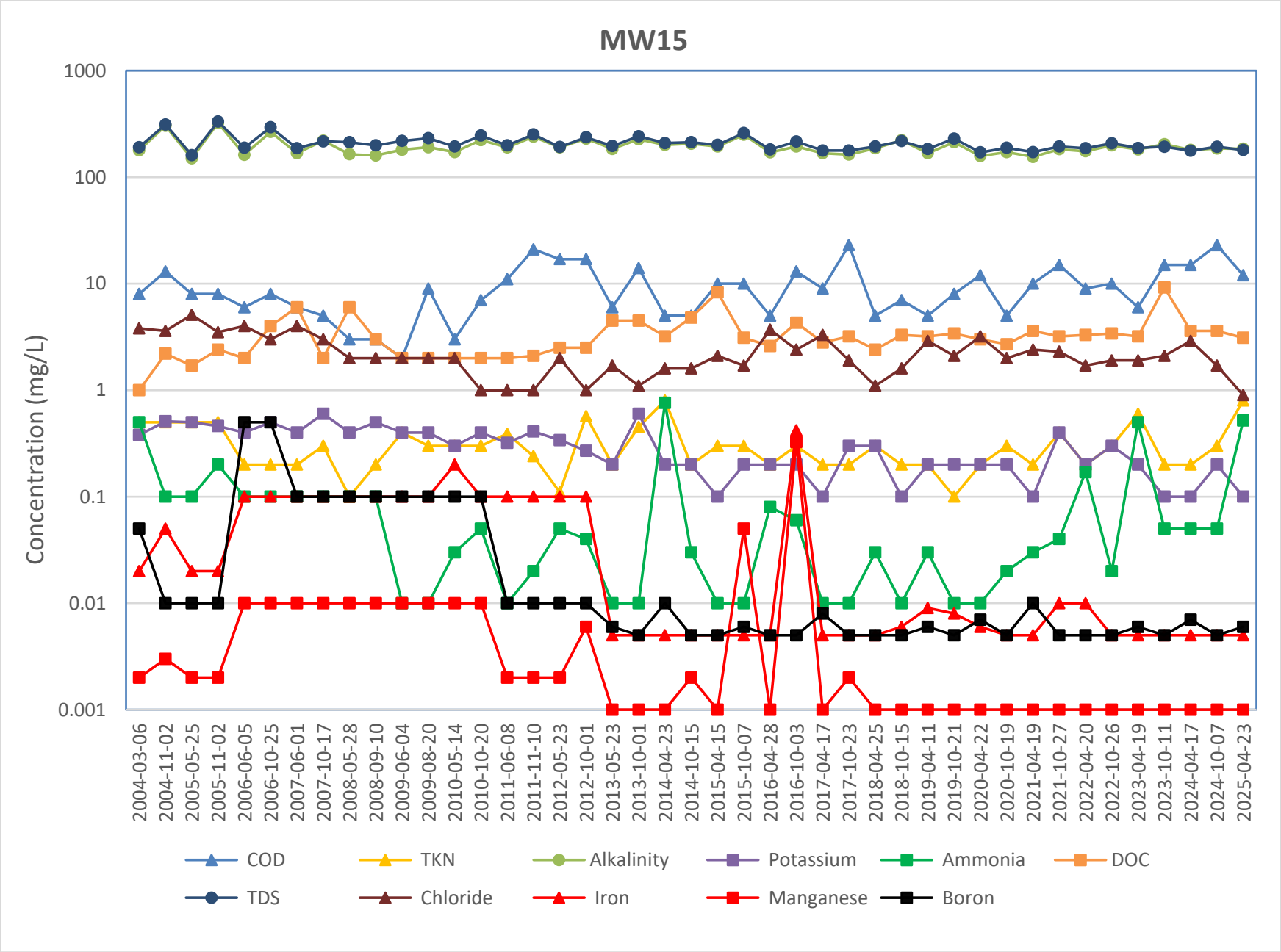
DOC
TDS
Chloride
Iron
Manganese
Boron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Concentration (mg/L)
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100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
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2009-06-04
2009-08-20
2010-05-14
2010-10-20
2011-06-08
2011-11-10
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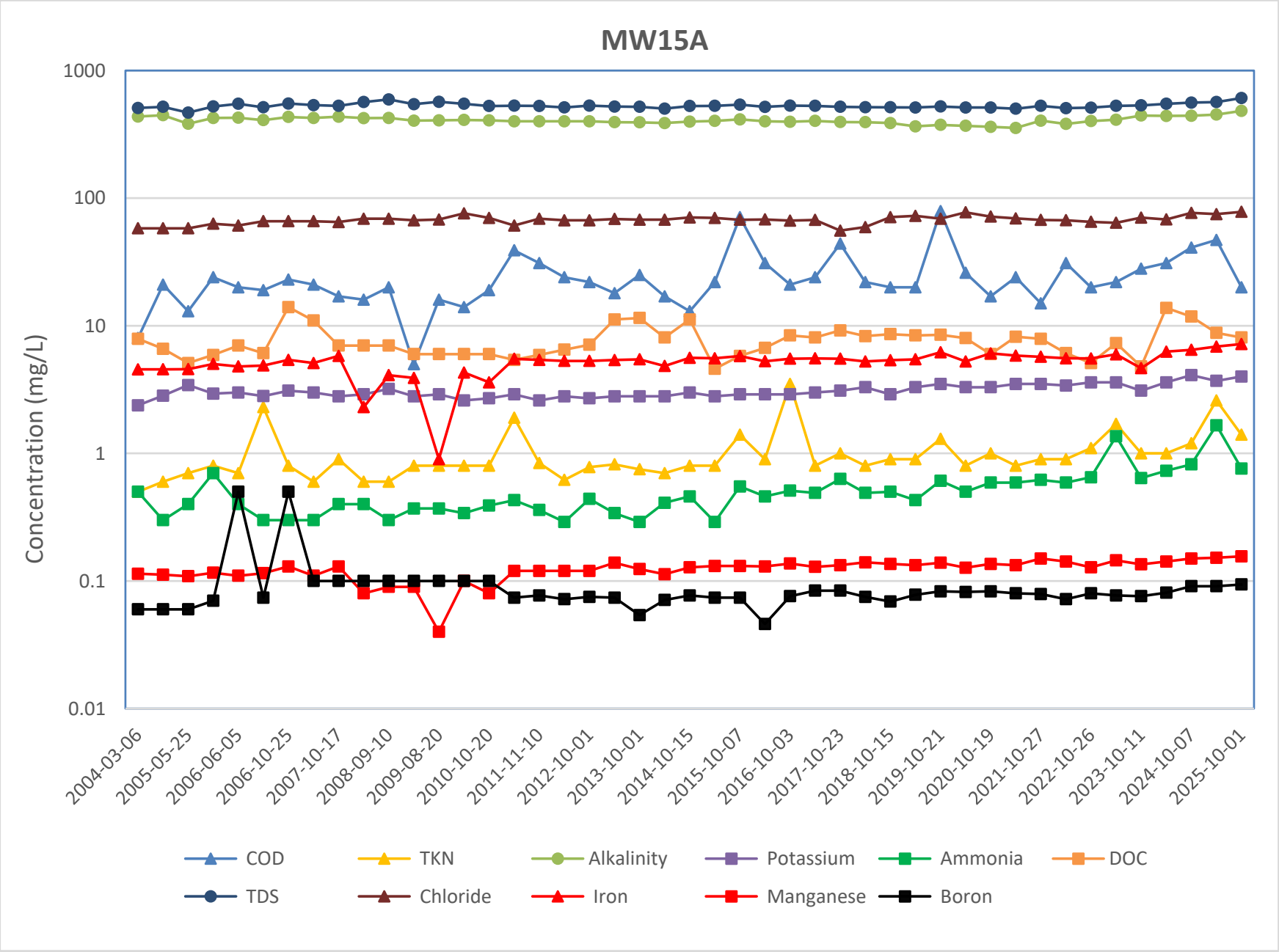
Iron
Manganese
Boron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Concentration (mg/L)
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100
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0.1
0.01
2004-03-06
2005-05-25
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2007-10-17
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Iron
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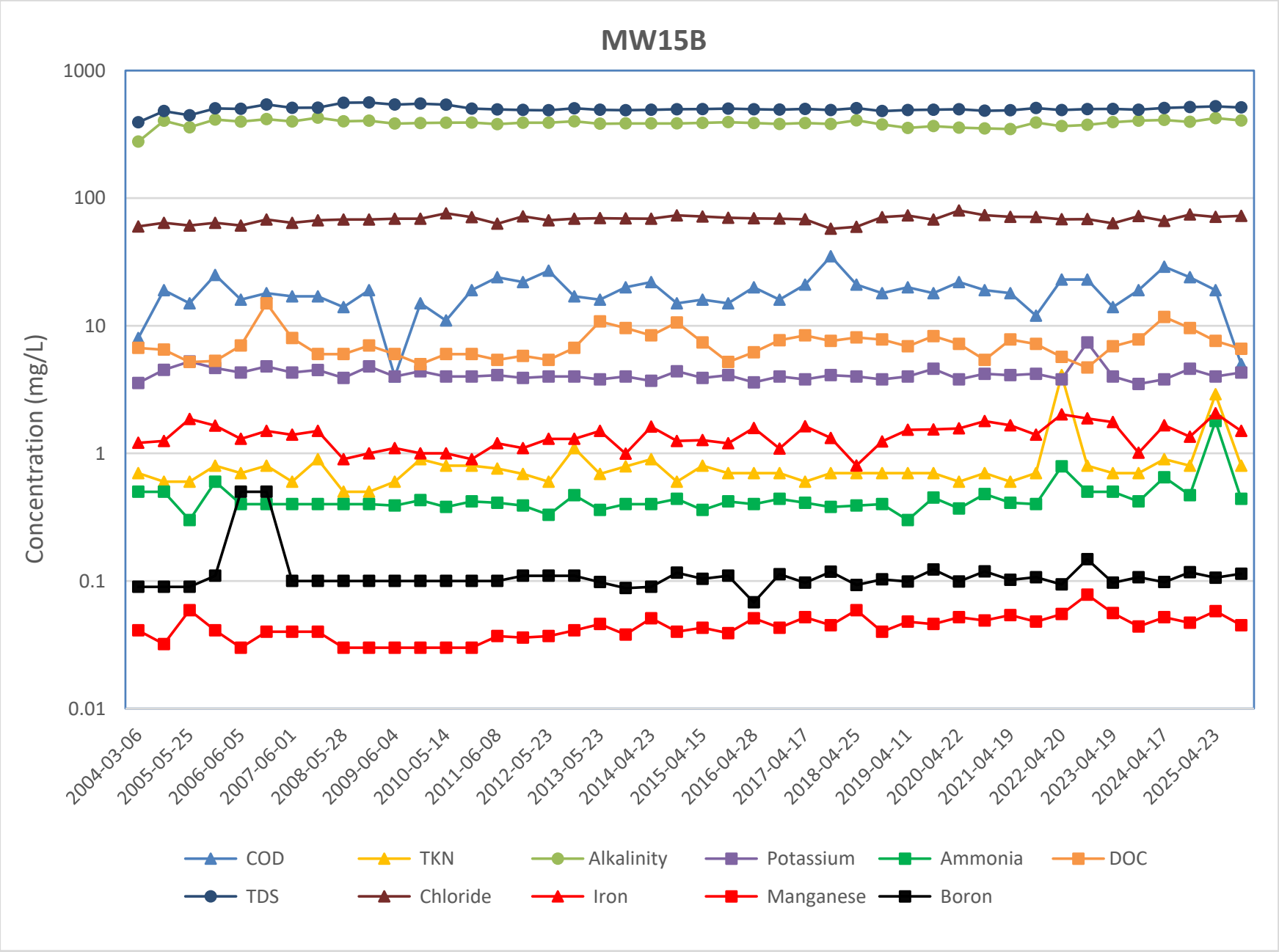
MW15B
Concentration (mg/L)
1000
100
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1
0.1
0.01
2004-03-06
2005-05-25
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Ammonia
DOC
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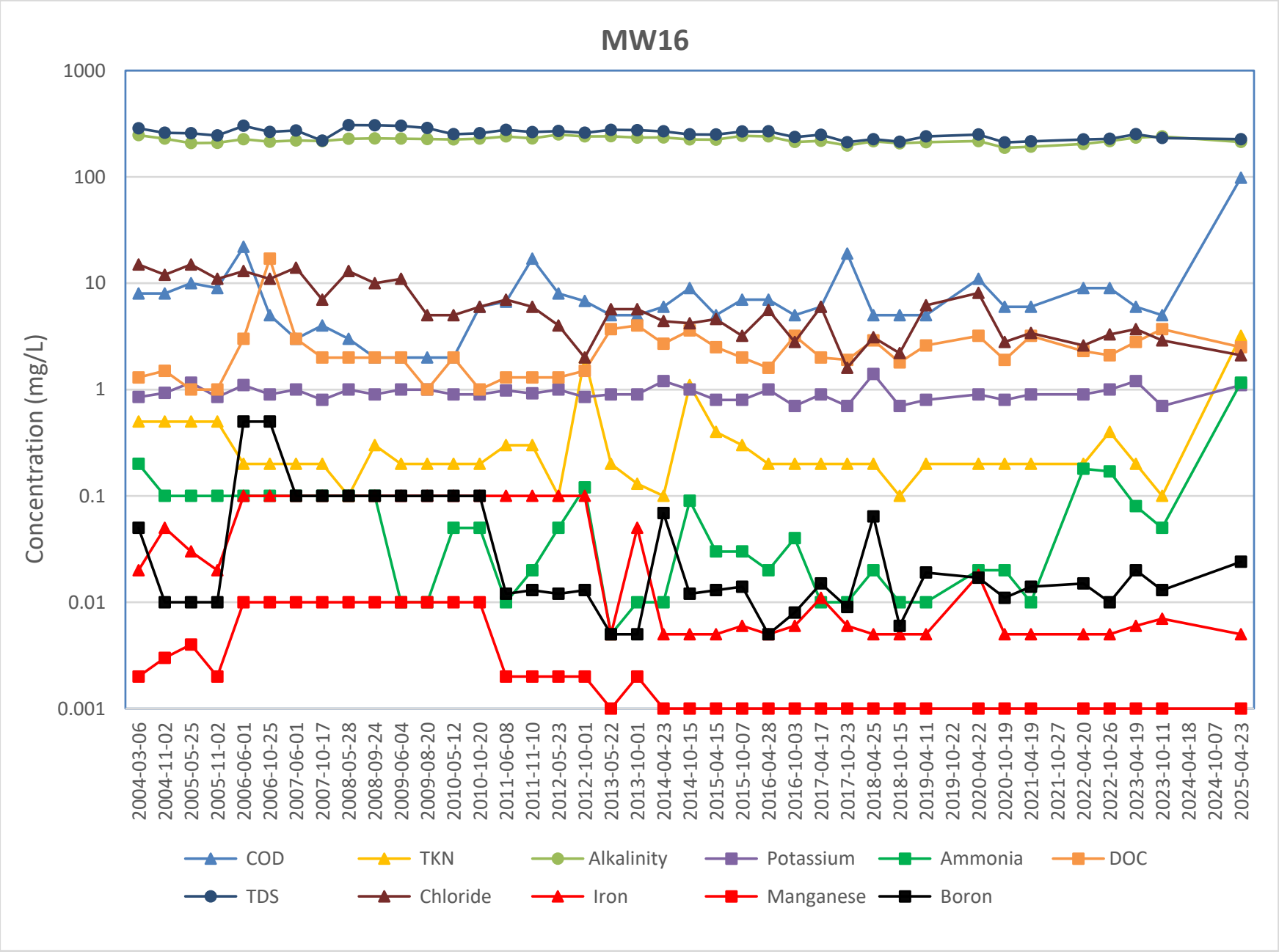
Chloride
Iron
Manganese
Boron


MW16
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
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Ammonia
DOC
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Chloride
Iron
Manganese
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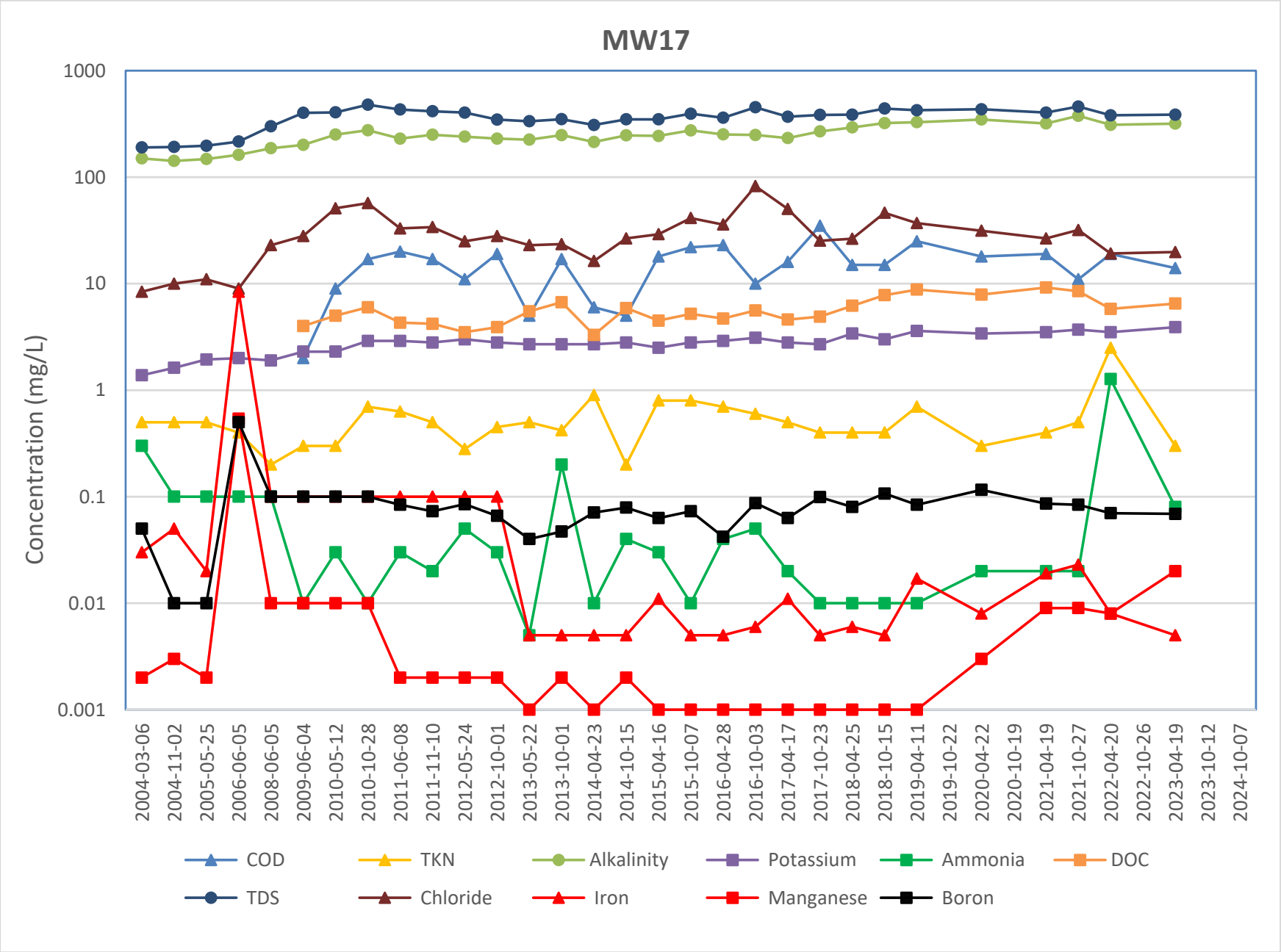
MW17
Concentration (mg/L)
1000
100
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1
0.1
0.01
0.001
2004-03-06
2004-11-02
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2006-06-05
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2009-06-04
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2010-10-28
2011-06-08
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Iron
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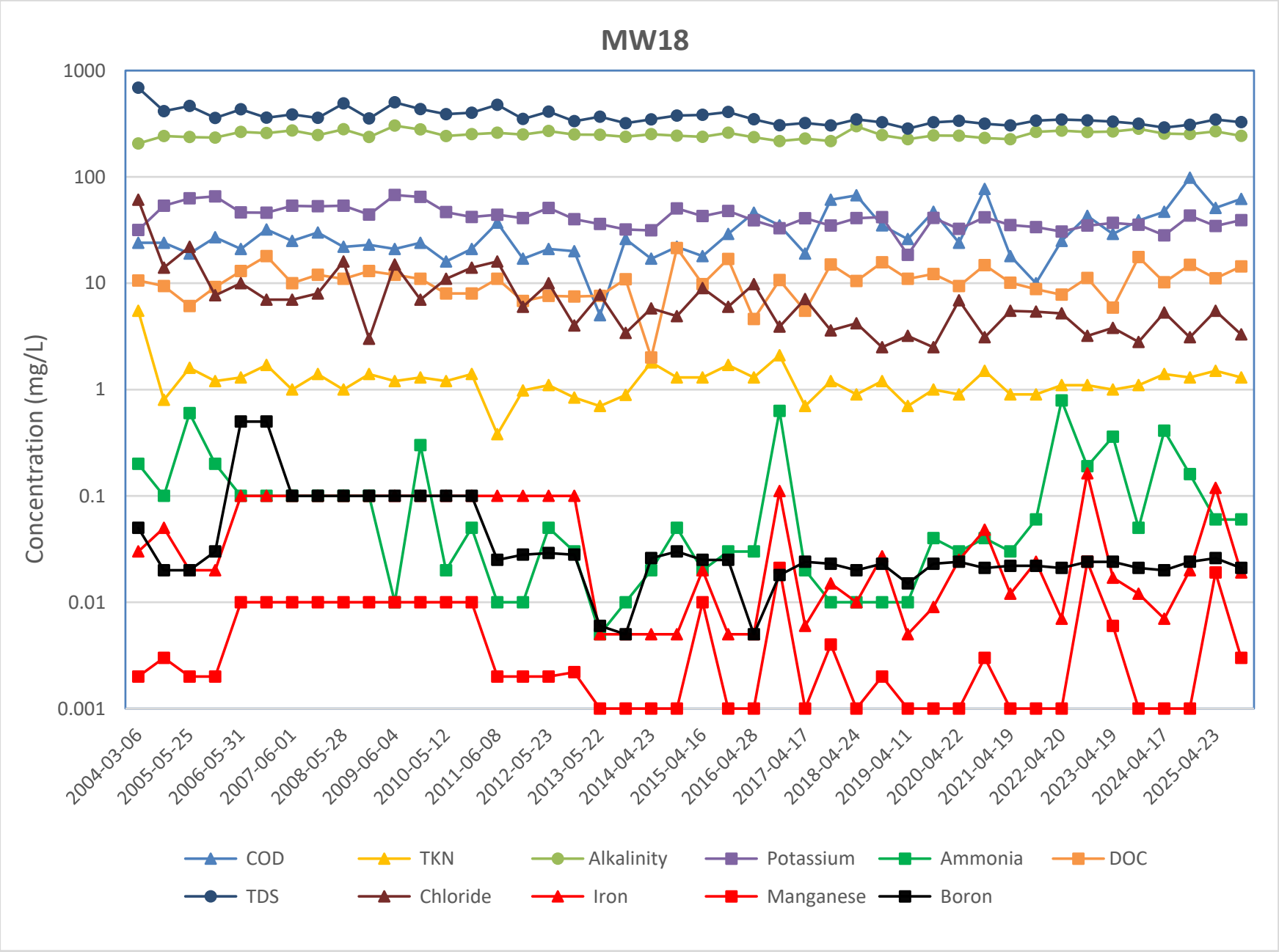
MW18
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2005-05-25
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2012-05-23
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2014-04-23
2015-04-16
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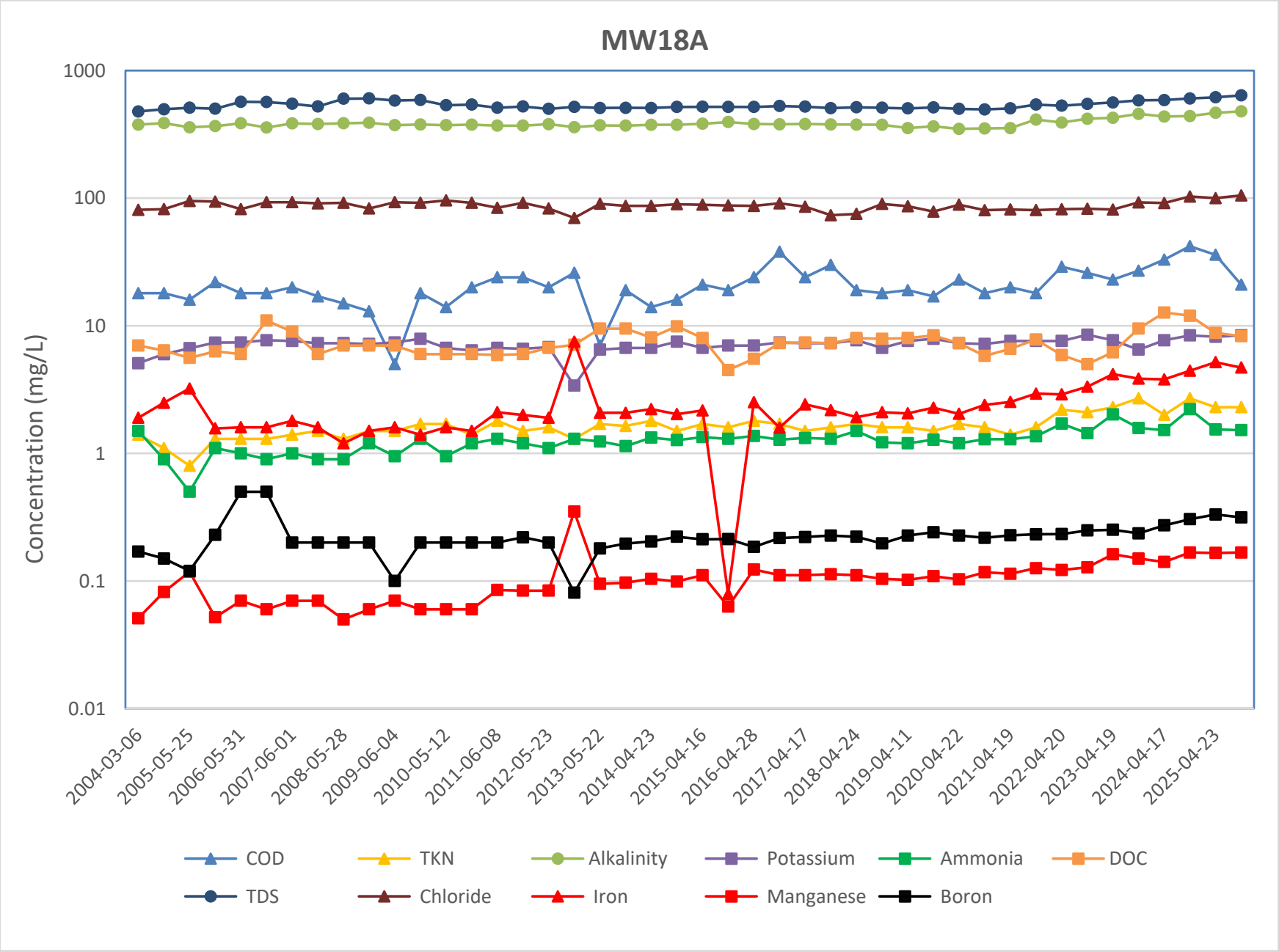
MW18A
Concentration (mg/L)
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100
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1
0.1
0.01
2004-03-06
2005-05-25
2006-05-31
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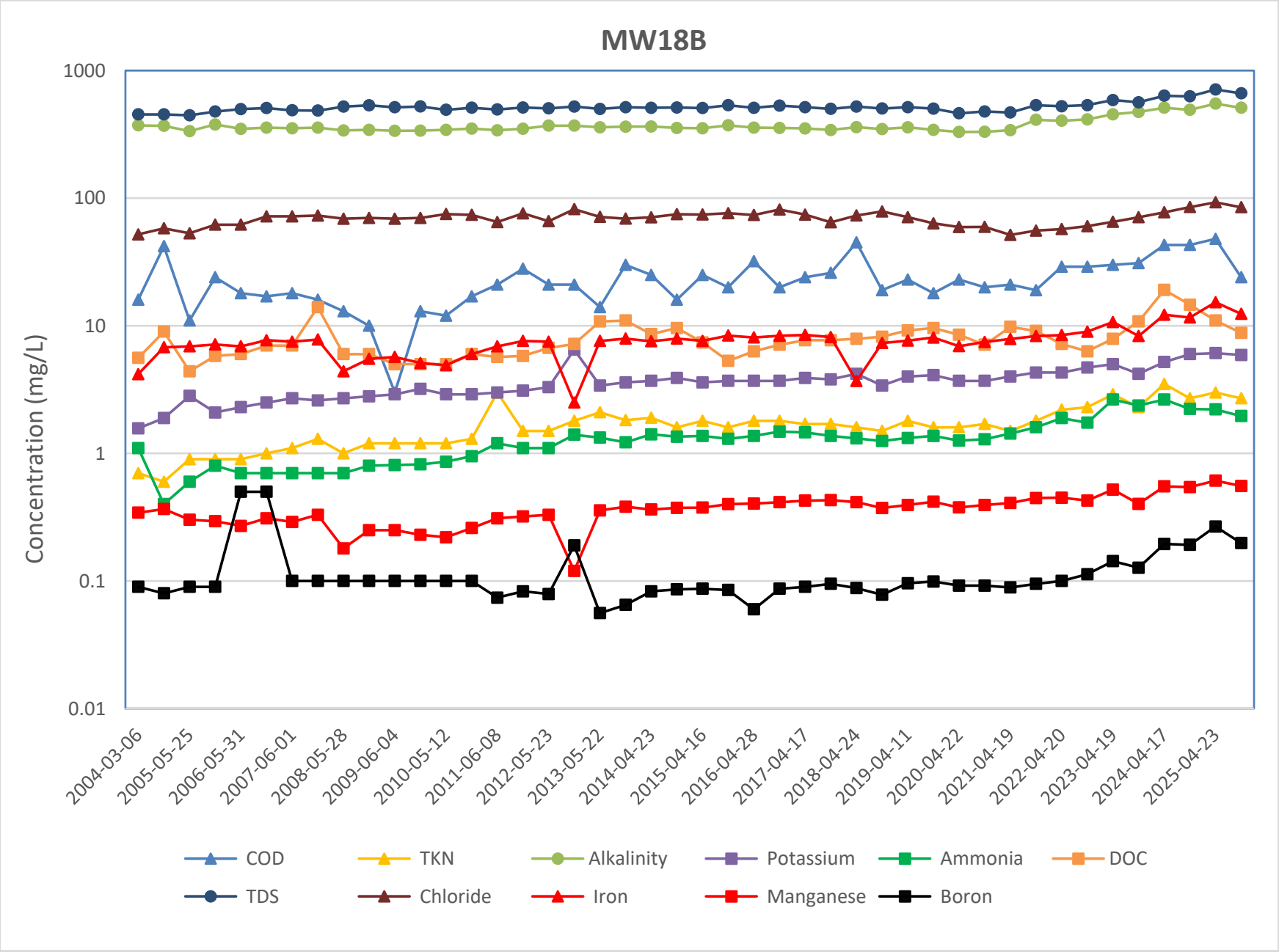
MW18B
Concentration (mg/L)
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100
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1
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2004-03-06
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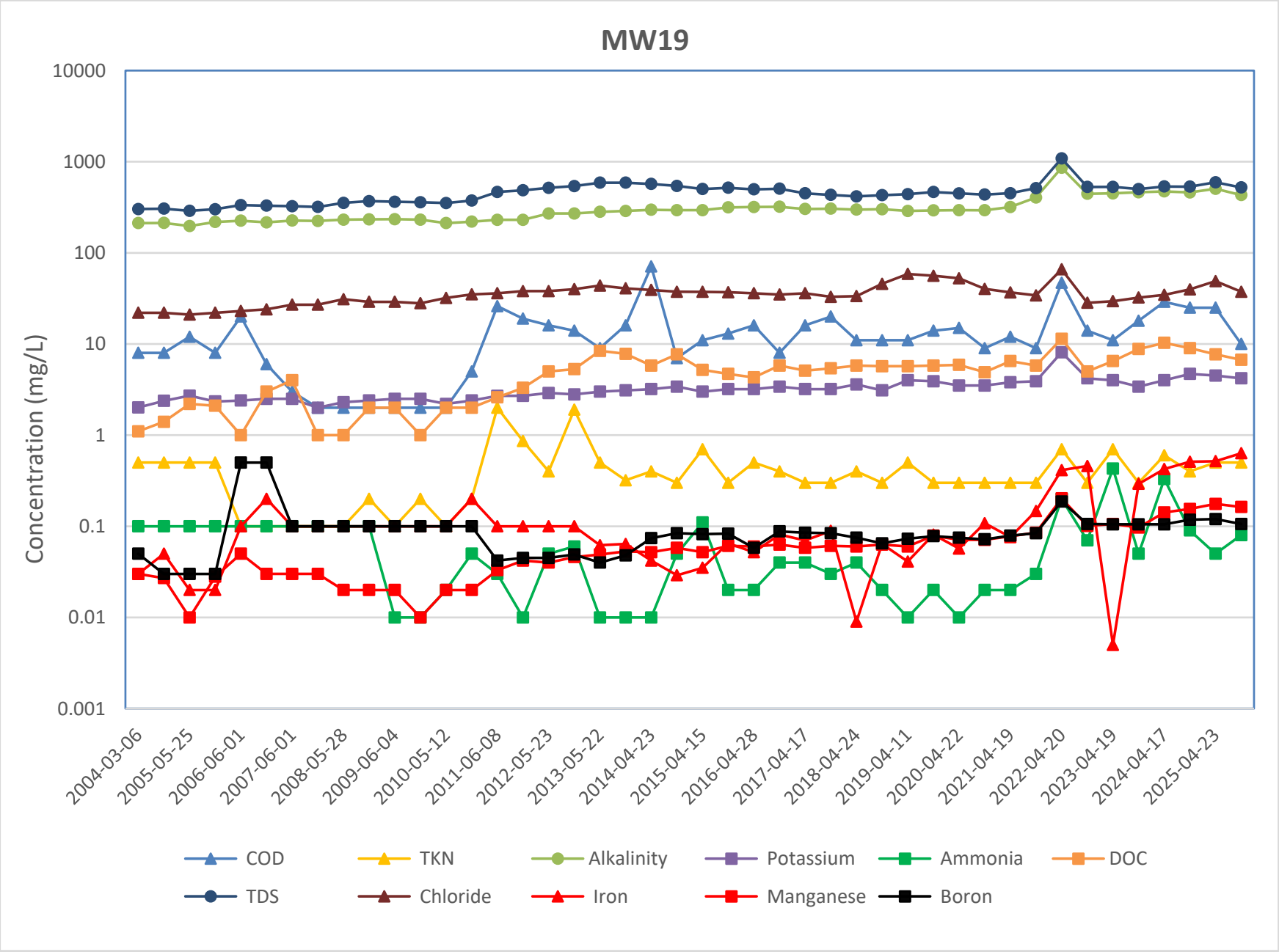
MW19
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
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2007-06-01
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2009-06-04
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2011-06-08
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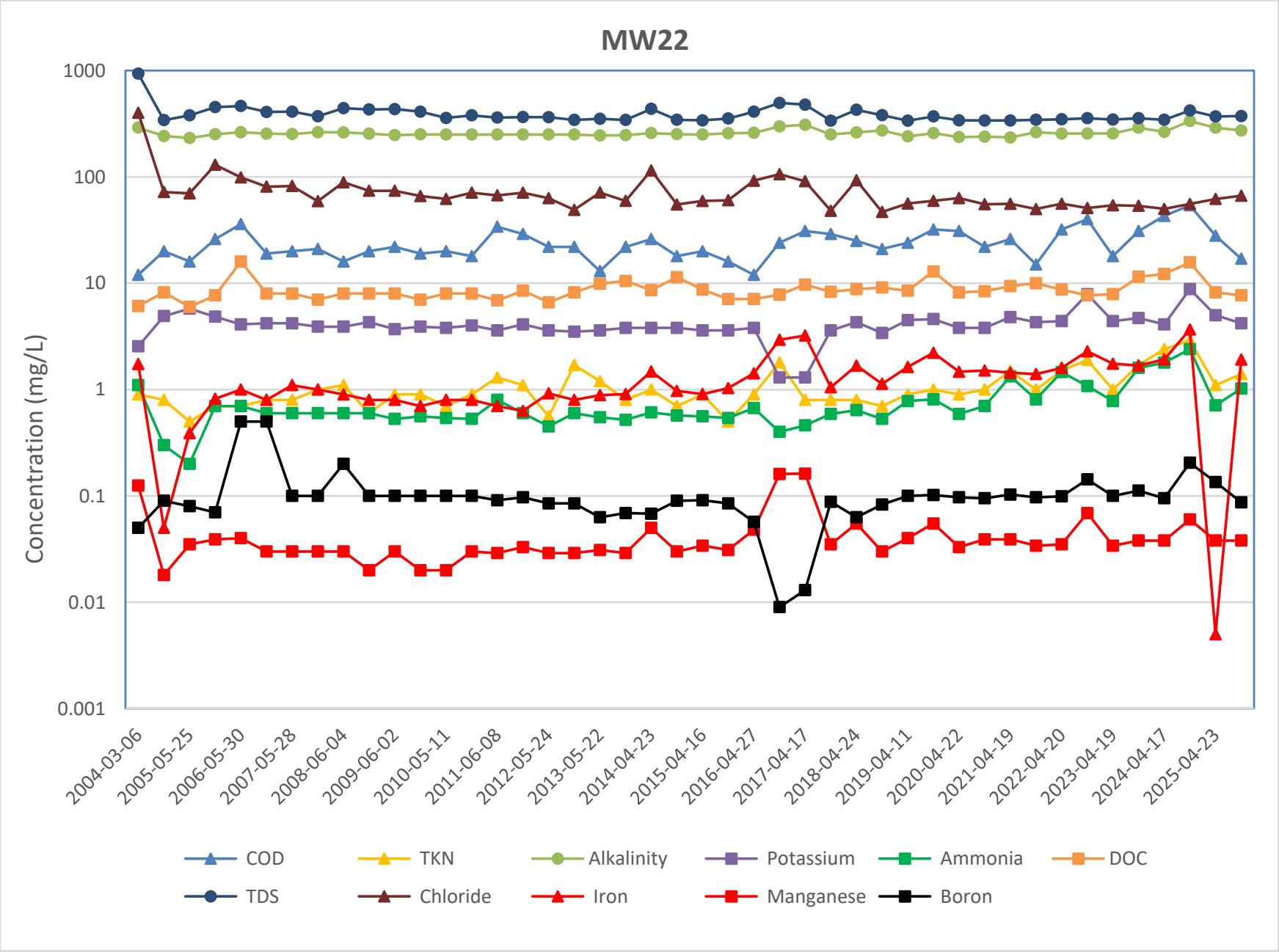
MW22
Concentration (mg/L)
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0.01
0.001
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2011-06-08
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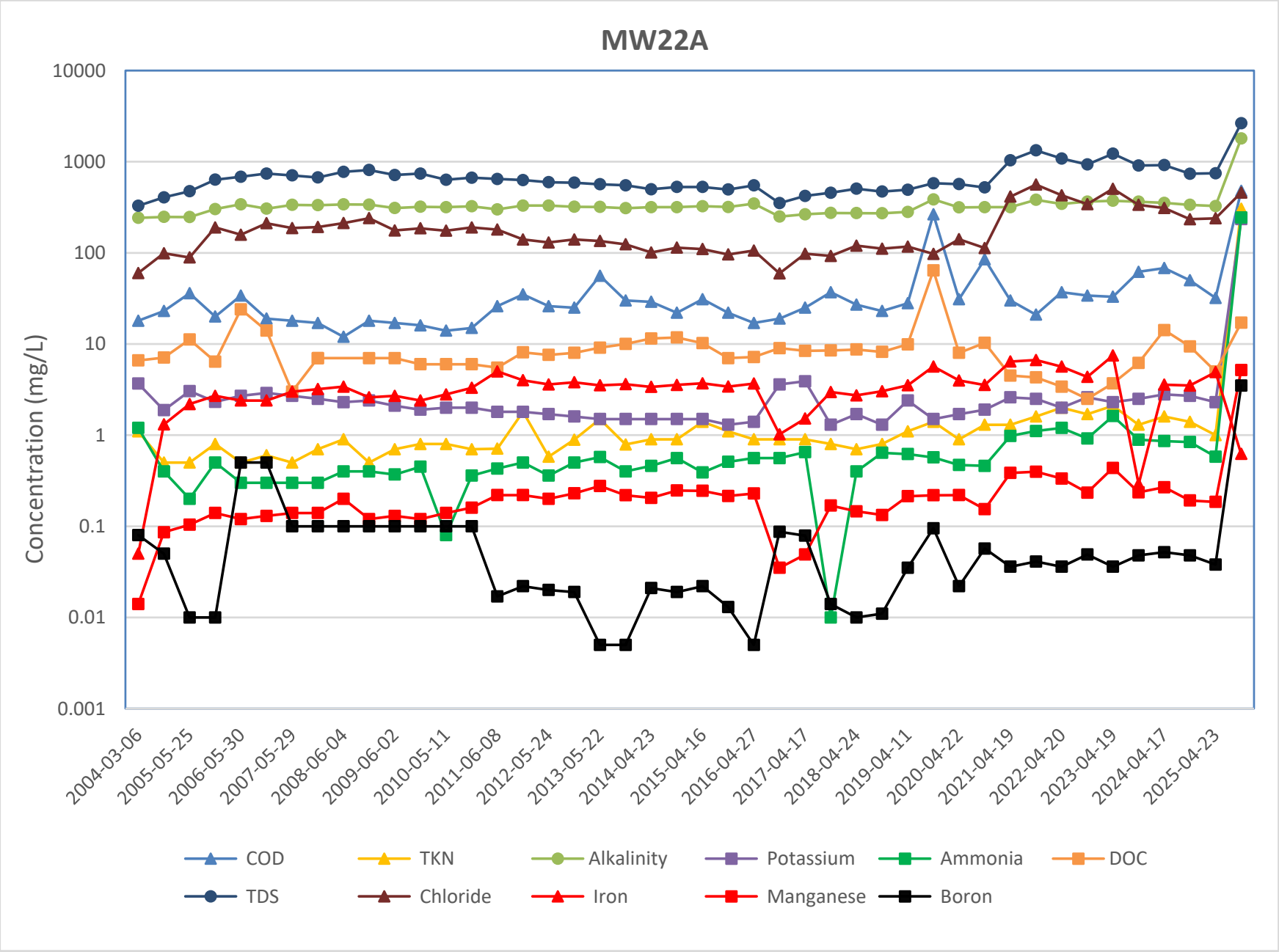
MW22A
Concentration (mg/L)
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2007-05-29
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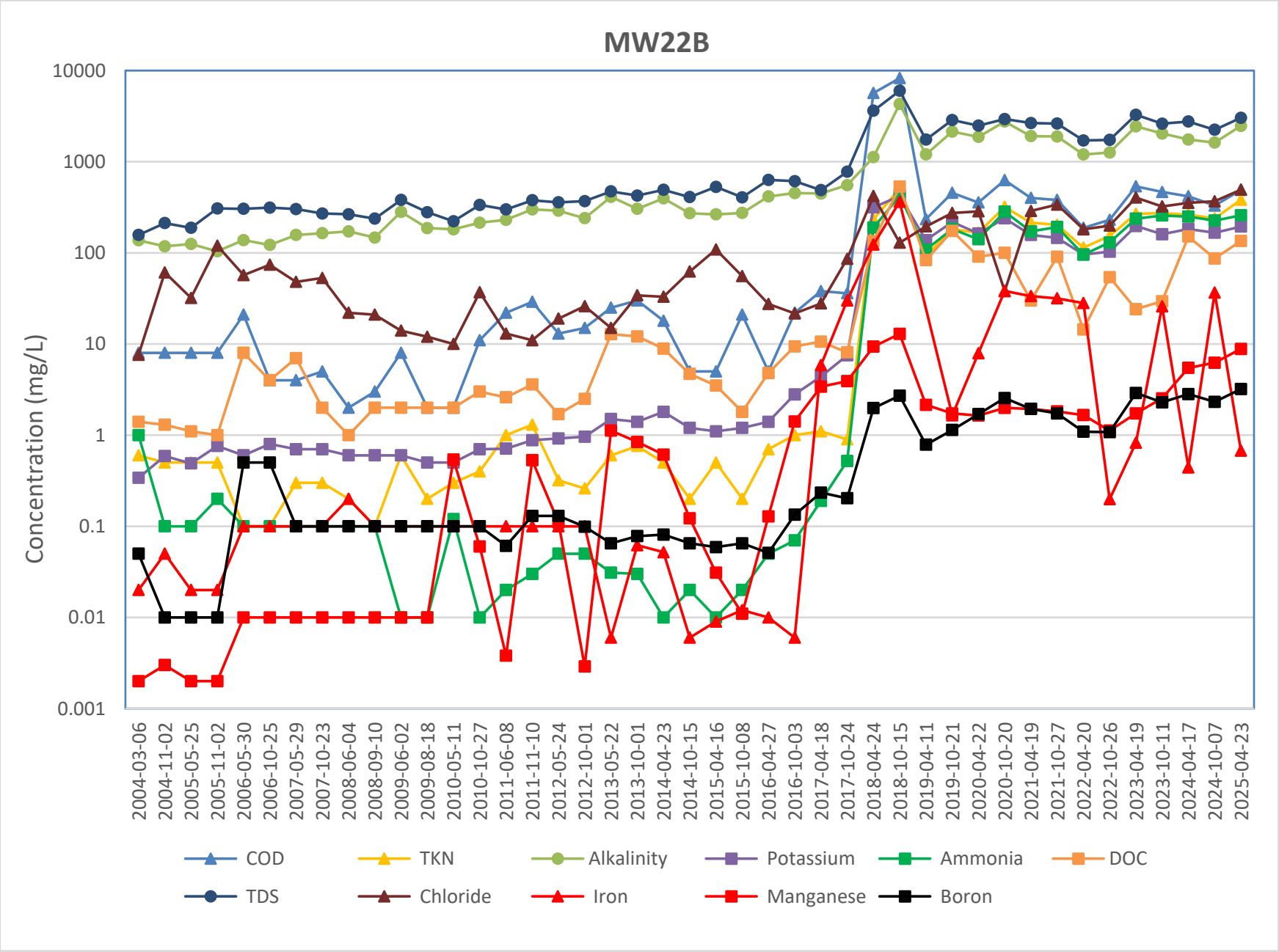
MW22B
Concentration (mg/L)
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1000
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10
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0.01
0.001
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Iron
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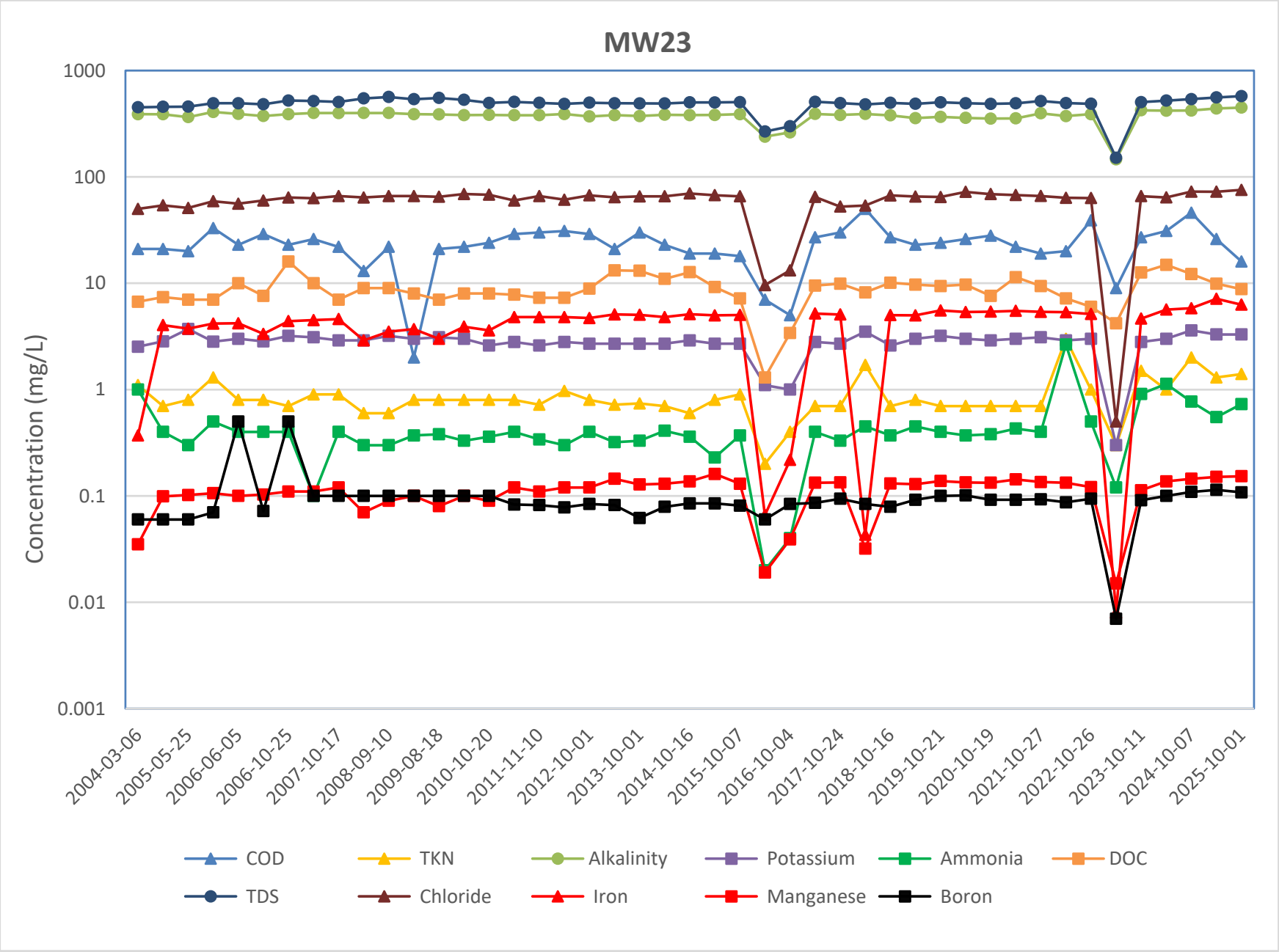
Boron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Concentration (mg/L)
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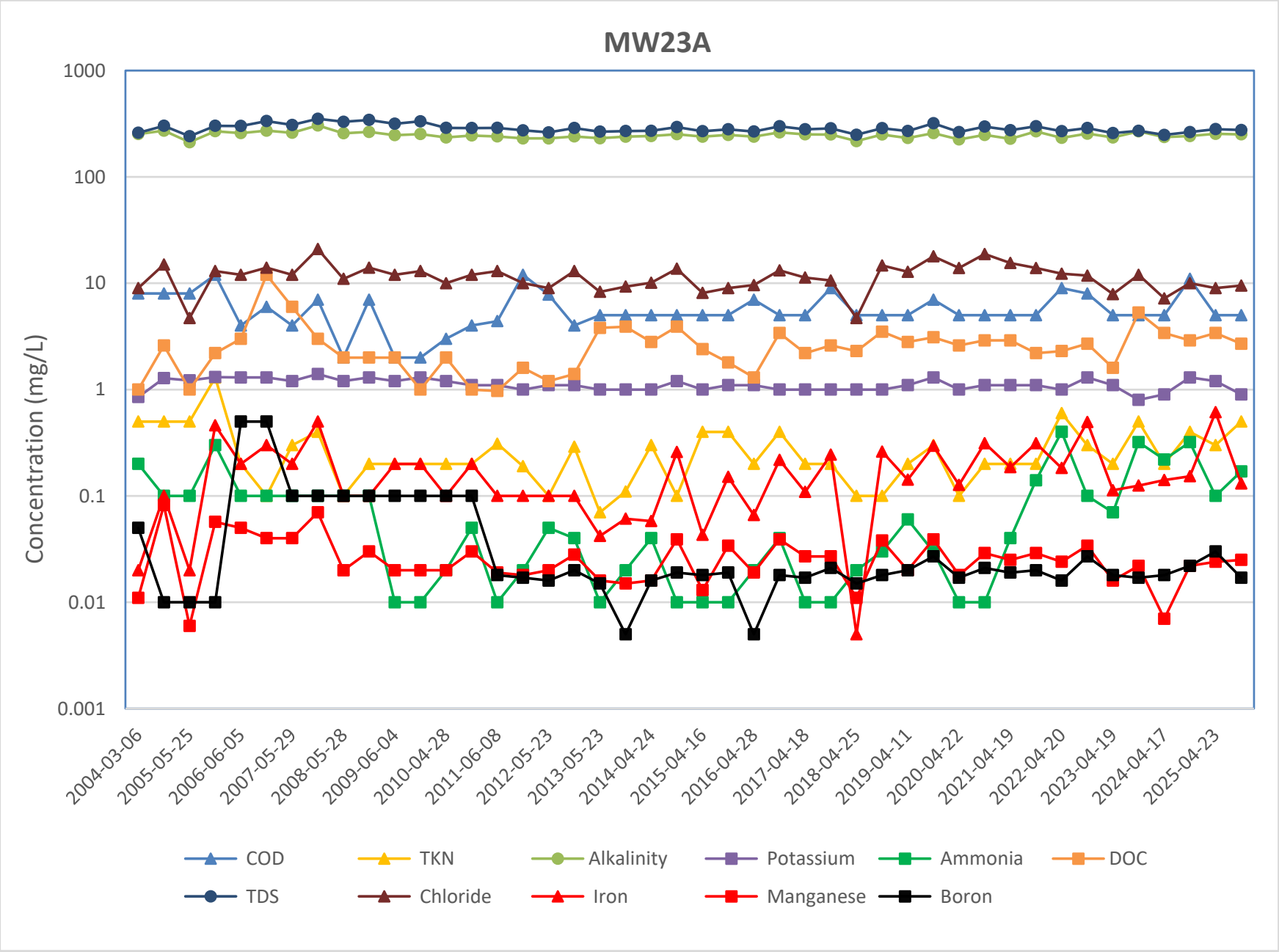
MW23A
Concentration (mg/L)
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0.001
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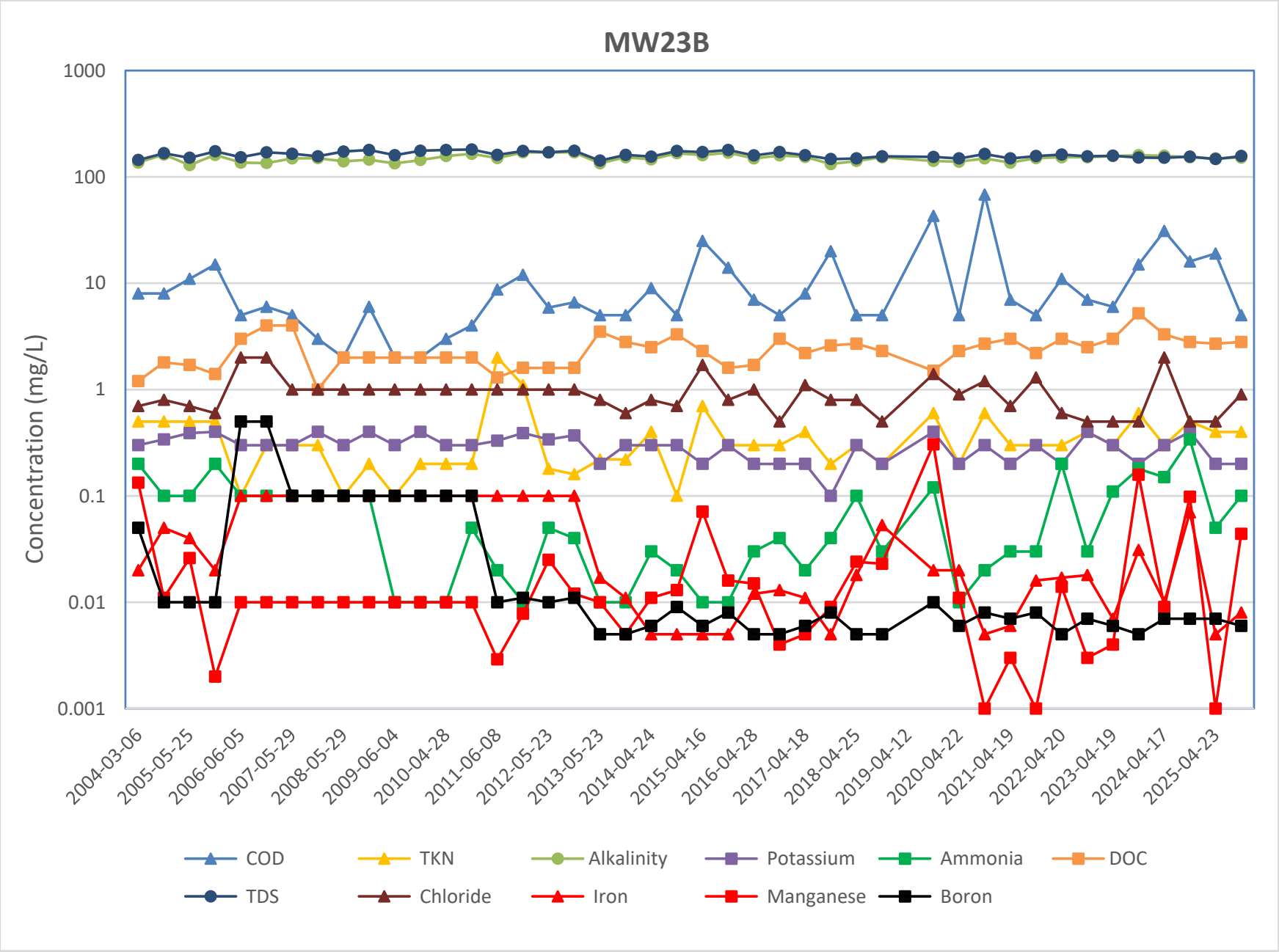
MW23B
Concentration (mg/L)
1000
100
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0.01
0.001
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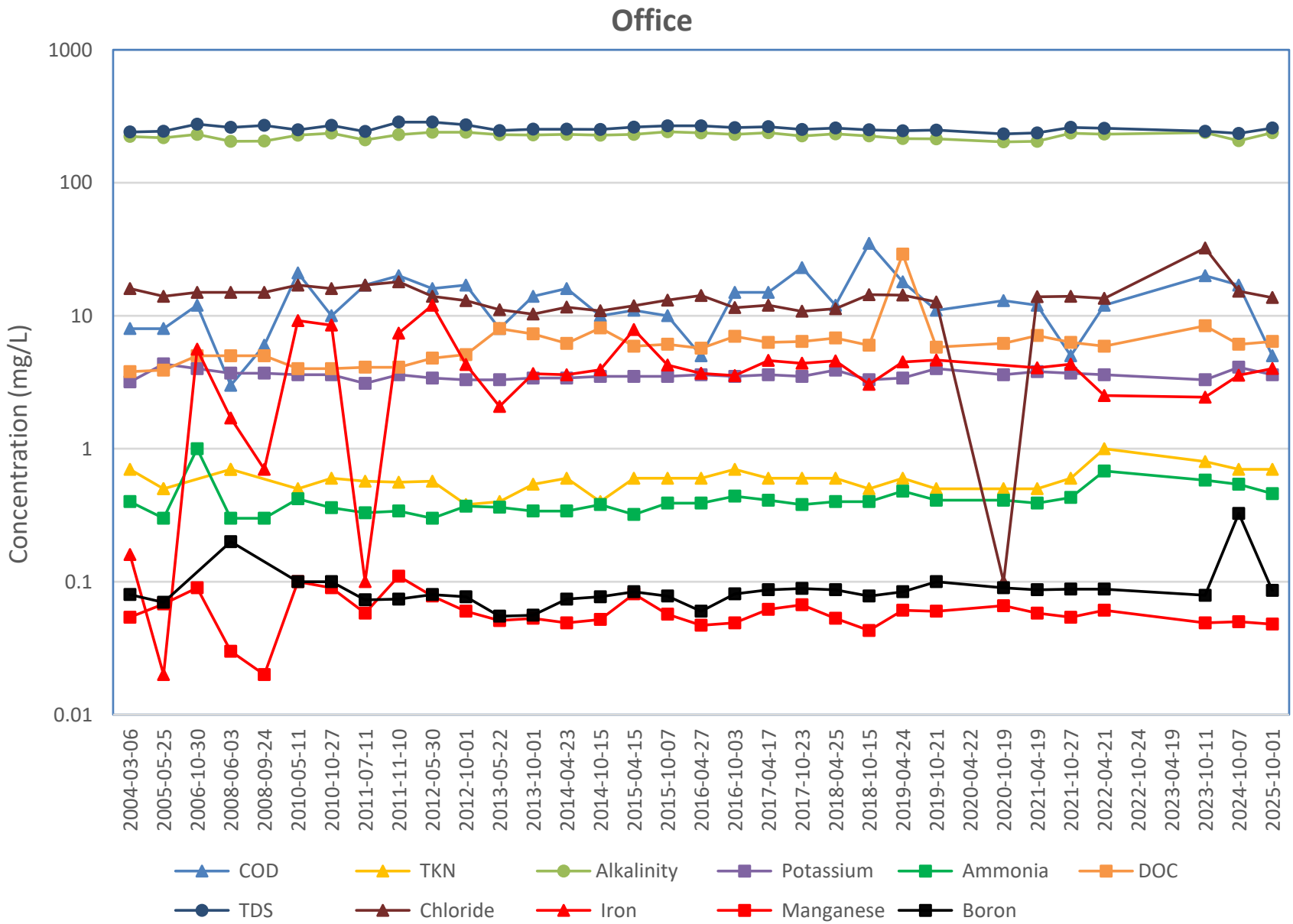
Iron
Manganese
Boron


Office
Concentration (mg/L)
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100
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0.1
0.01
2004-03-06
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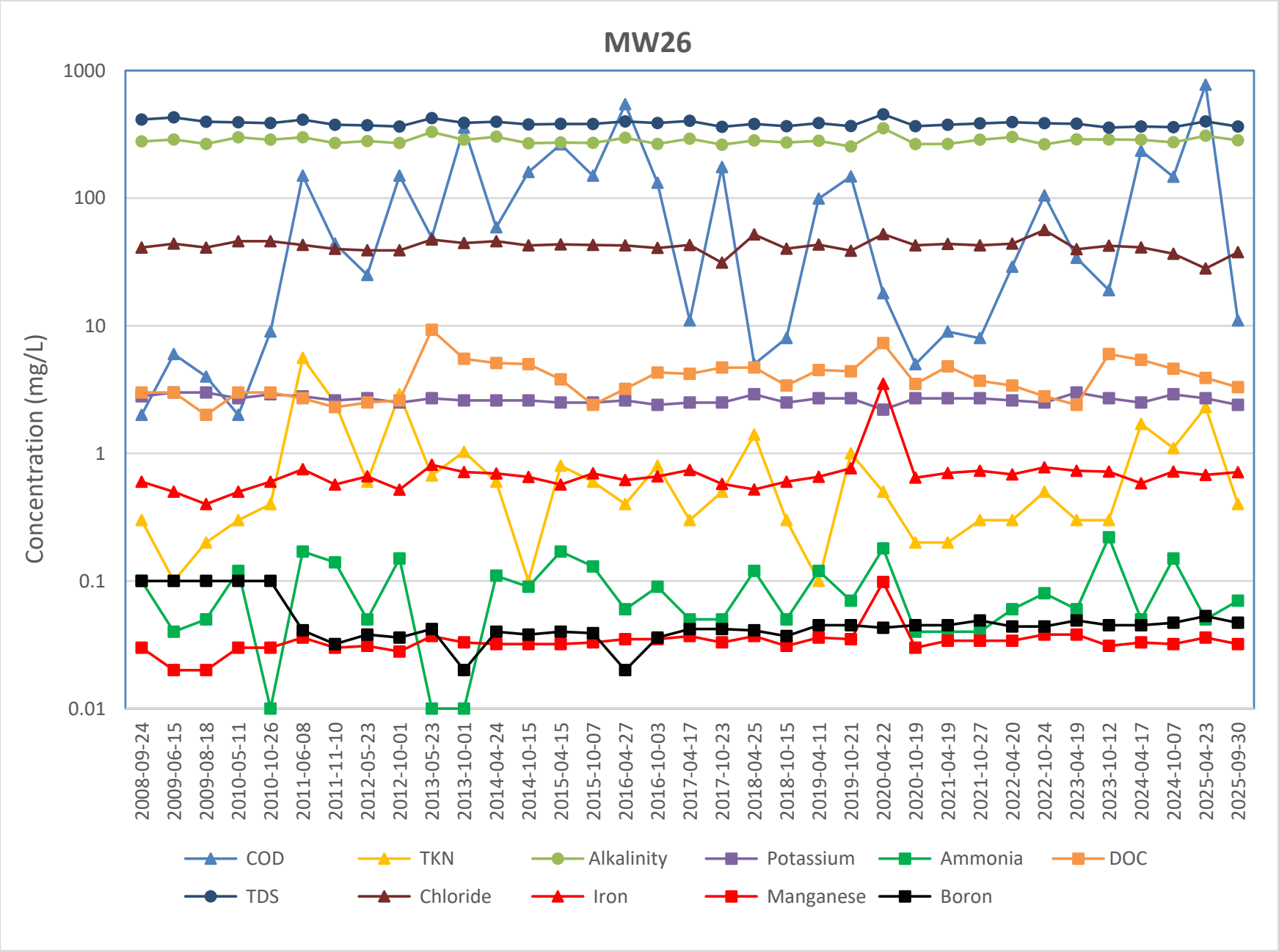
DOC
TDS
Chloride
Iron
Manganese
Boron


MW26
Concentration (mg/L)
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0.1
0.01
2008-09-24
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Iron
Manganese
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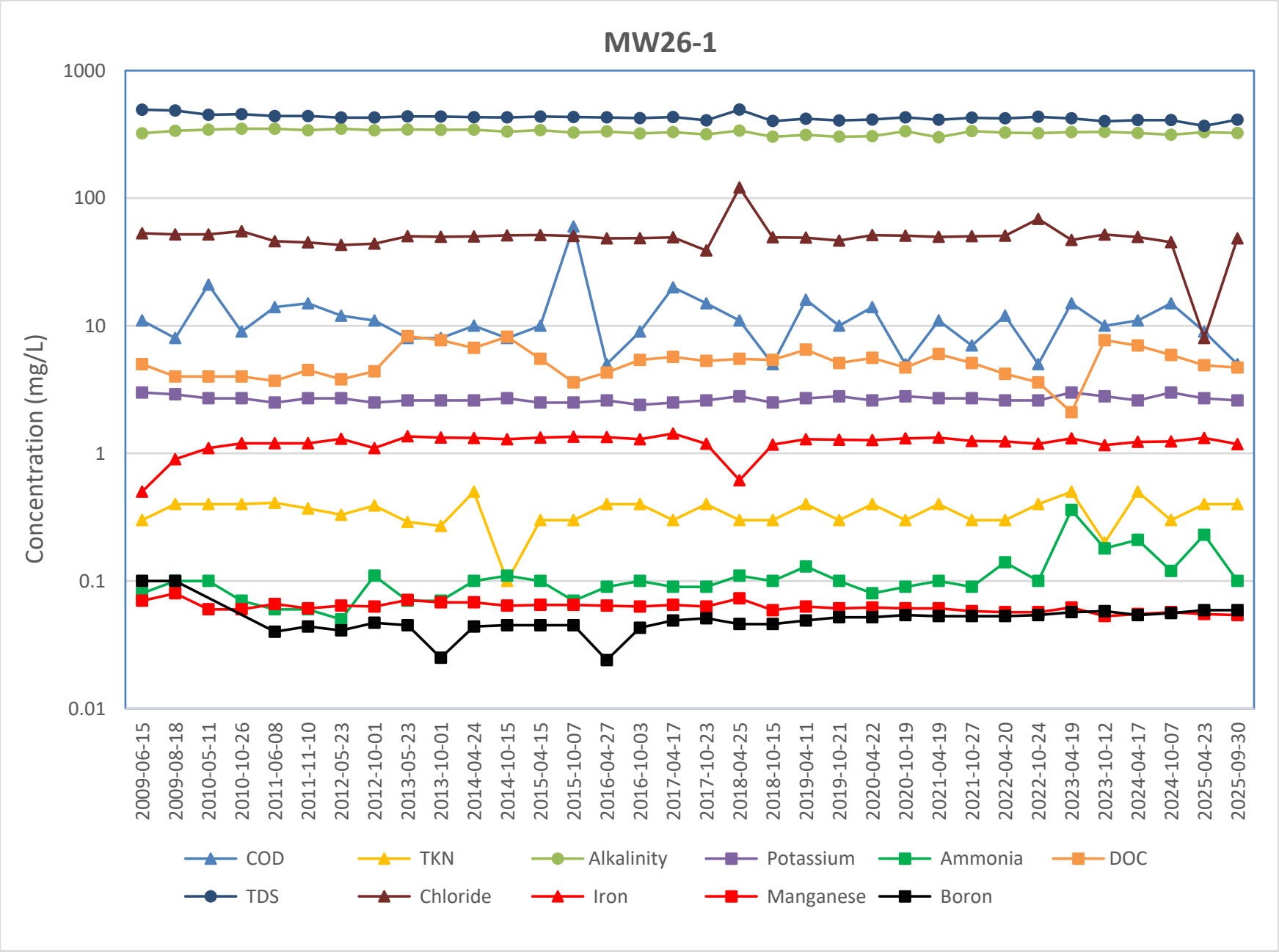
MW26-1
Concentration (mg/L)
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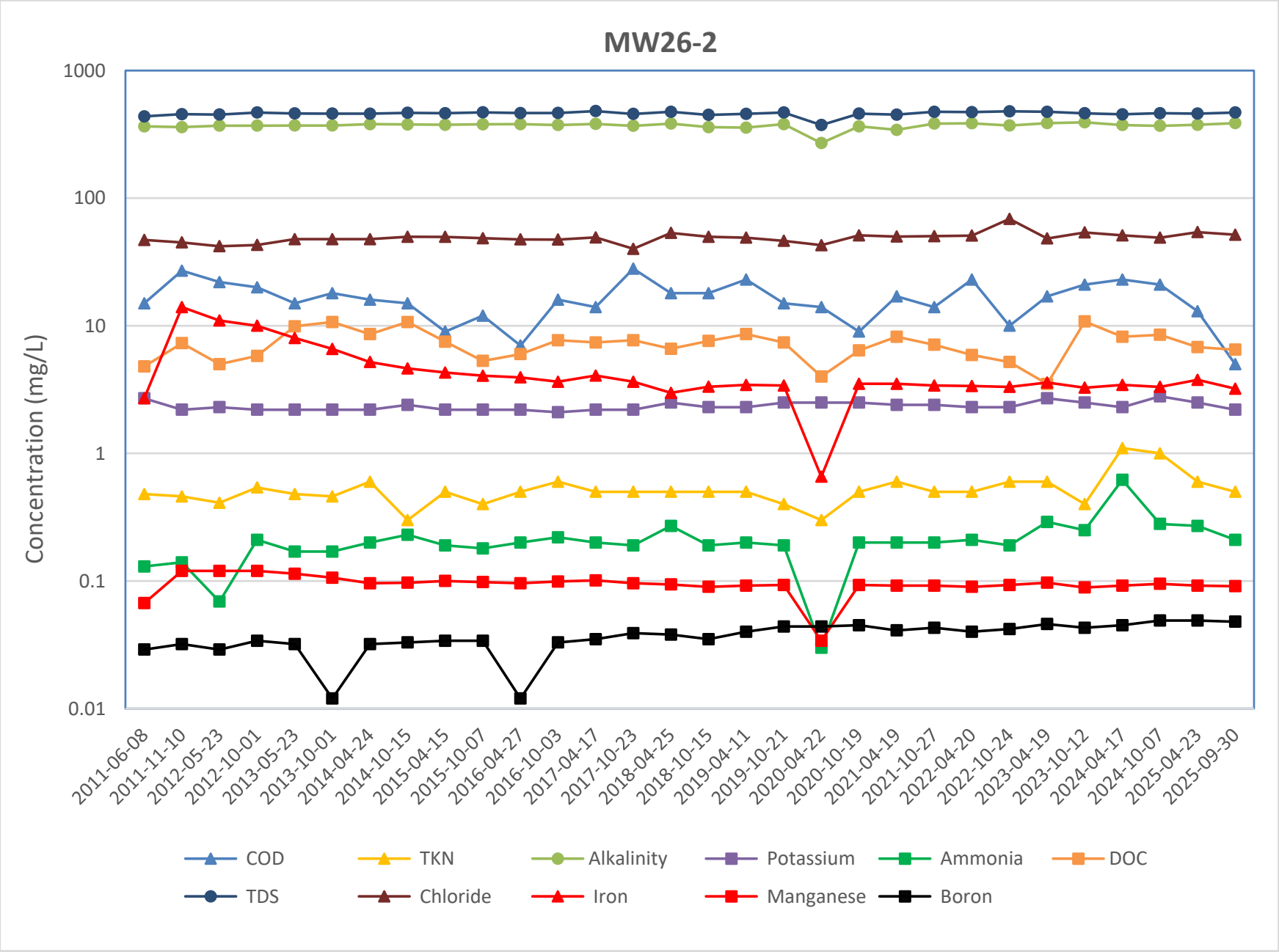
Chloride
Iron
Manganese
Boron


MW26-2
Concentration (mg/L)
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Ammonia
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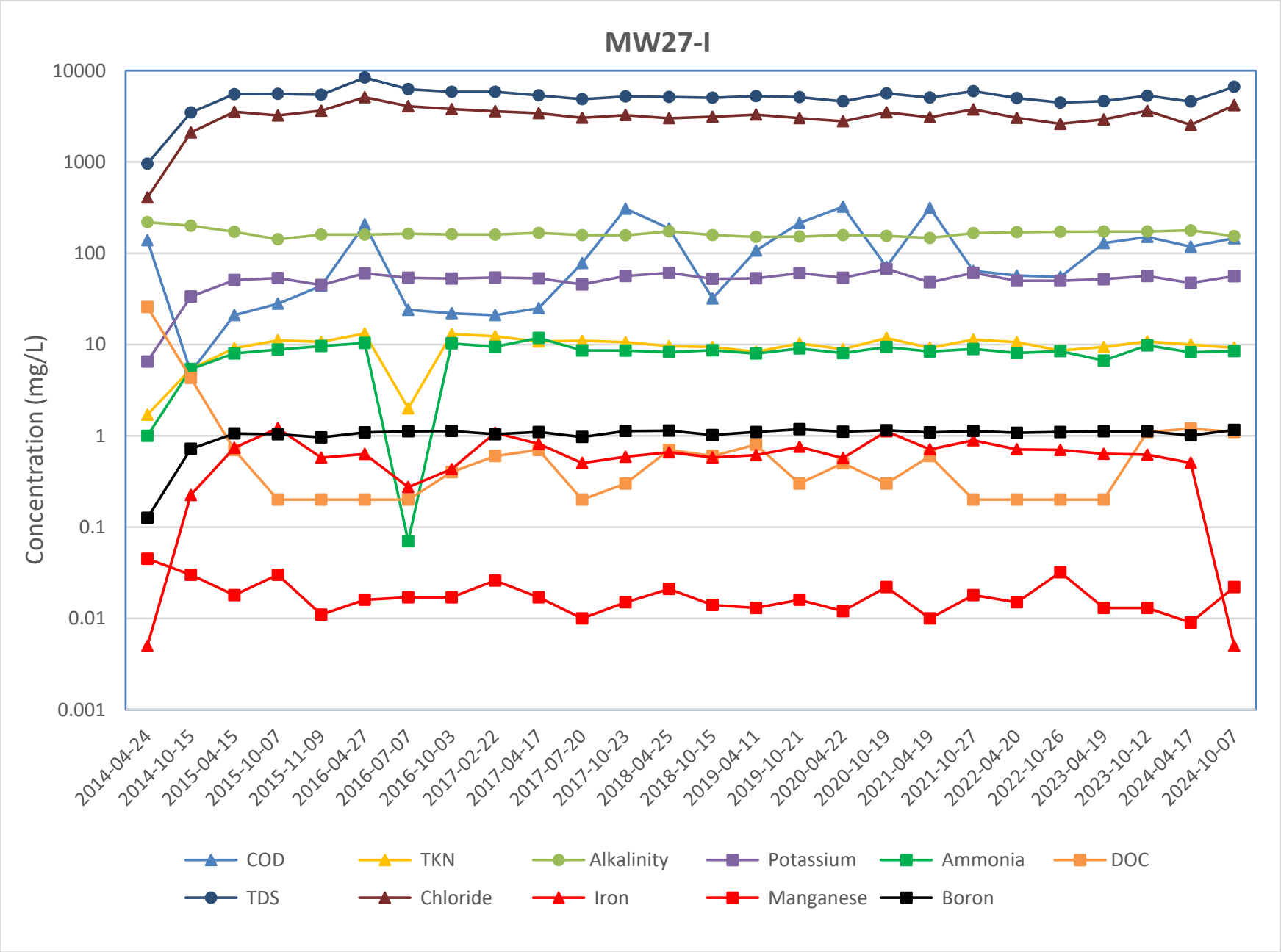
Chloride
Iron
Manganese
Boron


MW27-I
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2015-11-09
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
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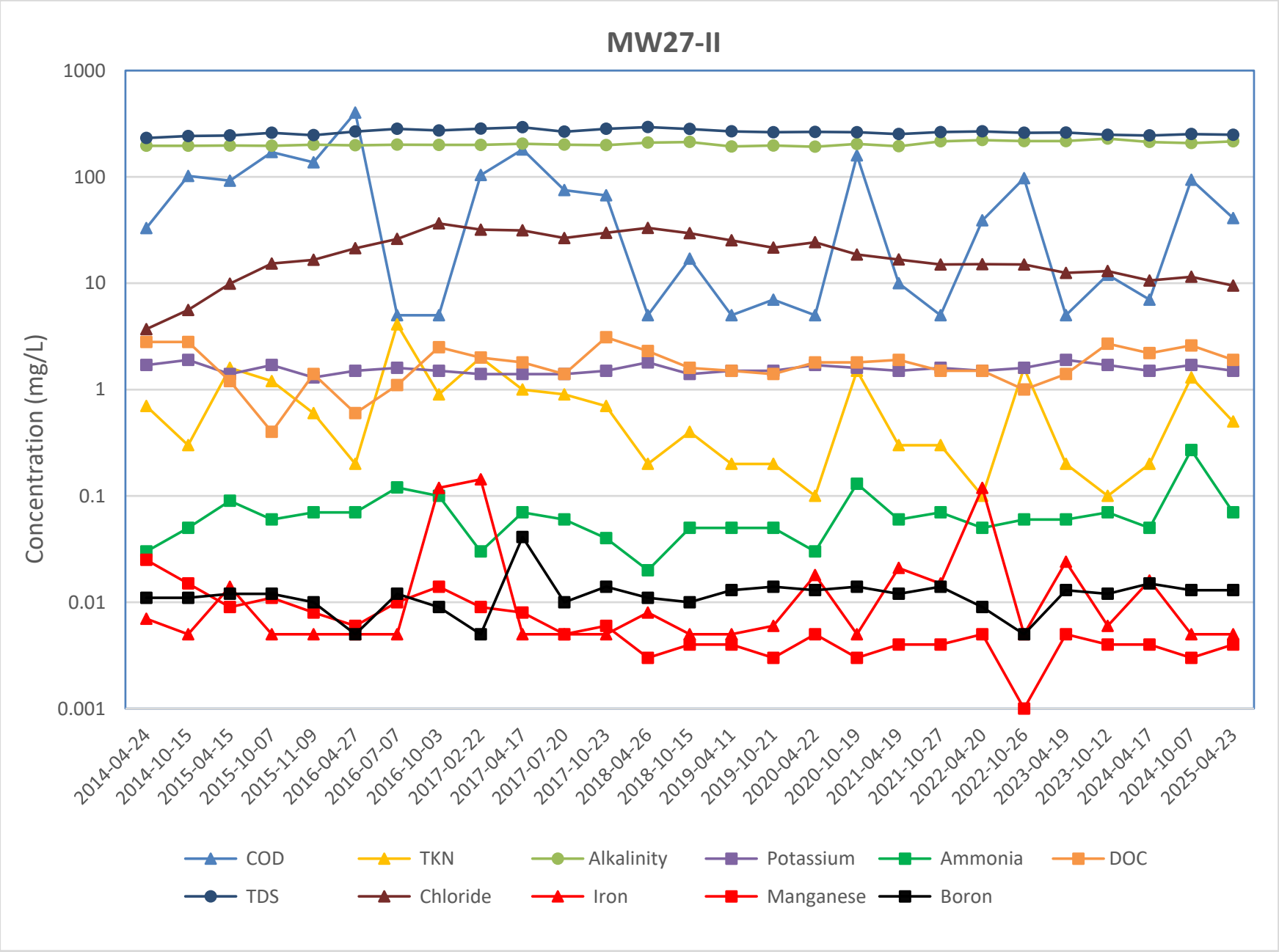
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW27-II
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2015-11-09
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-26
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
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COD
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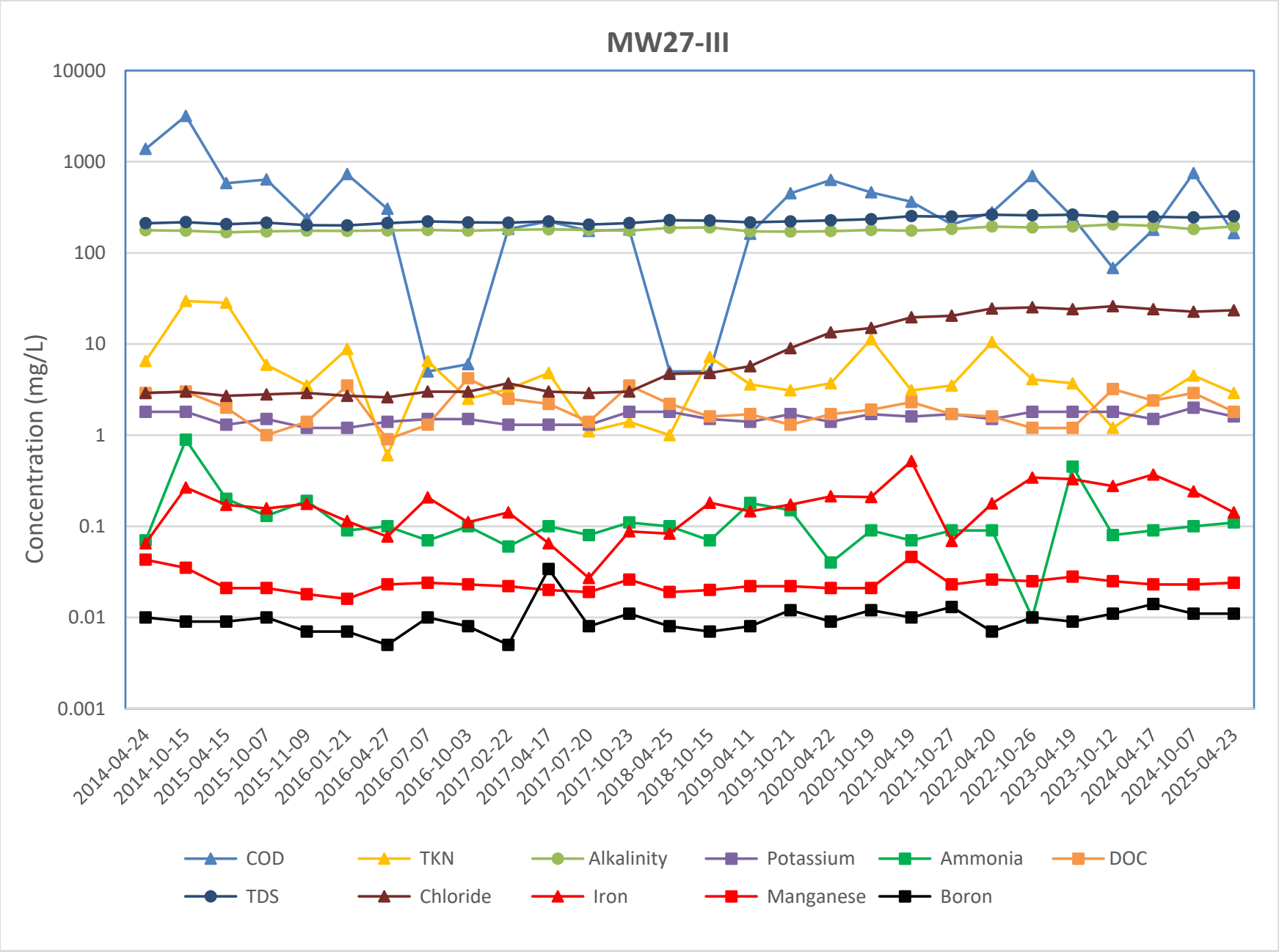
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW27-III
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
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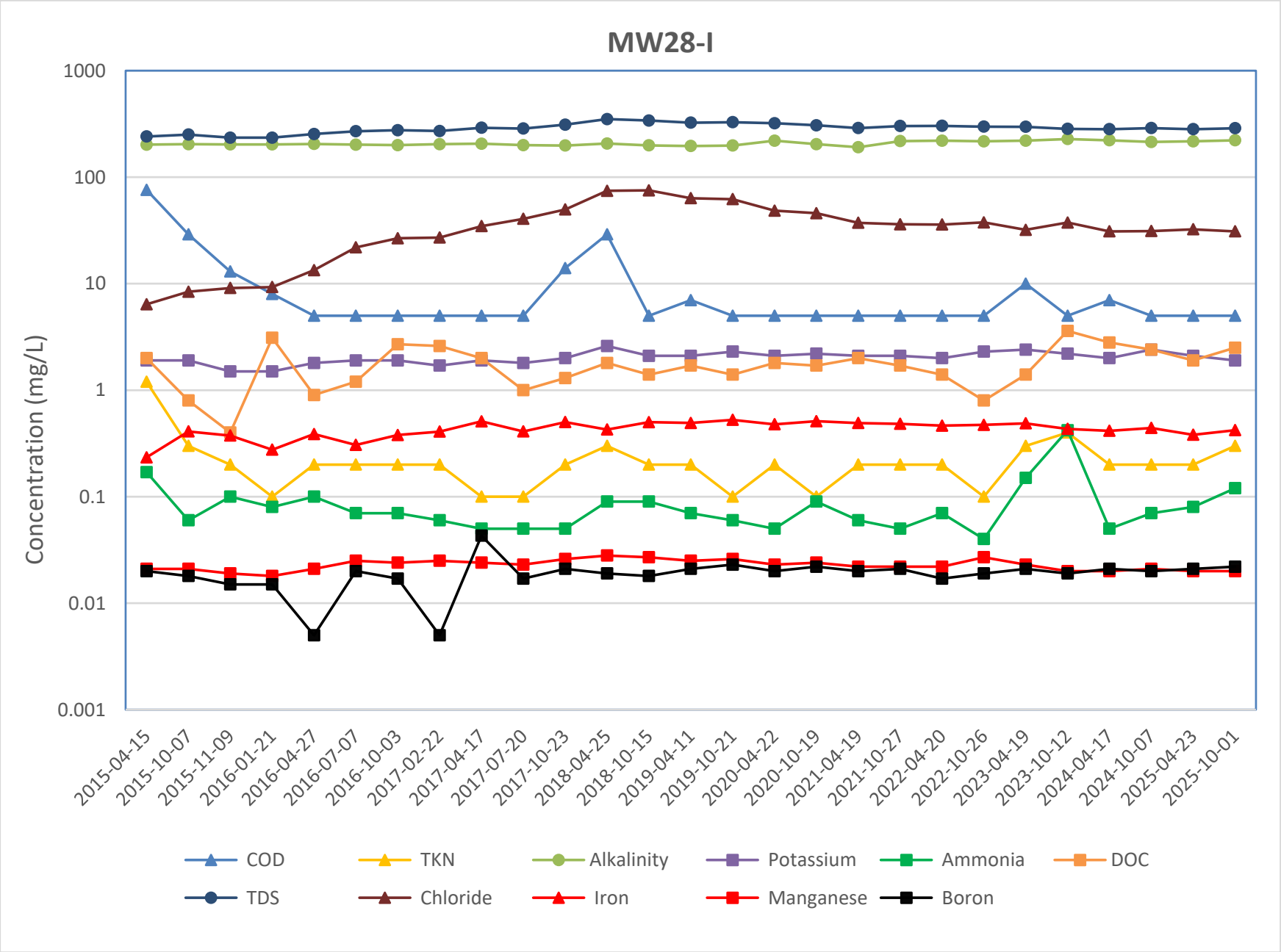
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW28-I
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
2025-04-23
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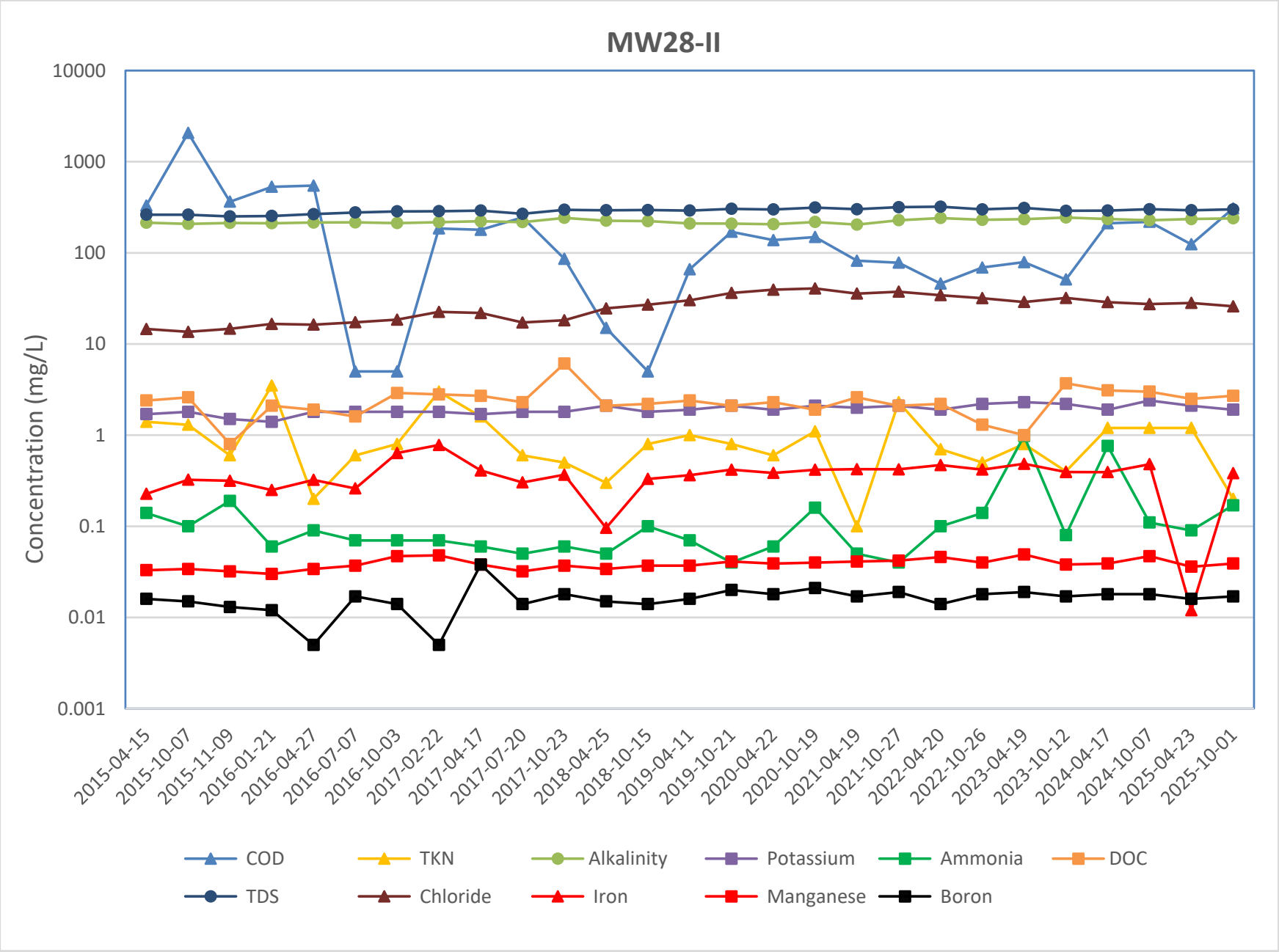
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW28-II
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
2025-04-23
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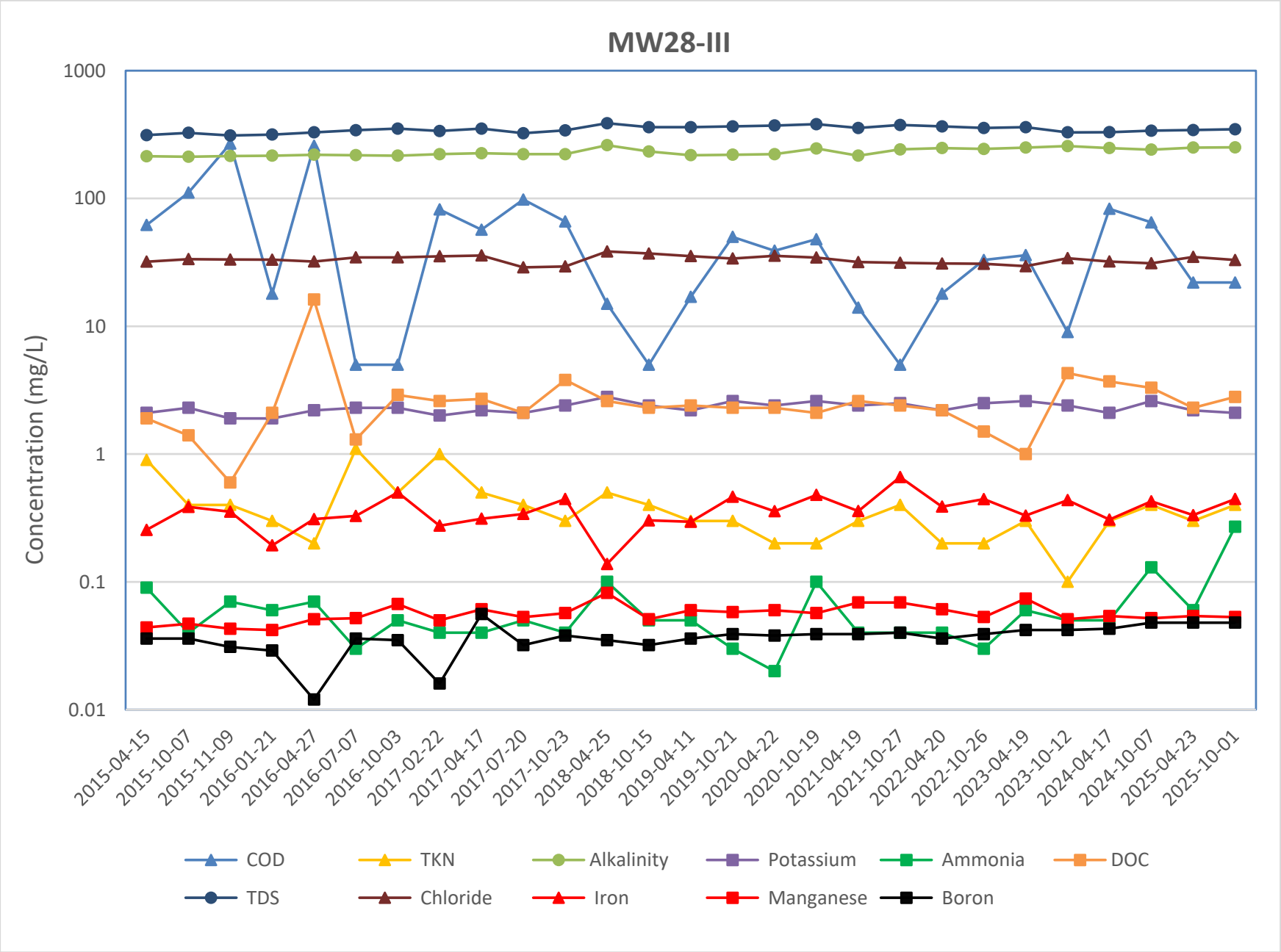
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


MW28-III
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
2025-04-23
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COD
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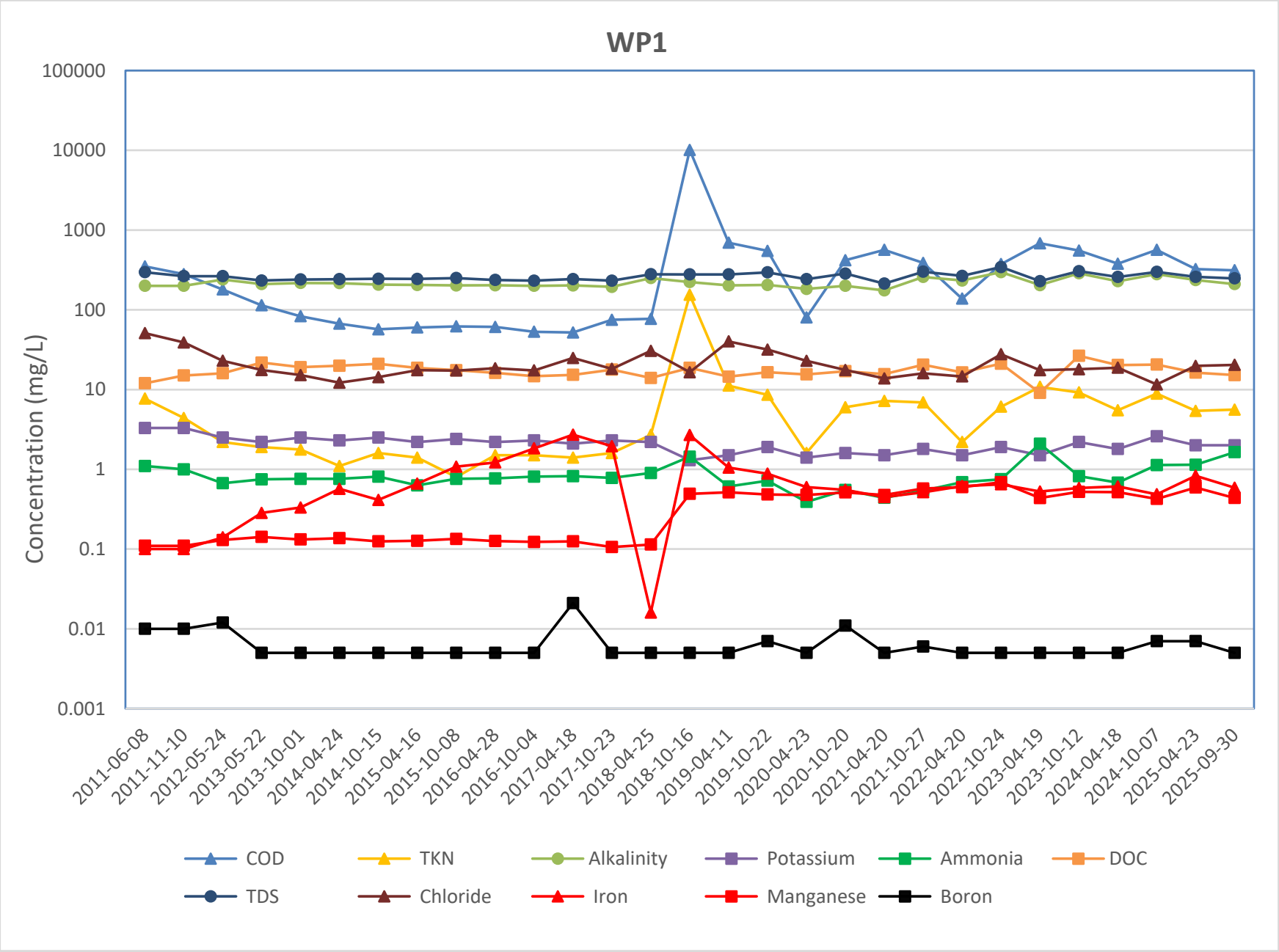
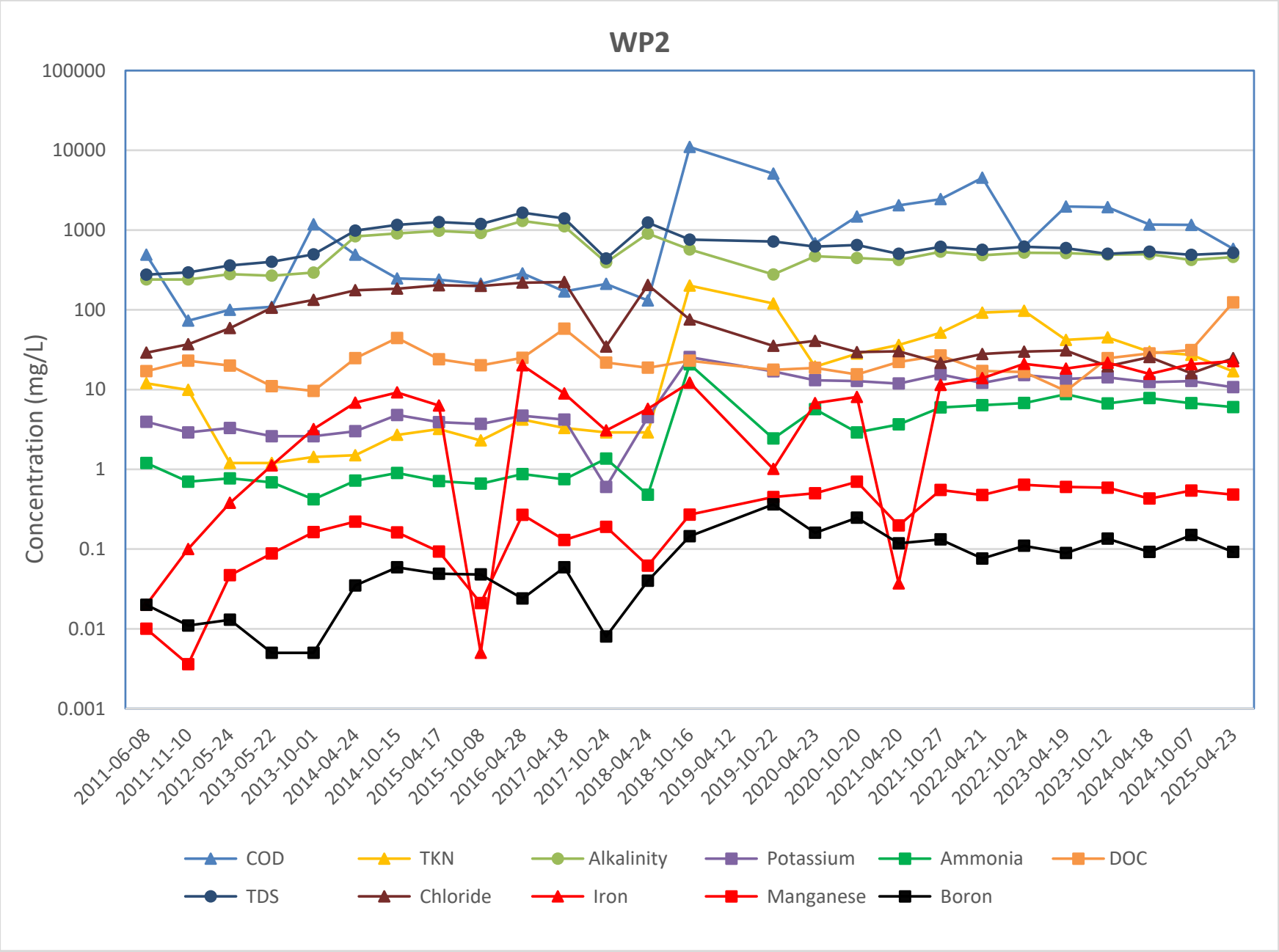
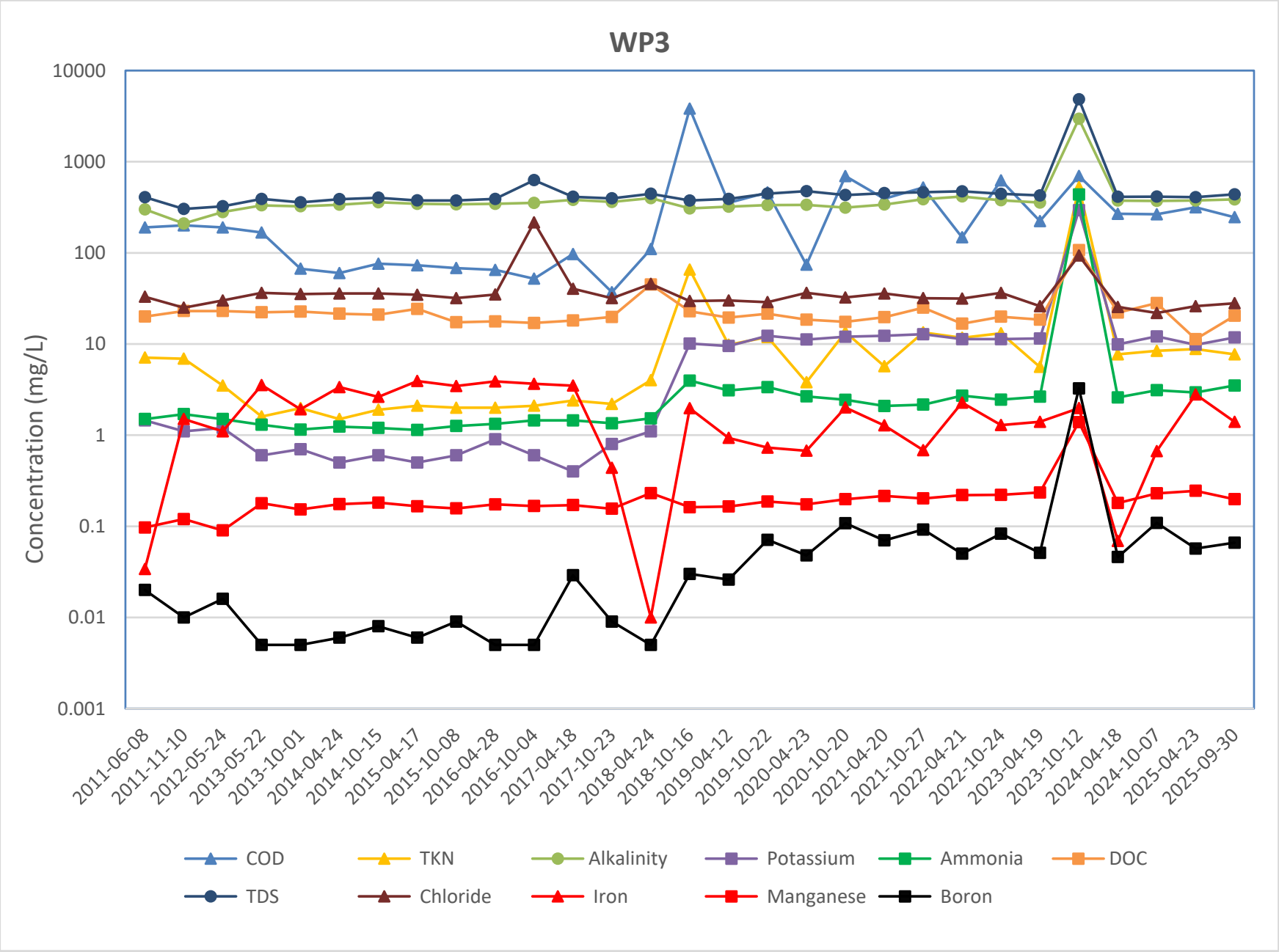
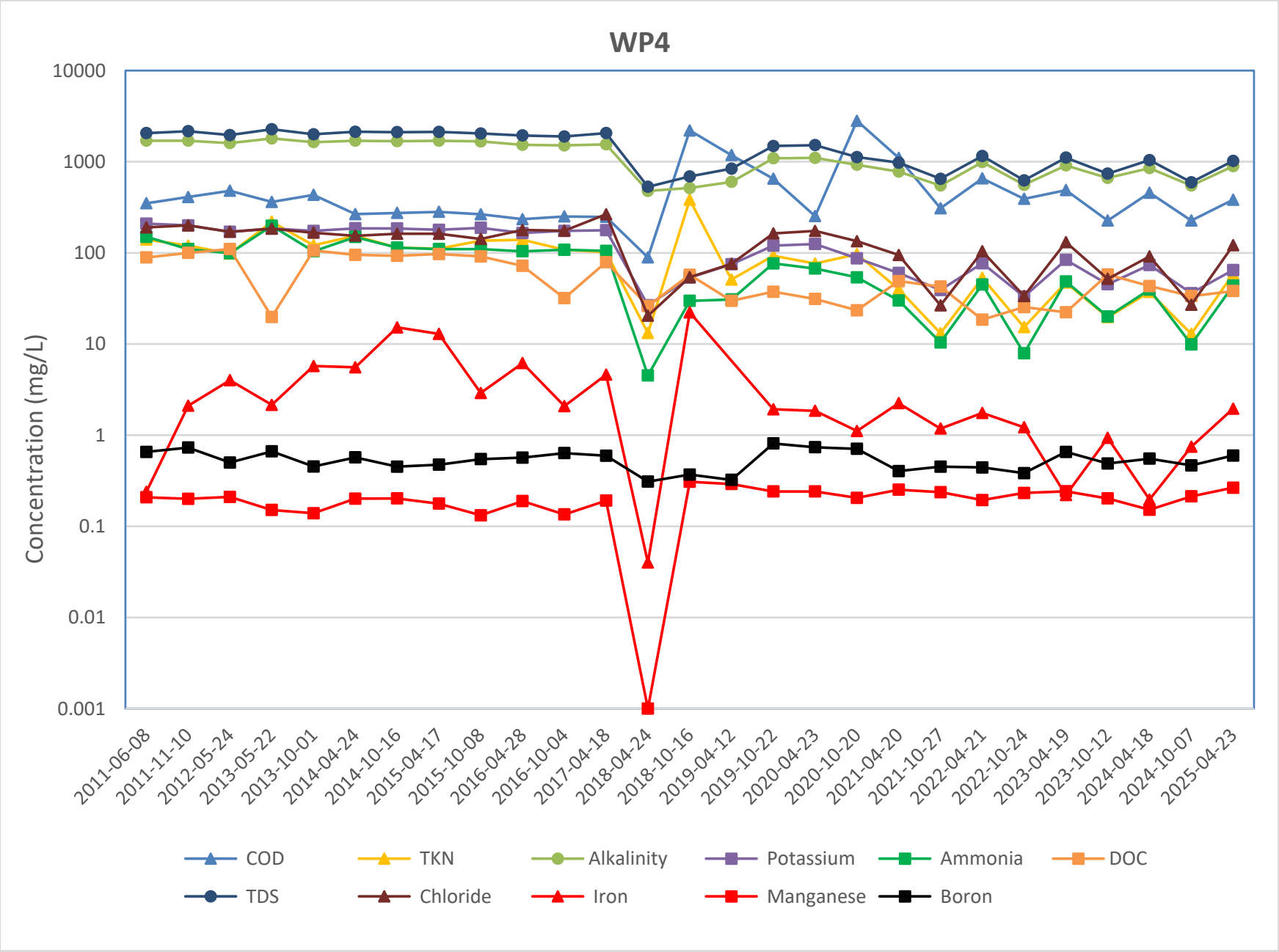
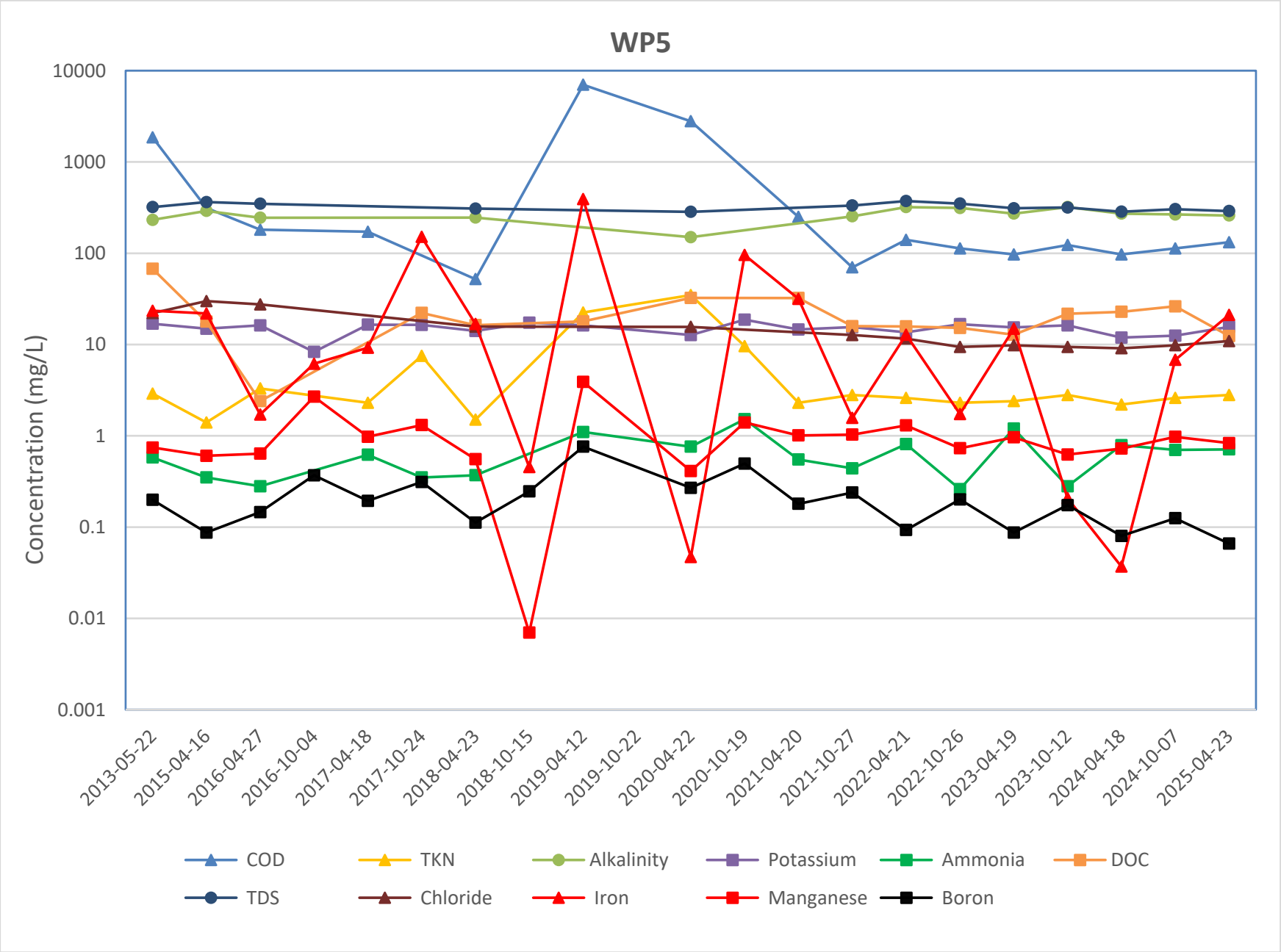
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

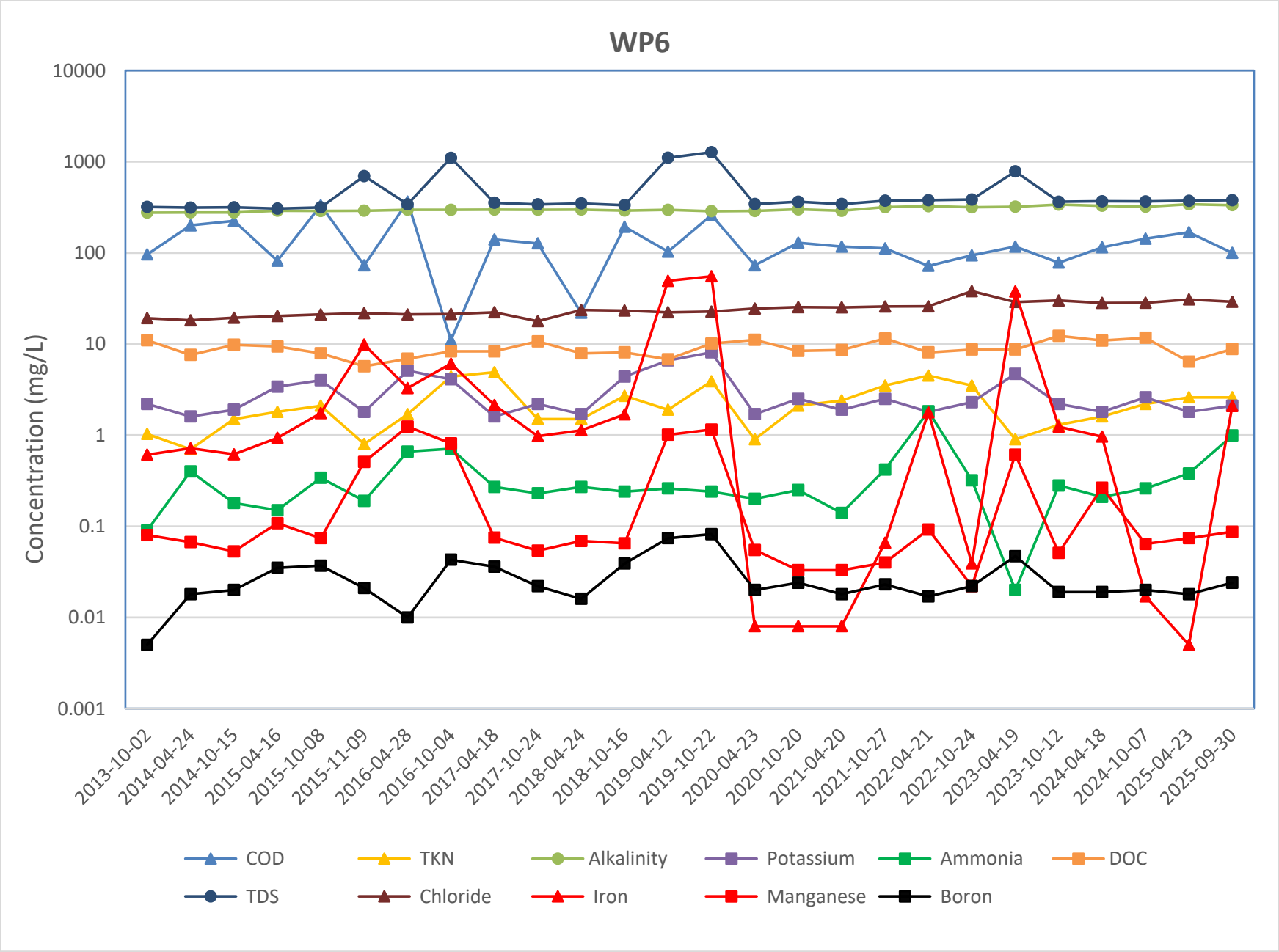

WP1
Concentration (mg/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-15
2015-04-16
2015-10-08
2016-04-28
2016-10-04
2017-04-18
2017-10-23
2018-04-25
2018-10-16
2019-04-11
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-20
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
2025-04-23
2025-09-30
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

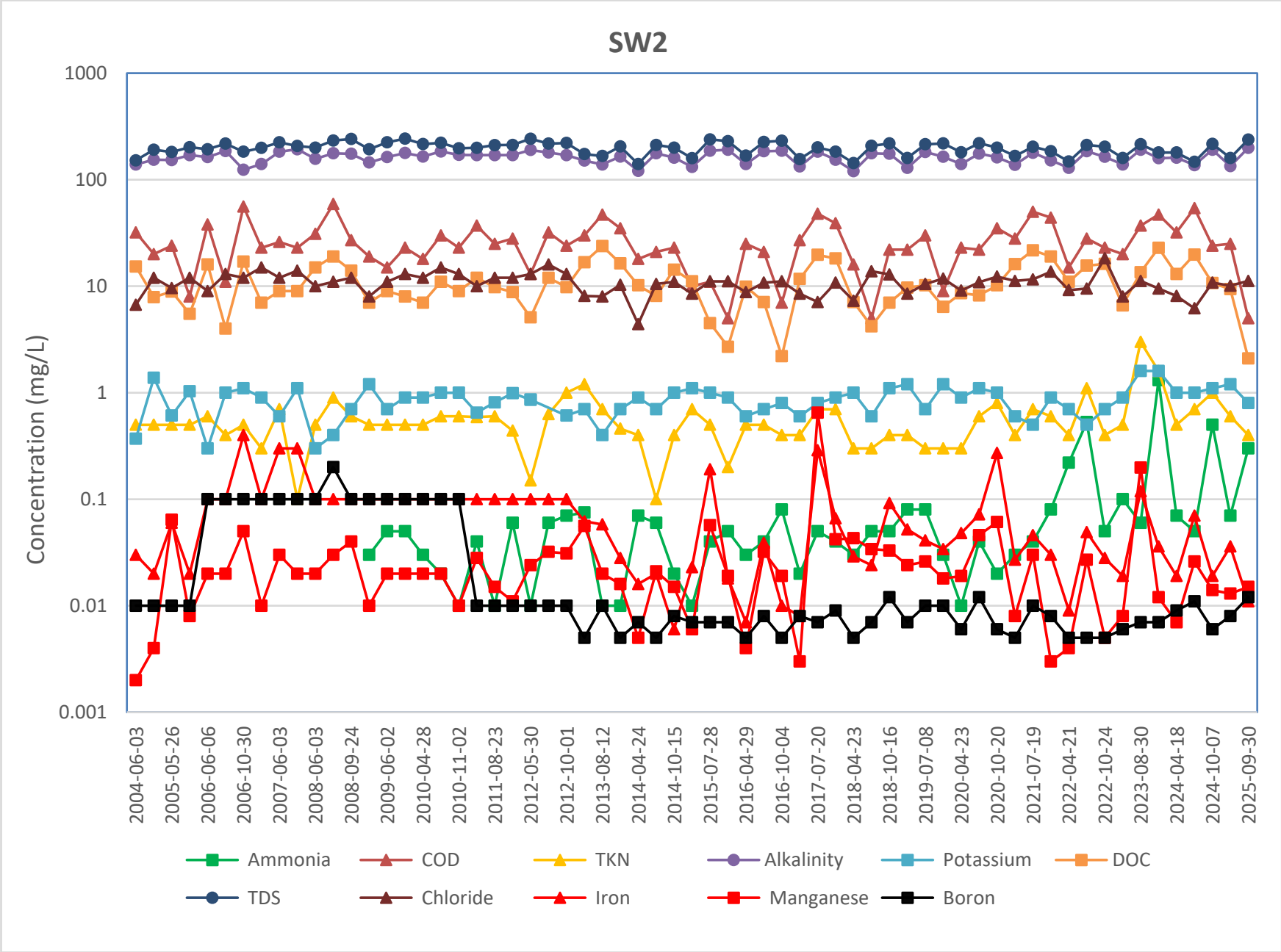

WP2
Concentration (mg/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-15
2015-04-17
2015-10-08
2016-04-28
2017-04-18
2017-10-24
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


WP3
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-15
2015-04-17
2015-10-08
2016-04-28
2016-10-04
2017-04-18
2017-10-23
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
2025-04-23
2025-09-30
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


WP4
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-16
2015-04-17
2015-10-08
2016-04-28
2016-10-04
2017-04-18
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


WP5
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2013-05-22
2015-04-16
2016-04-27
2016-10-04
2017-04-18
2017-10-24
2018-04-23
2018-10-15
2019-04-12
2019-10-22
2020-04-22
2020-10-19
2021-04-20
2021-10-27
2022-04-21
2022-10-26
2023-04-19
2023-10-12
2024-04-18
2024-10-07
2025-04-23
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


WP6
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2013-10-02
2014-04-24
2014-10-15
2015-04-16
2015-10-08
2015-11-09
2016-04-28
2016-10-04
2017-04-18
2017-10-24
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
2025-04-23
2025-09-30
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron


SW2
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-06-03
2005-05-26
2006-06-06
2006-10-30
2007-06-03
2008-06-03
2008-09-24
2009-06-02
2010-04-28
2010-11-02
2011-08-23
2012-05-30
2012-10-01
2013-08-12
2014-04-24
2014-10-15
2015-07-28
2016-04-29
2016-10-04
2017-07-20
2018-04-23
2018-10-16
2019-07-08
2020-04-23
2020-10-20
2021-07-19
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2022-10-24
2023-08-30
2024-04-18
2024-10-07
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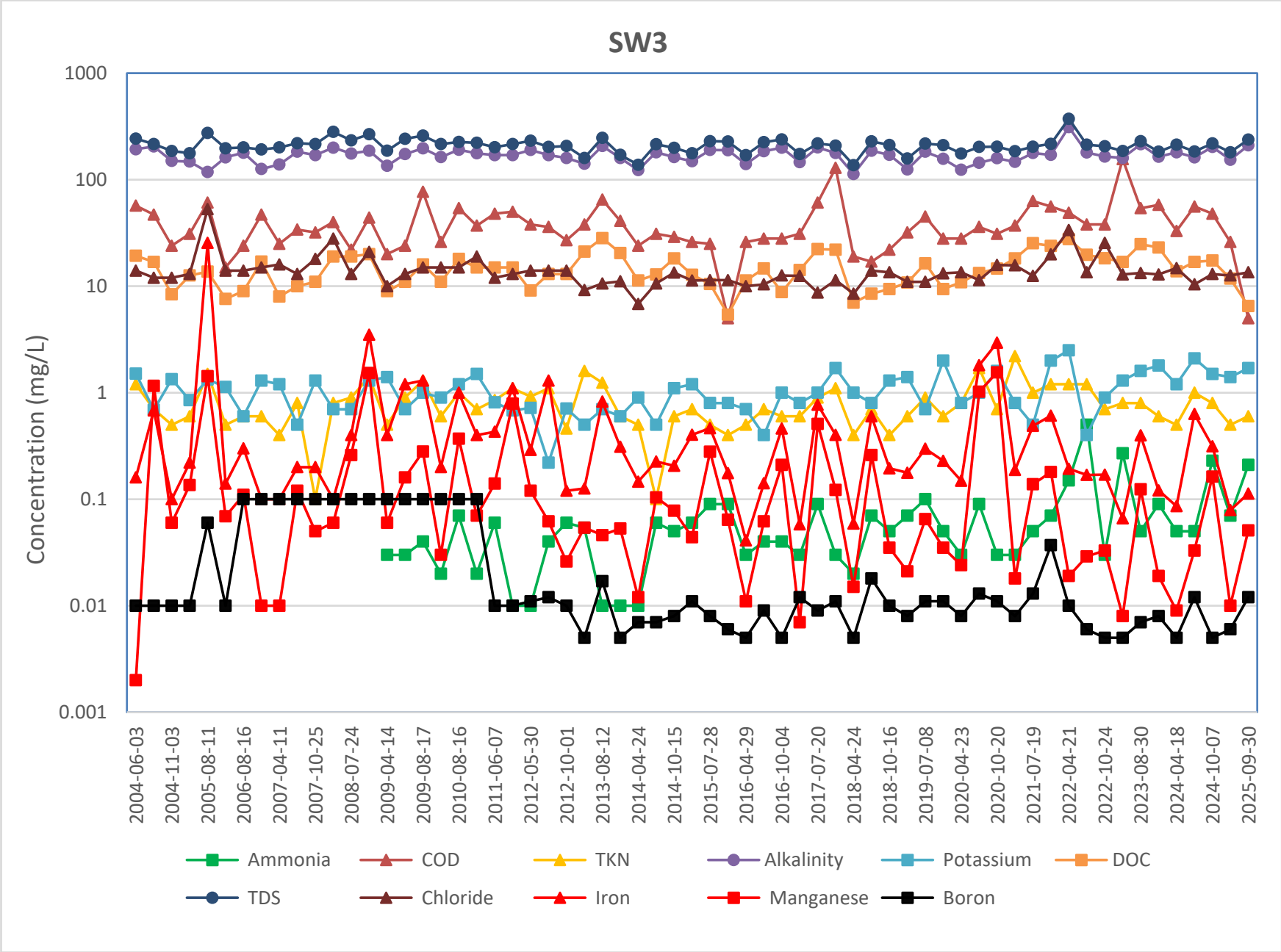
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW3
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-06-03
2004-11-03
2005-08-11
2006-08-16
2007-04-11
2007-10-25
2008-07-24
2009-04-14
2009-08-17
2010-08-16
2011-06-07
2012-05-30
2012-10-01
2013-08-12
2014-04-24
2014-10-15
2015-07-28
2016-04-29
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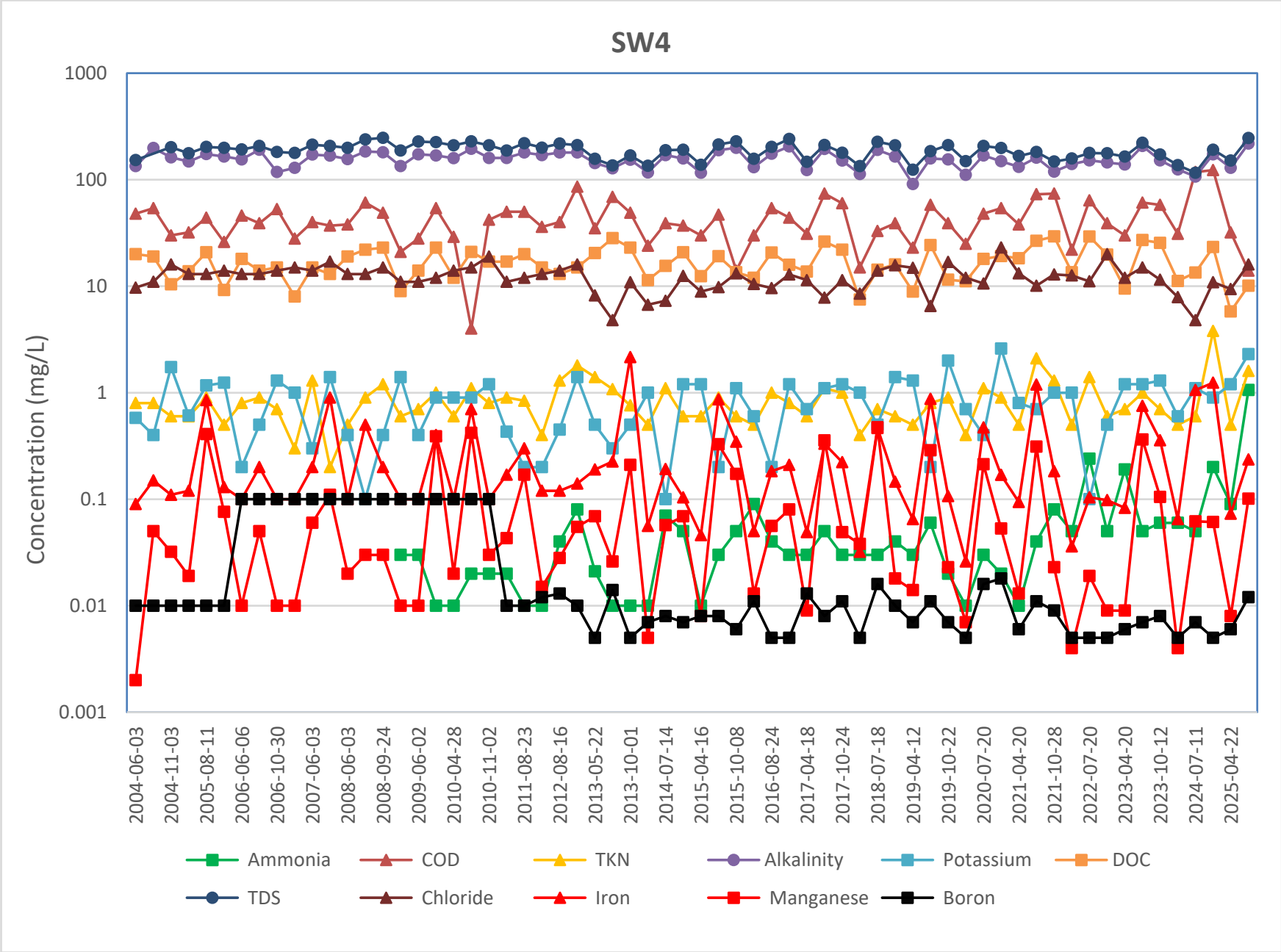
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW4
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-06-03
2004-11-03
2005-08-11
2006-06-06
2006-10-30
2007-06-03
2008-06-03
2008-09-24
2009-06-02
2010-04-28
2010-11-02
2011-08-23
2012-08-16
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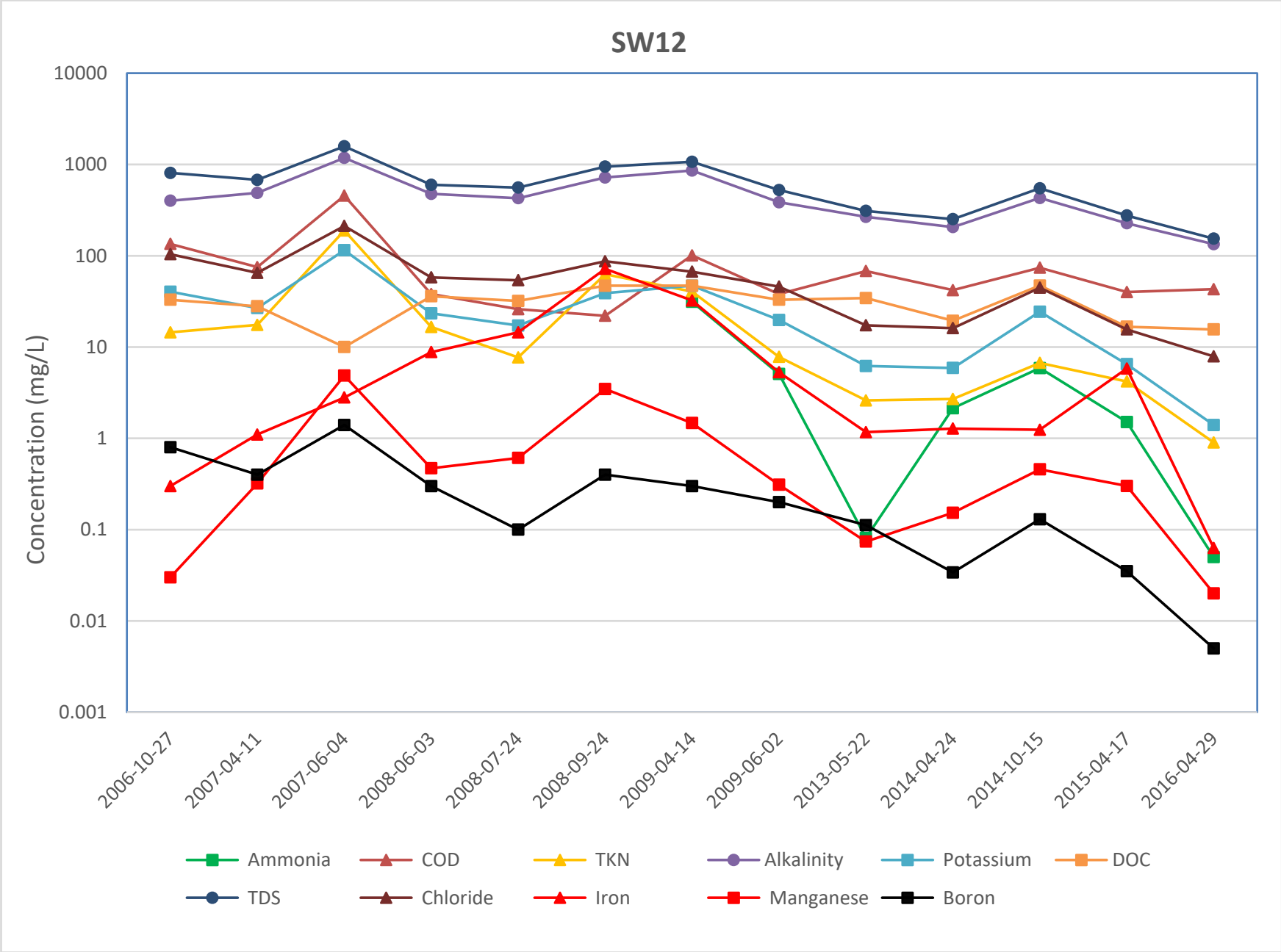
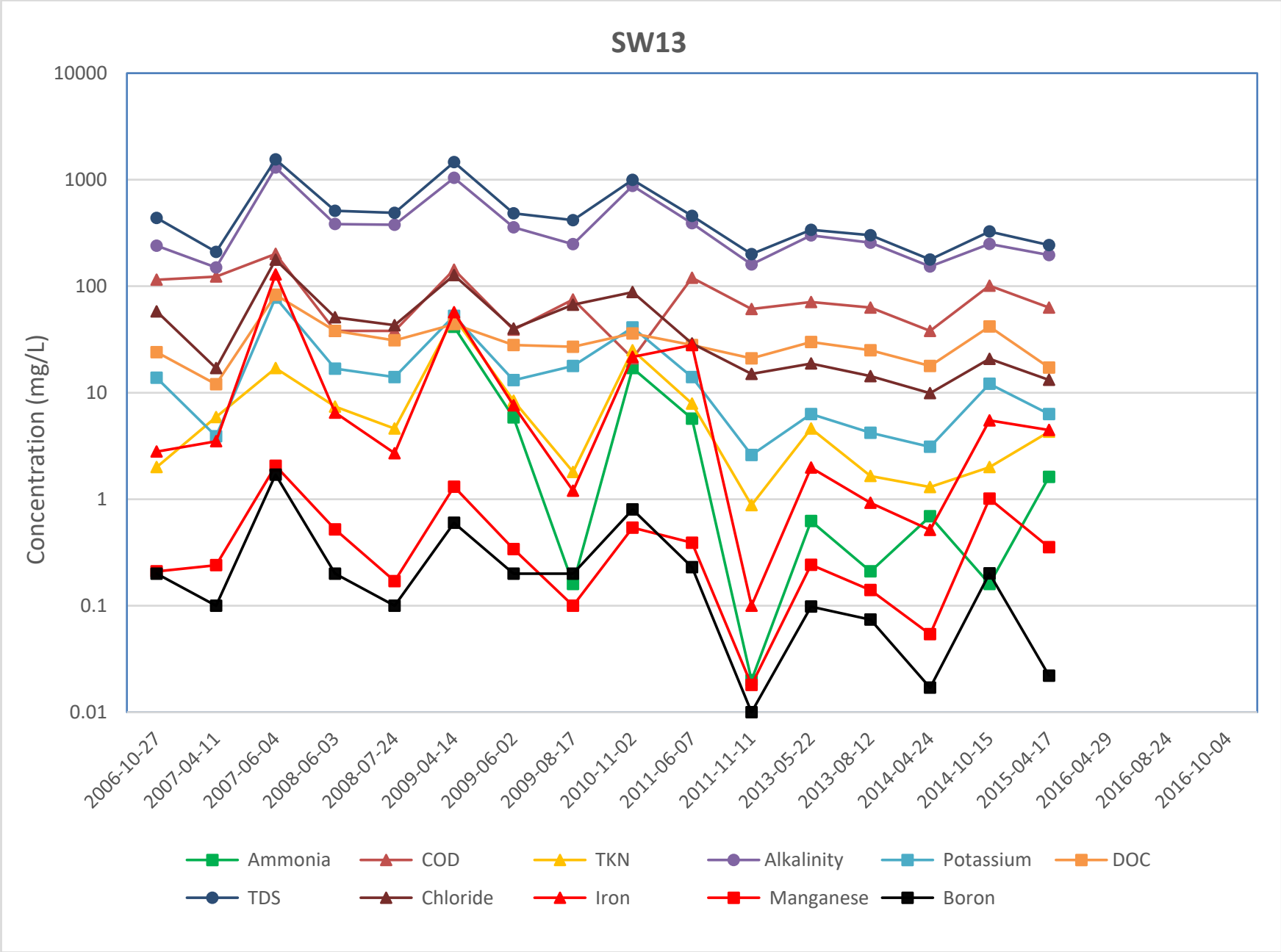
2023-04-20
2023-10-12
2024-07-11
2025-04-22
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW12
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2006-10-27
2007-04-11
2007-06-04
2008-06-03
2008-07-24
2008-09-24
2009-04-14
2009-06-02
2013-05-22
2014-04-24
2014-10-15
2015-04-17
2016-04-29
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW13
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
2006-10-27
2007-04-11
2007-06-04
2008-06-03
2008-07-24
2009-04-14
2009-06-02
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2011-06-07
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2013-05-22
2013-08-12
2014-04-24
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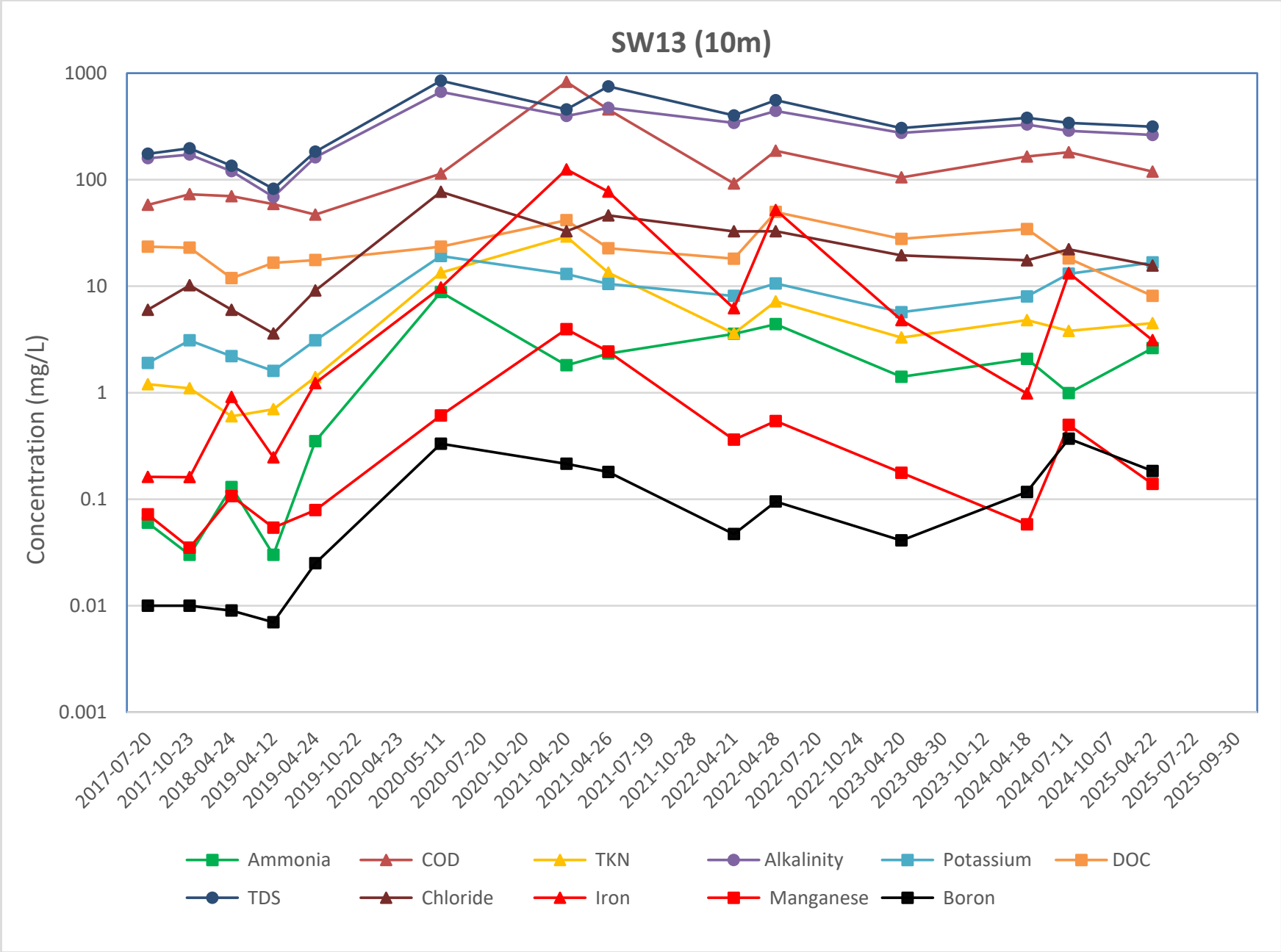
2015-04-17
2016-04-29
2016-08-24
2016-10-04
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW13 (10m)
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2017-07-20
2017-10-23
2018-04-24
2019-04-12
2019-04-24
2019-10-22
2020-04-23
2020-05-11
2020-07-20
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2025-04-22
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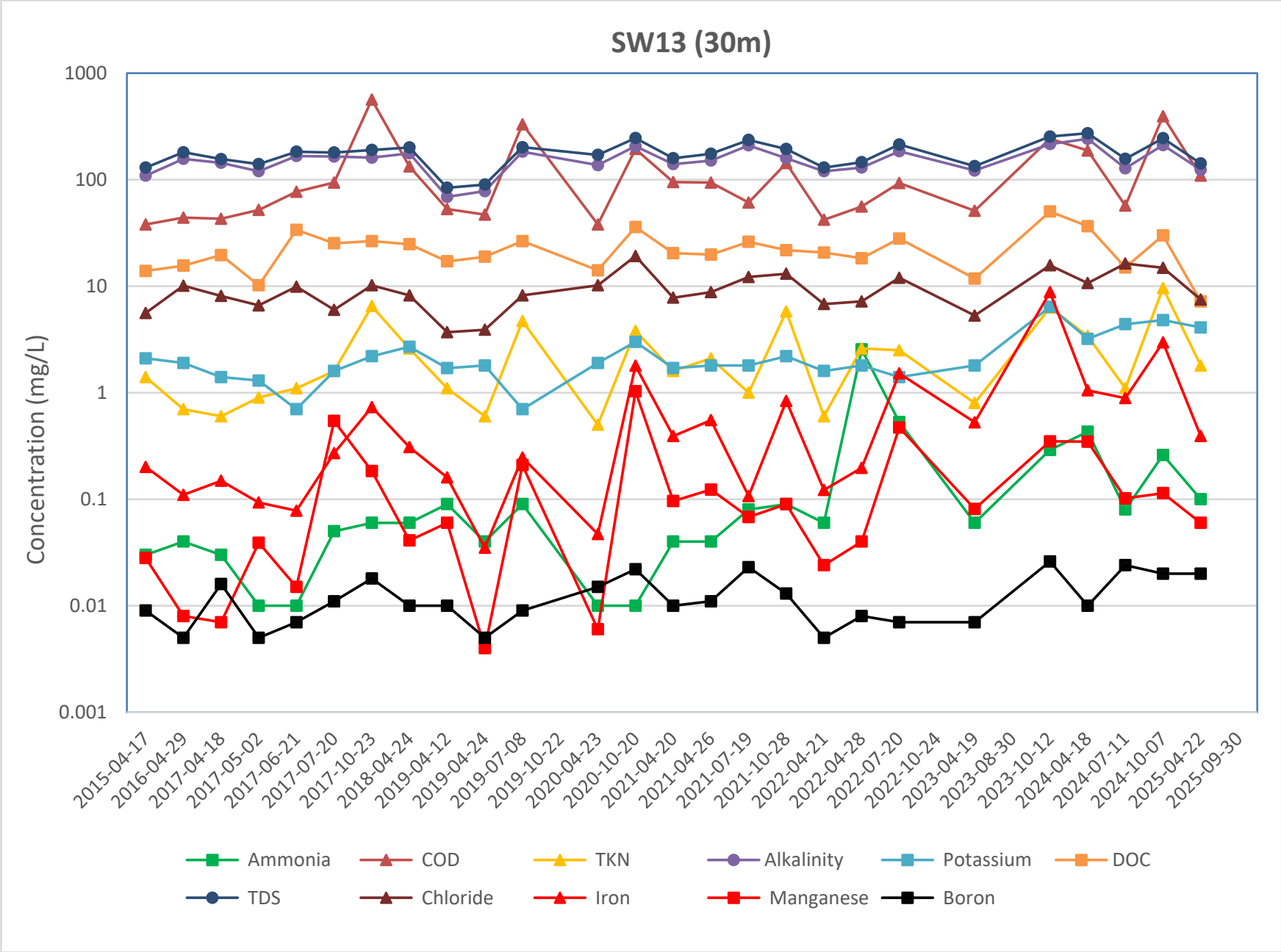
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW13 (30m)
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2015-04-17
2016-04-29
2017-04-18
2017-05-02
2017-06-21
2017-07-20
2017-10-23
2018-04-24
2019-04-12
2019-04-24
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2024-07-11
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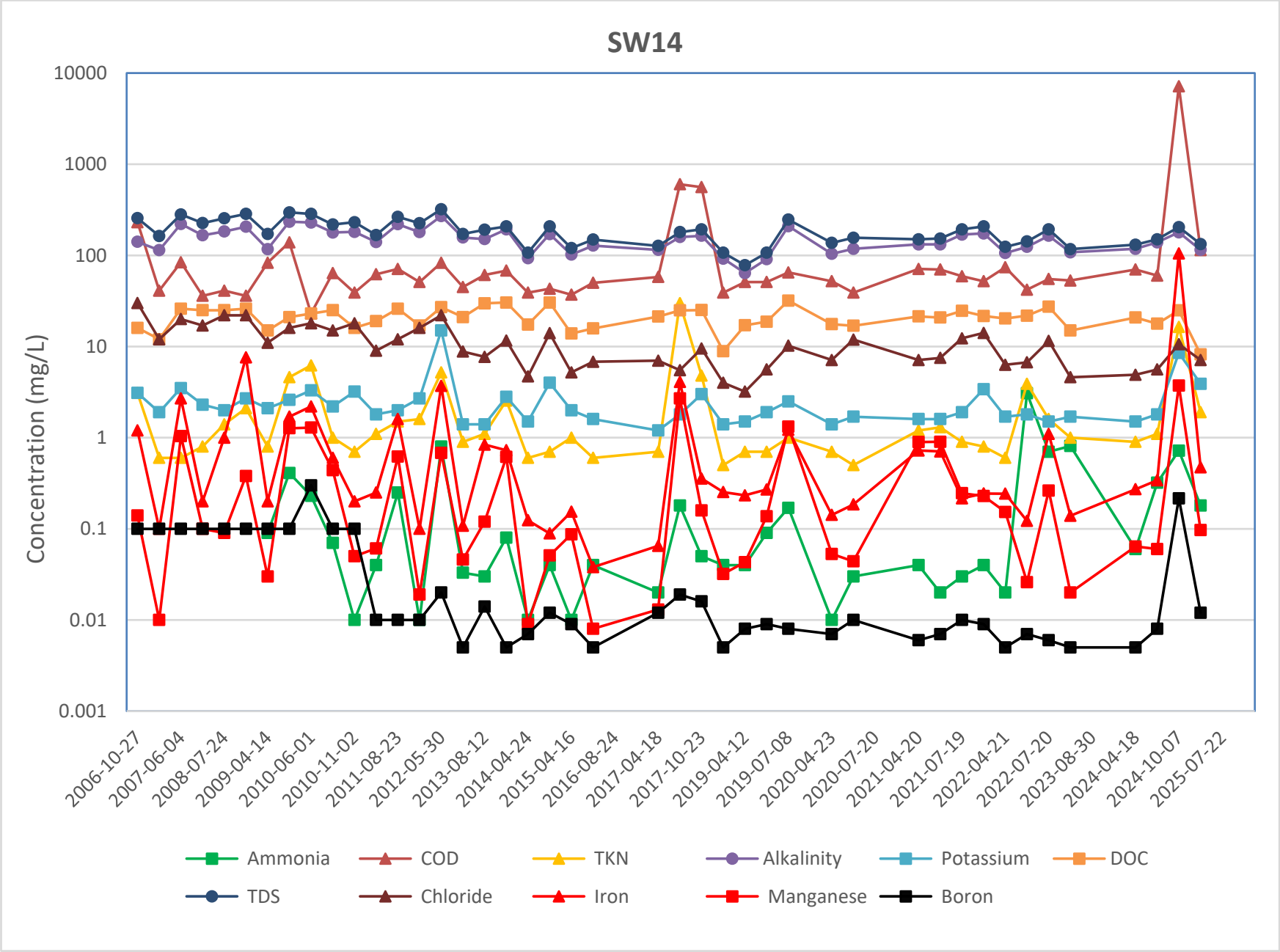
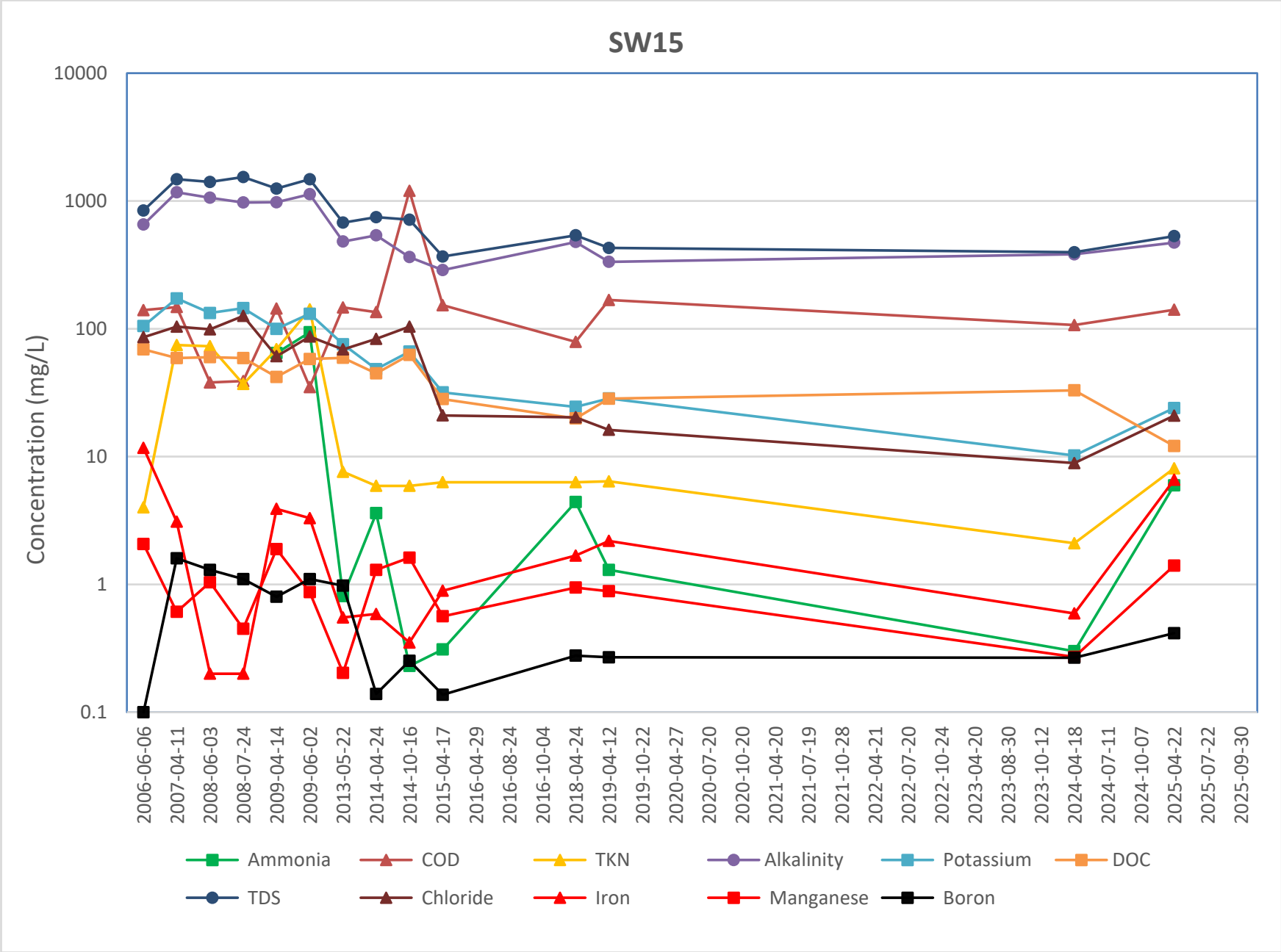
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW14
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2006-10-27
2007-06-04
2008-07-24
2009-04-14
2010-06-01
2010-11-02
2011-08-23
2012-05-30
2013-08-12
2014-04-24
2015-04-16
2016-08-24
2017-04-18
2017-10-23
2019-04-12
2019-07-08
2020-04-23
2020-07-20
2021-04-20
2021-07-19
2022-04-21
2022-07-20
2023-08-30
2024-04-18
2024-10-07
2025-07-22
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW15
Concentration (mg/L)
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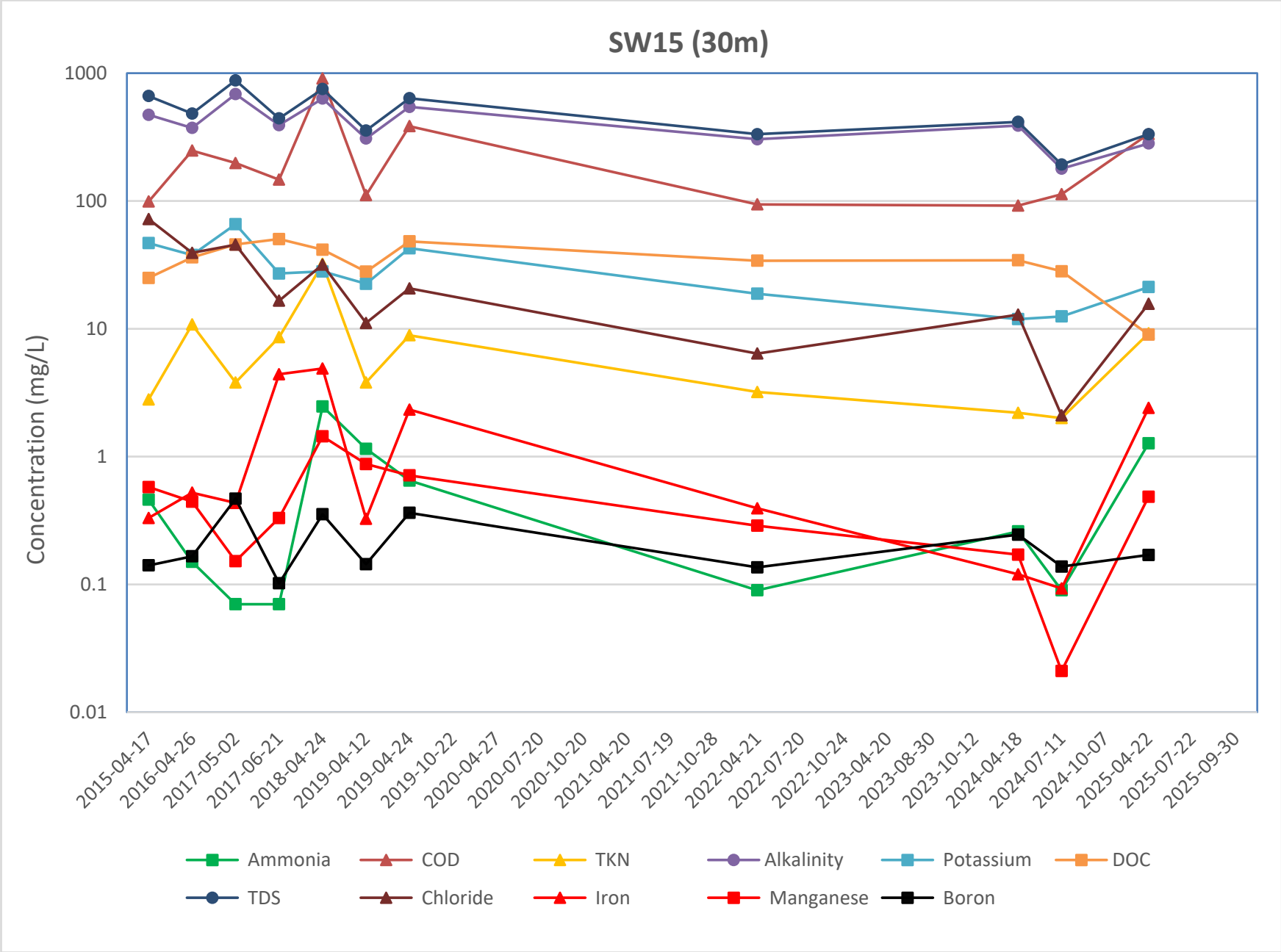
1000
100
10
1
0.1
2006-06-06
2007-04-11
2008-06-03
2008-07-24
2009-04-14
2009-06-02
2013-05-22
2014-04-24
2014-10-16
2015-04-17
2016-04-29
2016-08-24
2016-10-04
2018-04-24
2019-04-12
2019-10-22
2020-04-27
2020-07-20
2020-10-20
2021-04-20
2021-07-19
2021-10-28
2022-04-21
2022-07-20
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
2025-04-22
2025-07-22
2025-09-30
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW15 (30m)
Concentration (mg/L)
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100
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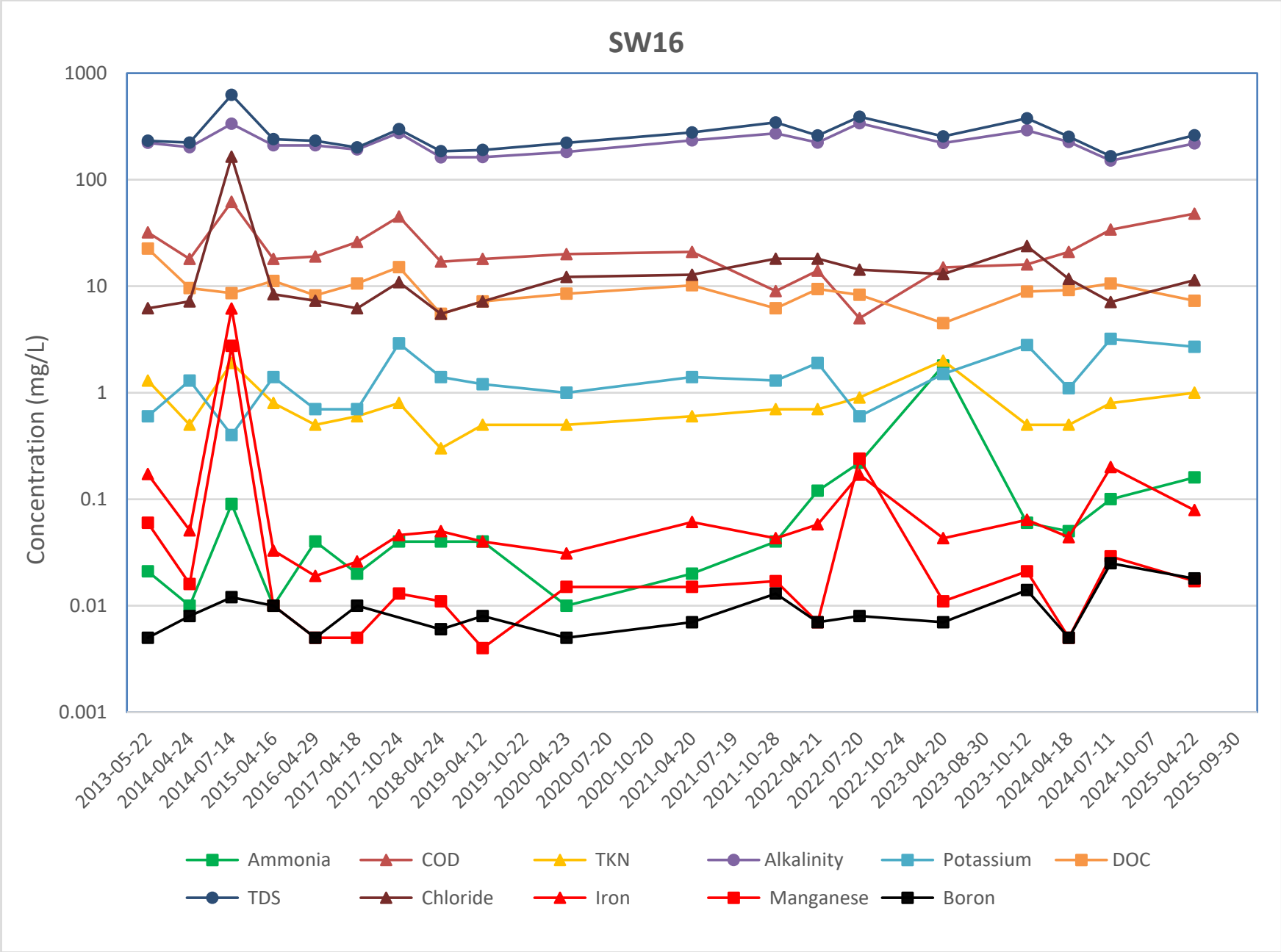
1
0.1
0.01
2015-04-17
2016-04-26
2017-05-02
2017-06-21
2018-04-24
2019-04-12
2019-04-24
2019-10-22
2020-04-27
2020-07-20
2020-10-20
2021-04-20
2021-07-19
2021-10-28
2022-04-21
2022-07-20
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
2025-04-22
2025-07-22
2025-09-30
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW16
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2013-05-22
2014-04-24
2014-07-14
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2017-04-18
2017-10-24
2018-04-24
2019-04-12
2019-10-22
2020-04-23
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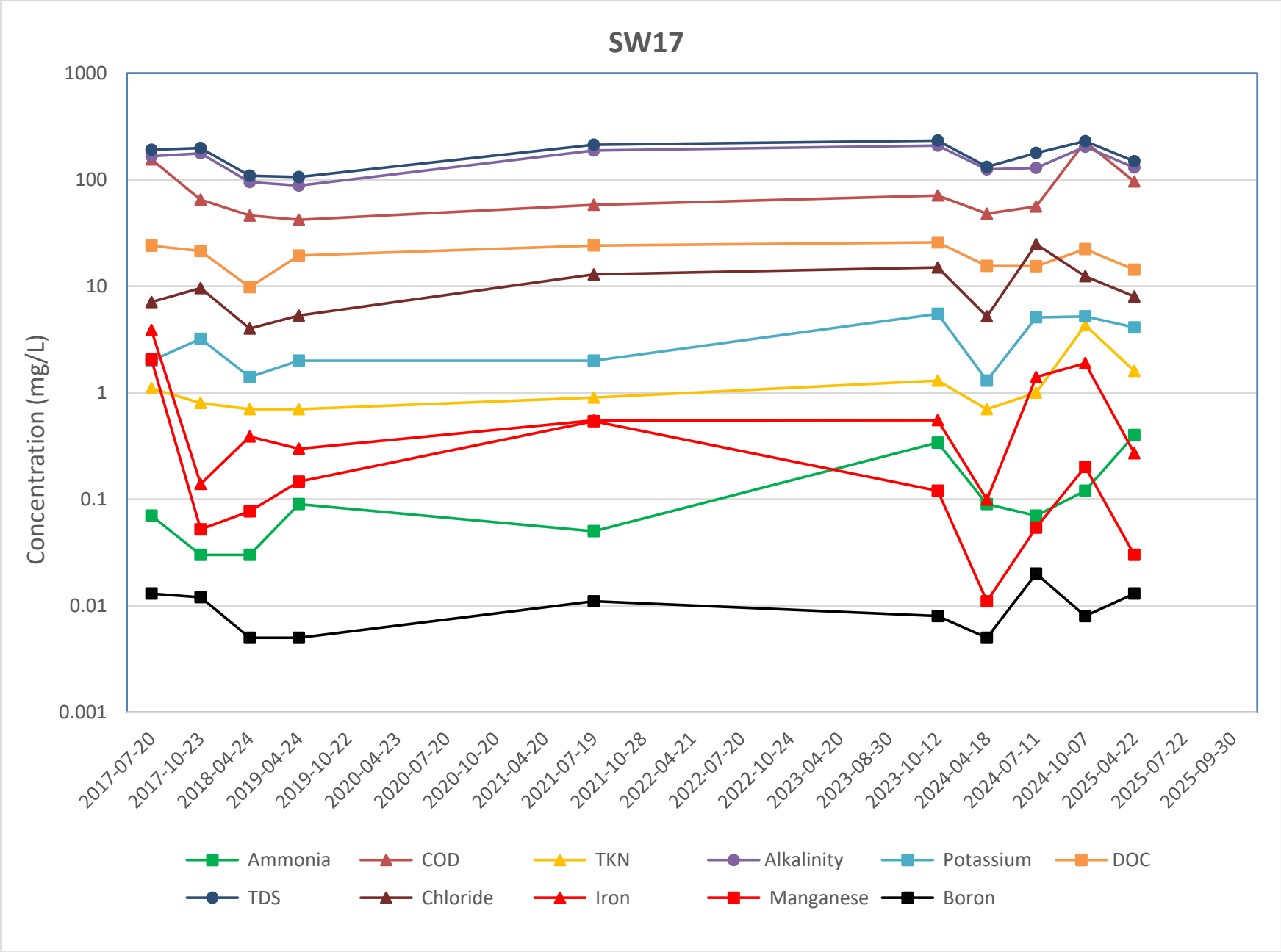
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
2025-04-22
2025-09-30
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


SW17
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2017-07-20
2017-10-23
2018-04-24
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2019-10-22
2020-04-23
2020-07-20
2020-10-20
2021-04-20
2021-07-19
2021-10-28
2022-04-21
2022-07-20
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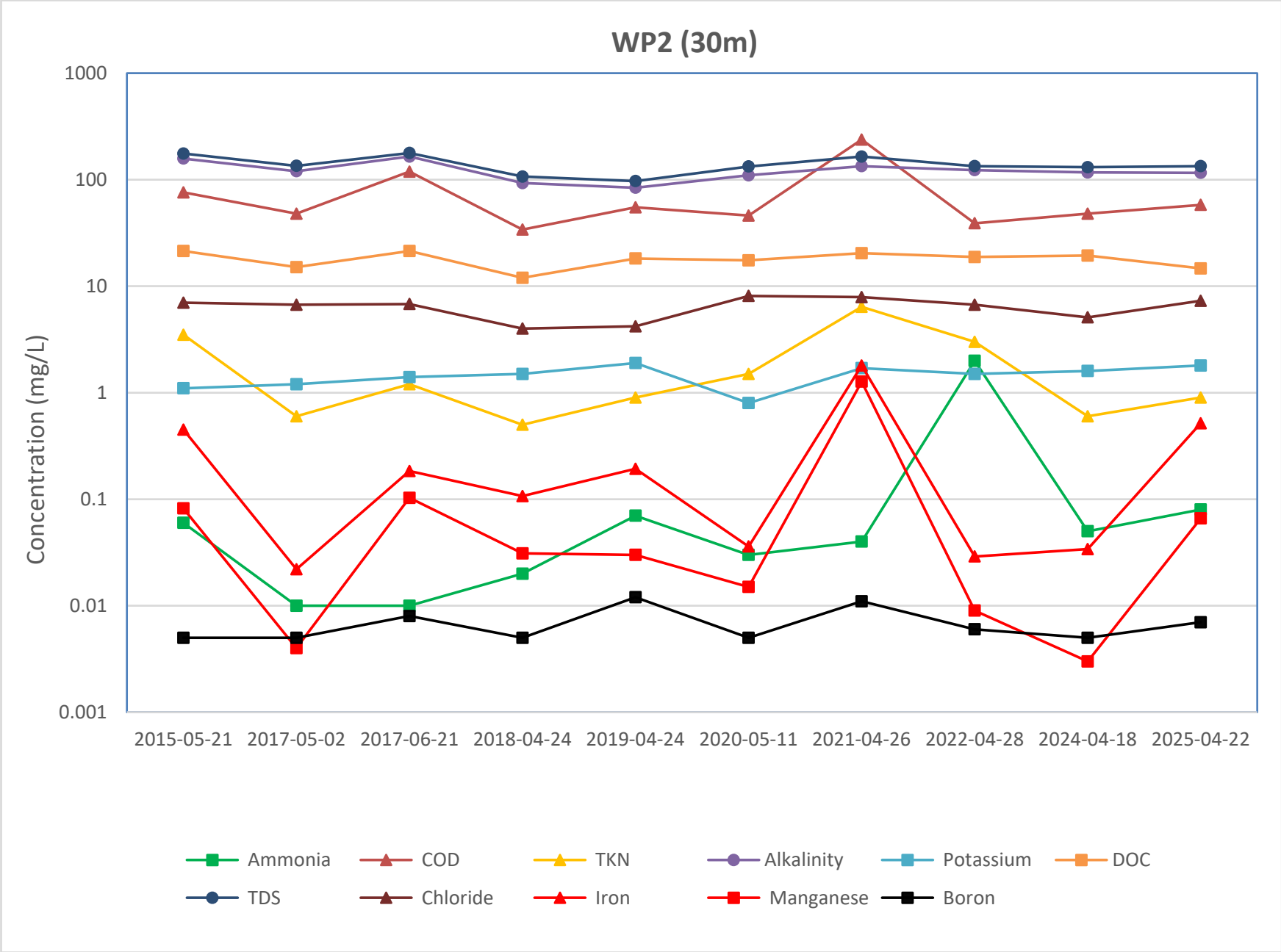
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
2025-04-22
2025-07-22
2025-09-30
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


WP2 (30m)
Concentration (mg/L)
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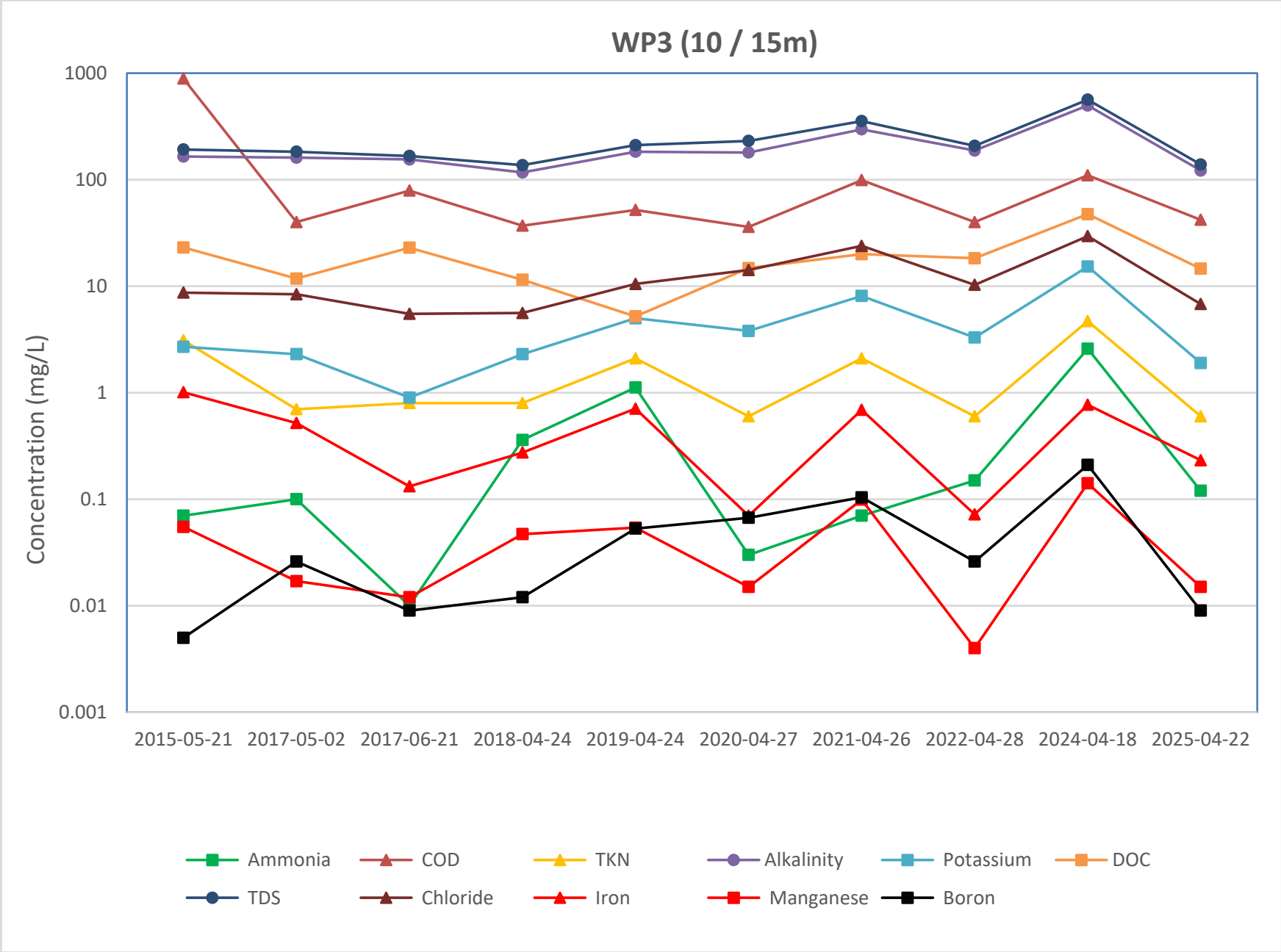
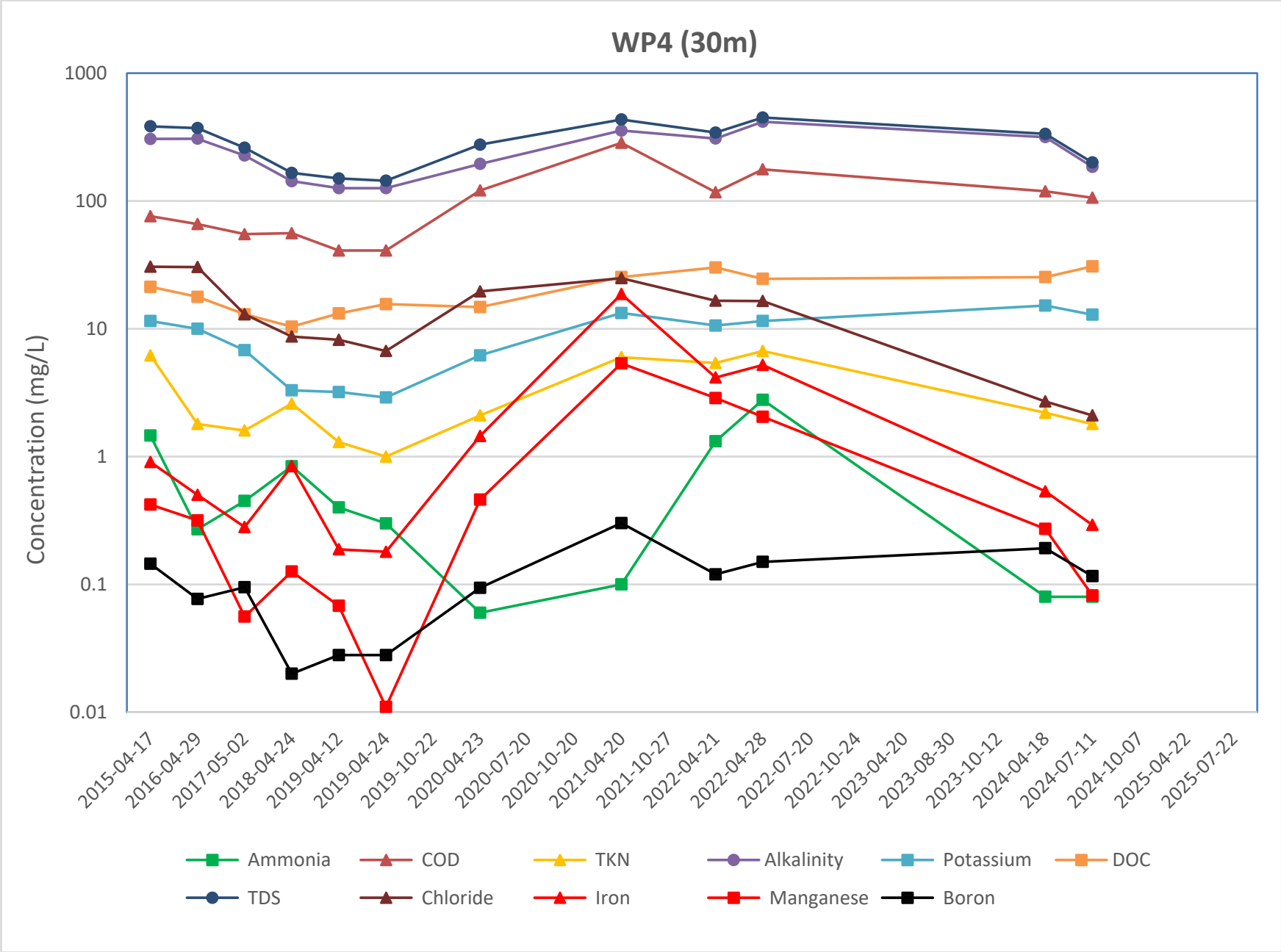
100
10
1
0.1
0.01
0.001
2015-05-21
2017-05-02
2017-06-21
2018-04-24
2019-04-24
2020-05-11
2021-04-26
2022-04-28
2024-04-18
2025-04-22
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


WP3 (10 / 15m)
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2015-05-21
2017-05-02
2017-06-21
2018-04-24
2019-04-24
2020-04-27
2021-04-26
2022-04-28
2024-04-18
2025-04-22
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


WP4 (30m)
Concentration (mg/L)
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1
0.1
0.01
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2016-04-29
2017-05-02
2018-04-24
2019-04-12
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2020-07-20
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2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
2025-04-22
2025-07-22
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

# APPENDIX G

## Surface Water Photos

**SW-2**: April 2025

**No sample**

**SW-2**: July 2025

**SW-2**: October 2025

**SW-3**: April 2025

**No sample**

**SW-3**: July 2025

**SW-3:** October 2025

**SW-4:** April 2025

**No sample**

**SW-4:** July 2025

**SW-4:** October 2025

**SW-12:** April 2025

**SW-12:** July 2025

**SW-12:** October 2025

**SW-13:** April 2025

**SW-13:** July 2025

**SW-13:** October 2025

**SW-14:** April 2025

**SW-14:** July 2025

**SW-14:** October 2025

**SW-15:** April 2025

**SW-15:** July 2025

**SW-15:** October 2025

**SW-16:** April 2025

**No sample**

**SW-16:** July 2025

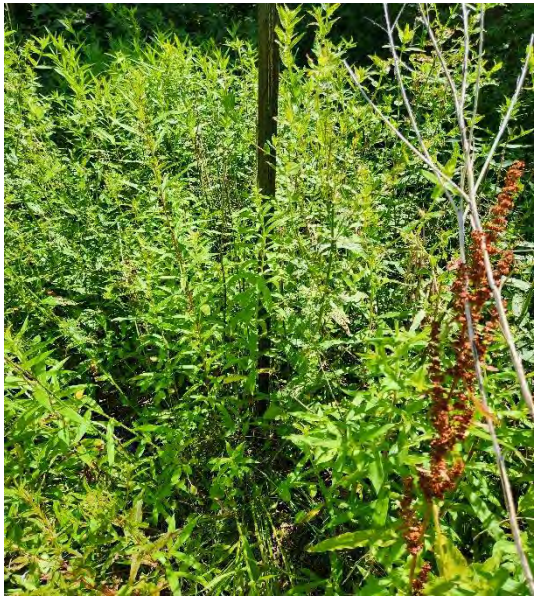
**SW-16:** October 2025

**SW-17:** April 2025

**SW-17:** July 2025

**SW-17:** October 2025

**WP4 (30m)**: April 2025



**WP4 (30m):** July 2025

**WP4 (30m):** October 2025

**WP1 – 30m:** April 2025

**WP2 – 10m:** April 2025

**WP2 – 30m:** April 2025

**WP3:** April 2025

**WP3 – 10m:** April 2025

**WP3 – 30m:** April 2025

**WP4 – 10m:** April 2025

**WP4 – 15m:** April 2025

**WP4 – 20m:** April 2025

**WP4 –25m:** April 2025

**WP4 – 30m:** April 2025

**WP5 – 30m:** April 2025

**SW13 – 30m:** April 2025

**SW15 – 30m:** April 2025

**SW12 – 25m:** April 2025

**SW12 – 45m:** April 2025

**SW13 – 30m:** July 2025

**SW15 – 30m:** July 2025

**WP4 – 10m:** July 2025

**SW13 – 30m:** October 2025

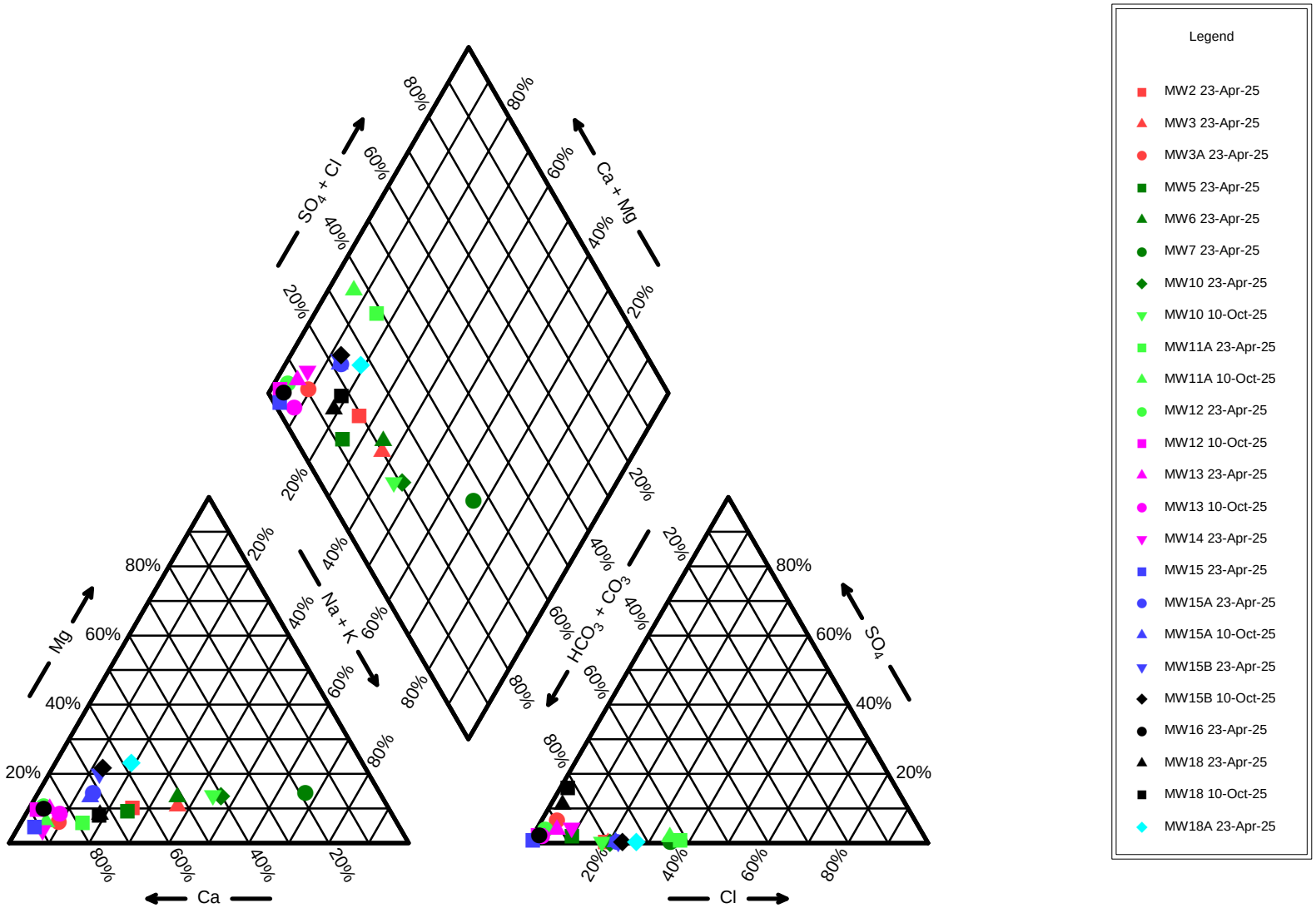
**SW15 – 30m:** October 2025

**WP4 – 10m:** October 2025

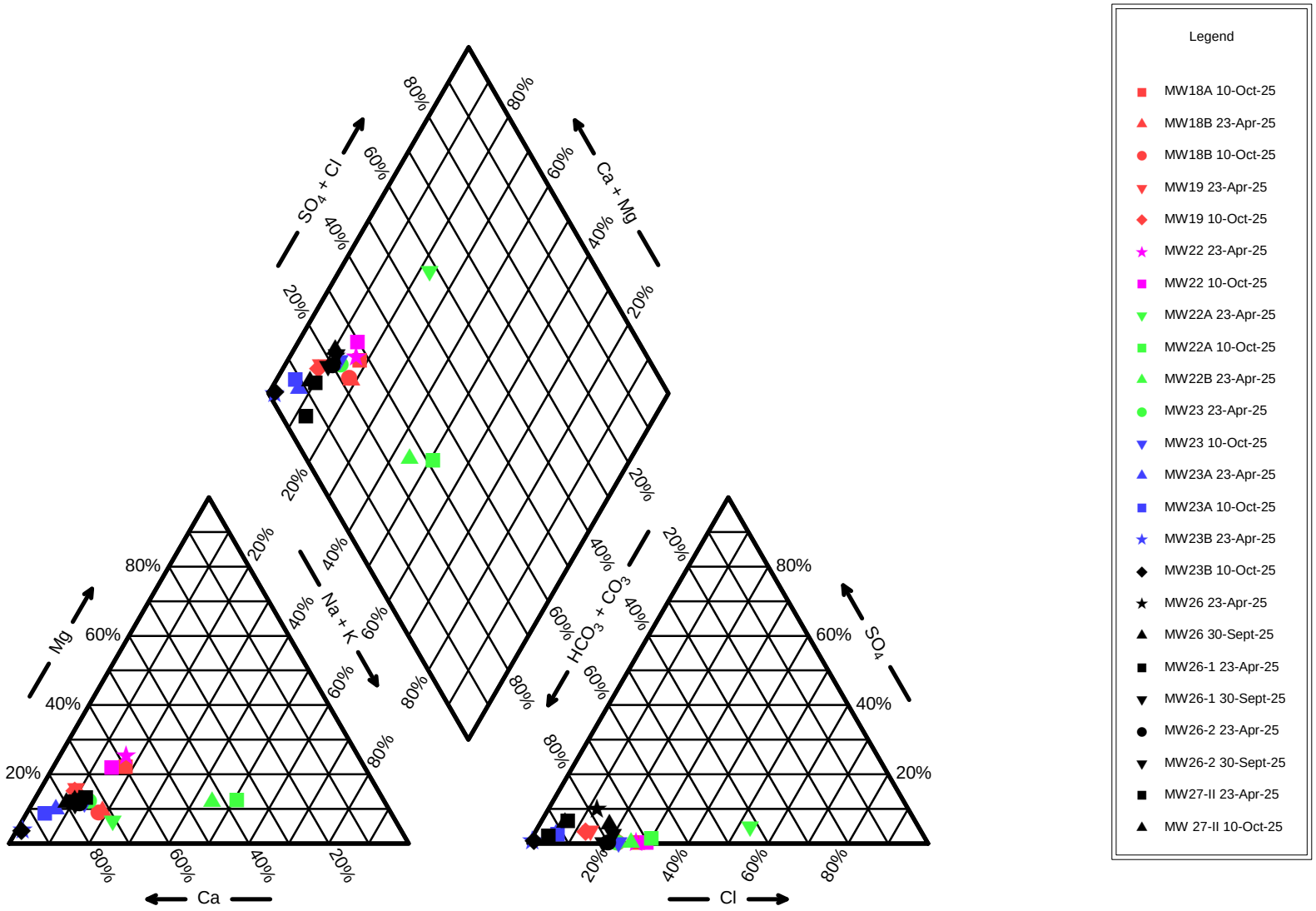
# APPENDIX H

## Piper Diagrams

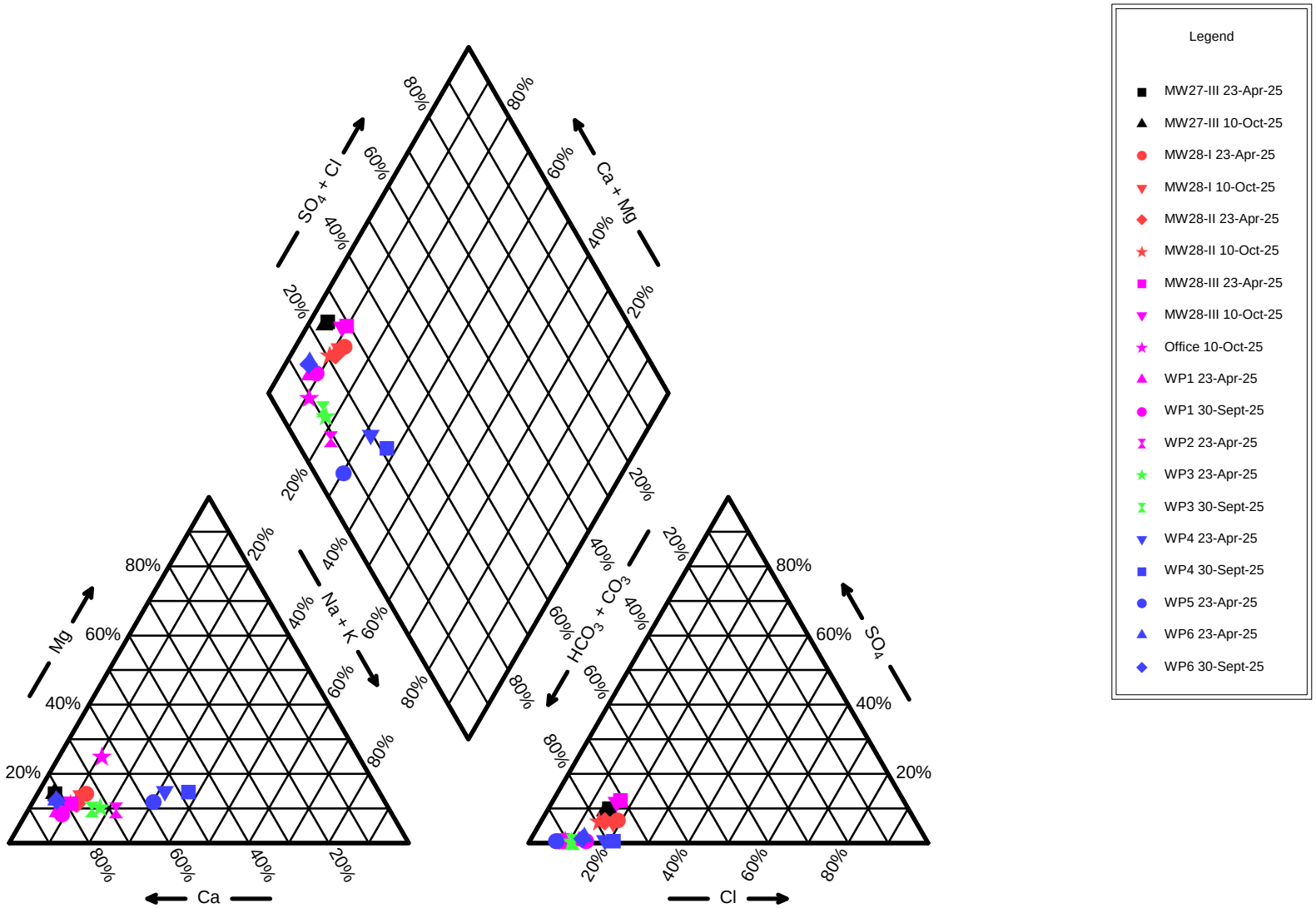
# Piper Diagram - GW Locations



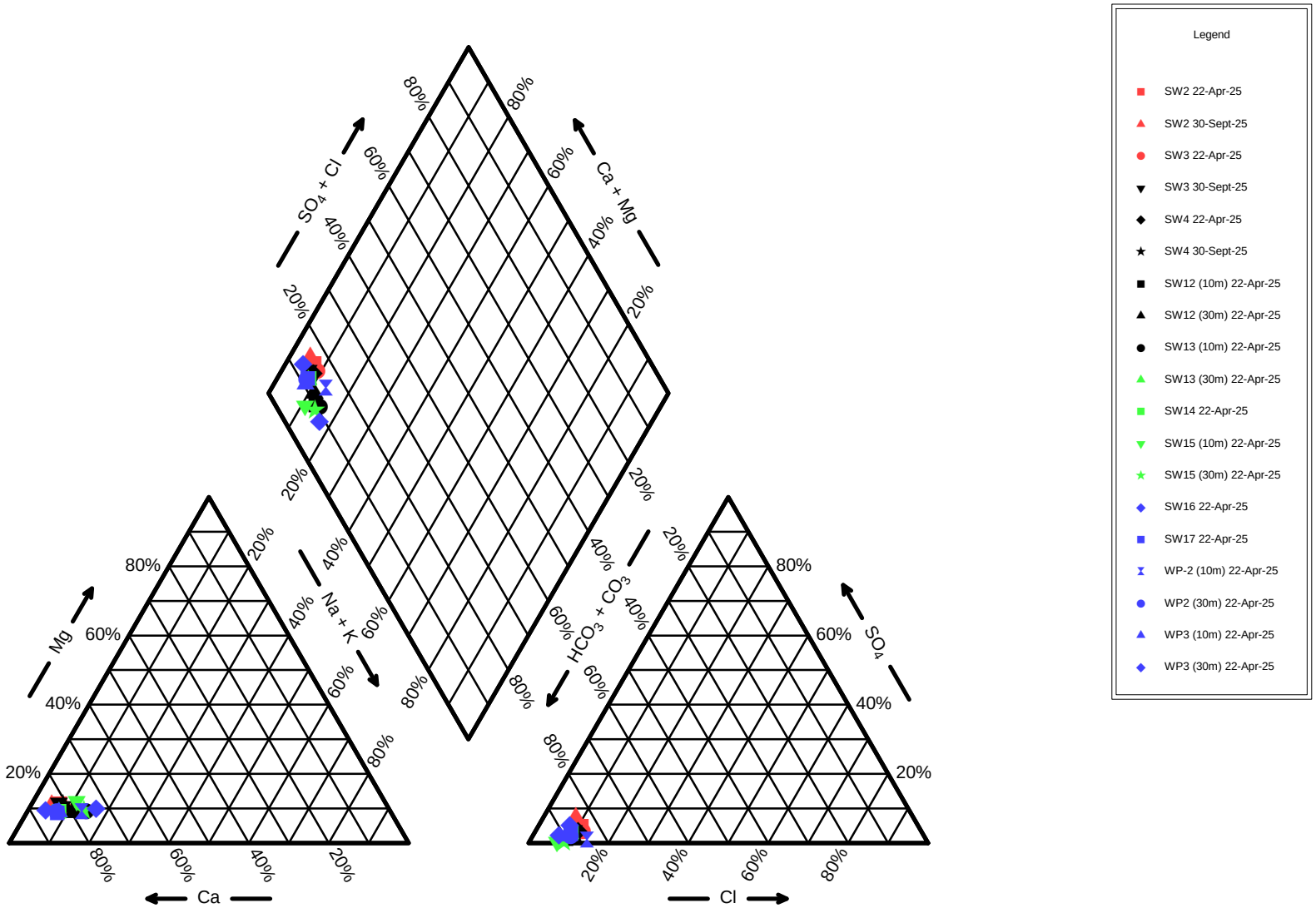
# Piper Diagram - GW Locations



# Piper Diagram - GW Locations



# Piper Diagram - SW Locations



# APPENDIX I

## Site Inspection Forms

# CLOSED LANDFILL QUARTERLY INSPECTION FORM

Date: Jan 22 2025 Inspector: B. Ferguson

Weather: Sunny 2-16°C Site: Fenelon

CLOSED SIGN VISIBLE ☐ No ☑ Yes

SITE SECURE ☐ No ☑ Yes

ILLEGAL DUMPING ☑ No ☐ Yes

***LEACHATE OUTBREAKS***

☑ No ☐ Yes (if Yes, complete the following for each outbreak)

Location _____ Colour _____

Sheen Present ☑ No ☐ Yes

Odour ☑ No ☐ Yes

***INTEGRITY OF FINAL COVER***

Gaps/Breaches ☑ No ☐ Yes

Additional Work Required ☑ No ☐ Yes

***STABILITY OF SIDE SLOPES***

Erosion ☑ No ☐ Yes

Slump ☑ No ☐ Yes

Additional Work Required ☑ No ☐ Yes

***CONDITION OF VEGETATIVE COVER***

**Growth Present** ☐ No ☑ Yes

**Type** Grasses / Snow covered day of inspection

**Location** Closed portion

**Additional Seeding Required** ☑ No ☐ Yes

***INTEGRITY OF SURFACE WATER DRAINAGE WORKS***

**Any repairs required** ☑ No ☐ Yes

***INTEGRITY. OF GROUNDWATER WATER MONITORING WELLS***

**Any repairs required** ☑ No ☐ Yes

**Monitoring Well #'s**

***CONDITION OF LEACHATE COLLECTION SYSTEM***

**Any repairs required** ☐ No ☐ Yes

**Flow Meter Operating** ☐ No ☐ Yes

**Alarms** ☐ No ☐ Yes

**Spills/Overflow** ☐ No ☐ Yes

**Chamber Locked** ☐ No ☐ Yes

**NOTE: Any remedial measures shall be undertaken within 5 days (weather permitting)**

# CITY OF KAWARTHA LAKES
# OPERATING LANDFILL INSPECTION FORM

**LANDFILL:** FENELON WDS.

Inspected by: BRAD PETTENSONE

Date: APRIL 23, 2025

Time: 17:30

Weather Conditions: OVERCAST 12°C

## A. GENERAL OBSERVATIONS

A.1 Landfill Site: CLOSED, GENERALLY CLEAN & ORGANIZED.

A.2 Status of Landfill Development/Construction Activities: ACTIVE IN APPROVED AREAS.

A.3 Tipping Face: COVERED, GOOD.

A.4 Residential Container Station: N/A.

A.5 Maintenance and Administration Building: Closed, OK.

A.6 Weigh Scale Inspection Building: Closed, OK.

A.7 Reuse Centre: Closed, OK

A.8 HHW Facility: Closed, OK

A.9 Leaf & Yard Waste Composting Facility: Closed, OK.

**B. STAFFING:**

B.1 Is staffing for the landfill operations and ancillary landfill operations (i.e., HHW Facility, Reuse Centre Leaf & Yard Waste Composting Facility) adequate?

Closed.

B.2 Are staff wearing adequate safety equipment? Closed.

## C. LANDFILL COVER:

C.1 Any evidence of leachate seeps or erosion of landfill cover on waste disposal fill area? _____

NO, POND @ SOUTH LIMIT OF ACTIVE CELL NOTED w/ SURFACE WATER COLLECTION.

C.2 Condition of ~~North~~ Slope? OK

C.3 Condition of vegetation? OK.

## D. STORM WATER MANAGEMENT SYSTEM:

D.1 Is the surface water management system in good operating order? (e.g. any erosion, litter, debris of the perimeter stormwater ditches or stormwater sedimentation ponds? Are culverts free from debris? _____

SOME POOLING WATER ON ACTIVE CELL.

## E. LEACHATE COLLECTION SYSTEM

E.1 Are manholes free of litter and debris? _____

N/A

E.2 Condition of manholes/need repairs? _____

## F. MAIN ENTRANCE AND INTERNAL ROADS:

F.1 Is the main entrance or internal roads in need of repair or maintenance work?

OK.

## G. DUST CONTROL:

G.1 Any dust problems because of the internal roads, working face or fill stockpiles?

OK.

G.2 Condition of Roads: OK

## H. ODOURS:

H.1 Any odour problems? NOT AT TIME OF INSPECTION

## I. LITTER CONTROL:

I.1 Any evidence of litter on the landfill buffer area site fencing, along Wilson Road, on adjacent properties or around the residential container station?

OK.

## J. LANDSCAPING:

J.1 Does the landscaping (trees, shrubs, and ground cover) require maintenance work (e.g. grass cutting, replacement or vegetation)?

LOTS OF FALLEN BRANCHES / TREES IN WETLAND SURROUNDING SITE.

## K. SITE PERIMETER FENCING AND SIGNING:

K.1 Is the site perimeter fencing in good condition? YES, OK.

K.2 Are the traffic and information signs in good condition? OK.

## L. LANDFILL OPERATIONS:

L.1 Is there sufficient material for daily and interim cover? OK

L.2 Is the landfill operations equipment in good working order? OK

L.3 Is the waste being spread, compacted and covered in accordance with the Maintenance & Operations Report?

OK

## M. SITE SECURITY AND SAFETY PROTOCOLS

M.1 Are waste loads being adequately inspected (weigh scale/inspection building, residential container station, tipping face)?

CLOSED.

M.2 Are there sufficient fire extinguishers (fully loaded and operable) at tipping face, weigh scale/ inspection building, maintenance and administration building, HHW Facility, Reuse Centre?

CLOSED, UNKNOWN.

M.3 Location and condition of medical emergency kits (eye wash stations and first aid kits).

CLOSED, UNKNOWN.

M.4 Staff knowledge of emergency procedures/numbers?

CLOSED.

## N. OTHER COMMENTS:

ADDITIONAL MATERIAL NEEDED AROUND MW-5 NEST TO FACILITATE SAMPLING.

## O. RECOMMENDATIONS:

ADD MORE FILL/WOODCHIPS @ MW-5 NEST FOR SAMPLING.

# CITY OF KAWARTHA LAKES
# OPERATING LANDFILL INSPECTION FORM

**LANDFILL:** FENELON WDS

Inspected by: BRAD PETTENSKI

Date: JULY 22, 2025

Time: 11:00

Weather Conditions: CLEAR, WARM 25°C

## A. GENERAL OBSERVATIONS

A.1 Landfill Site: CLOSED, ORGANIZED & NEAT & TIDY

A.2 Status of Landfill Development/Construction Activities: ACTIVE IN APPROVED AREAS.

A.3 Tipping Face: COVERED, GOOD

A.4 Residential Container Station: N/A

A.5 Maintenance and Administration Building: CLOSED

A.6 Weigh Scale Inspection Building: CLOSED

A.7 Reuse Centre: CLOSED

A.8 HHW Facility: CLOSED, PICKUP OCCURRED W/ CKL STAFF @ ~11:00

A.9 Leaf & Yard Waste Composting Facility: CLOSED, OK.

## B. STAFFING:

B.1 Is staffing for the landfill operations and ancillary landfill operations (i.e., HHW Facility, Reuse Centre Leaf & Yard Waste Composting Facility) adequate?

CLOSED

B.2 Are staff wearing adequate safety equipment?

CLOSED

## C. LANDFILL COVER:

C.1 Any evidence of leachate seeps or erosion of landfill cover on waste disposal fill area?

NO. PONDING NOW DRY AS NOTED IN SPRING

C.2 Condition of North Slope? OK

C.3 Condition of vegetation? OK

## D. STORM WATER MANAGEMENT SYSTEM:

D.1 Is the surface water management system in good operating order? (e.g. any erosion, litter, debris of the perimeter stormwater ditches or stormwater sedimentation ponds? Are culverts free from debris?

YES, OPERATION SEEM FINE.

## E. LEACHATE COLLECTION SYSTEM

E.1 Are manholes free of litter and debris?

N/A

E.2 Condition of manholes/need repairs?

## F. MAIN ENTRANCE AND INTERNAL ROADS:

F.1 Is the main entrance or internal roads in need of repair or maintenance work?

NO, ALL GOOD

## G. DUST CONTROL:

G.1 Any dust problems because of the internal roads, working face or fill stockpiles?

NO ISSUES.

G.2 Condition of Roads: GOOD

## H. ODOURS:

H.1 Any odour problems? NO ODOURS NOTED DURING INSPECTION

## I. LITTER CONTROL:

I.1 Any evidence of litter on the landfill buffer area site fencing, along Wilson Road, on adjacent properties or around the residential container station?

NO. OK.

## J. LANDSCAPING:

J.1 Does the landscaping (trees, shrubs, and ground cover) require maintenance work (e.g. grass cutting, replacement or vegetation)?

NO, OK.

## K. SITE PERIMETER FENCING AND SIGNING:

K.1 Is the site perimeter fencing in good condition? YES

K.2 Are the traffic and information signs in good condition? YES

## L. LANDFILL OPERATIONS:

L.1 Is there sufficient material for daily and interim cover? OK

L.2 Is the landfill operations equipment in good working order? OK

L.3 Is the waste being spread, compacted and covered in accordance with the Maintenance & Operations Report?

OK

## M. SITE SECURITY AND SAFETY PROTOCOLS

M.1 Are waste loads being adequately inspected (weigh scale/inspection building, residential container station, tipping face)?

CLOSED DURING INSPECTION.

M.2 Are there sufficient fire extinguishers (fully loaded and operable) at tipping face, weigh scale/ inspection building, maintenance and administration building, HHW Facility, Reuse Centre?

CLOSED

M.3 Location and condition of medical emergency kits (eye wash stations and first aid kits).

CLOSED

M.4 Staff knowledge of emergency procedures/numbers?

CLOSED

## N. OTHER COMMENTS:

SAME COMMENTS AS SPRING 2025, ADDITIONAL MATERIAL NEEDED AROUND MW-5 FOR SAMPLING

## O. RECOMMENDATIONS:

ADD FILL/WOOD CHIPS @ MW5

**CITY OF KAWARTHA LAKES**
**OPERATING LANDFILL INSPECTION FORM**

**LANDFILL:** FENELON LANDFILL

Inspected by: B. PETTERSONE / K. GALLIFORD

Date: OCTOBER 1, 2025

Time: 14:30

Weather Conditions: 22°C, SUNNY, BEAUTIFUL!

## A. GENERAL OBSERVATIONS

A.1 Landfill Site: ACTIVE, NO ISSUES TO REPORT.

A.2 Status of Landfill Development/Construction Activities: ACTIVE

A.3 Tipping Face: ACTIVE, ORGANIZED.

A.4 Residential Container Station: OK.

A.5 Maintenance and Administration Building: OK, CLEAN, ORGANIZED

A.6 Weigh Scale Inspection Building: OK

A.7 Reuse Centre: OK

A.8 HHW Facility: ACTIVE, OK

A.9 Leaf & Yard Waste Composting Facility: GOOD, FULL

**B. STAFFING:**

B.1 Is staffing for the landfill operations and ancillary landfill operations (i.e., HHW Facility, Reuse Centre Leaf & Yard Waste Composting Facility) adequate?

YES, OK

B.2 Are staff wearing adequate safety equipment? YES.

## C. LANDFILL COVER:

C.1 Any evidence of leachate seeps or erosion of landfill cover on waste disposal fill area? _____

NO, VERY DRY CONDITIONS

C.2 Condition of North Slope? OK

C.3 Condition of vegetation? OK, DRY

## D. STORM WATER MANAGEMENT SYSTEM:

D.1 Is the surface water management system in good operating order? (e.g. any erosion, litter, debris of the perimeter stormwater ditches or stormwater sedimentation ponds? Are culverts free from debris? _____

## E. LEACHATE COLLECTION SYSTEM

E.1 Are manholes free of litter and debris? _____

E.2 Condition of manholes/need repairs? _____

## F. MAIN ENTRANCE AND INTERNAL ROADS:

F.1 Is the main entrance or internal roads in need of repair or maintenance work?

No, OK

## G. DUST CONTROL:

G.1 Any dust problems because of the internal roads, working face or fill stockpiles?

No

G.2 Condition of Roads: Good

## H. ODOURS:

H.1 Any odour problems? MAJOR, EXPECTED NEAR TIPPING FACE,

## I. LITTER CONTROL:

I.1 Any evidence of litter on the landfill buffer area site fencing, along Wilson Road, on adjacent properties or around the residential container station?

No, OK. SOME WIND BLOWN ALONG SOUTH BOUNDARY NEAR TIPPING FACE.

## J. LANDSCAPING:

J.1 Does the landscaping (trees, shrubs, and ground cover) require maintenance work (e.g. grass cutting, replacement or vegetation)?

NO; O.K

## K. SITE PERIMETER FENCING AND SIGNING:

K.1 Is the site perimeter fencing in good condition? YES.

K.2 Are the traffic and information signs in good condition? YES

## L. LANDFILL OPERATIONS:

L.1 Is there sufficient material for daily and interim cover? YES, LARGE STOCKPILE ON-SITE

L.2 Is the landfill operations equipment in good working order? YES

L.3 Is the waste being spread, compacted and covered in accordance with the Maintenance & Operations Report?

YES, ASSUMED.

## M. SITE SECURITY AND SAFETY PROTOCOLS

M.1 Are waste loads being adequately inspected (weigh scale/inspection building, residential container station, tipping face)?

YES, ASSUMED.

M.2 Are there sufficient fire extinguishers (fully loaded and operable) at tipping face, weigh scale/ inspection building, maintenance and administration building, HHW Facility, Reuse Centre?

NOT INSPECTED

M.3 Location and condition of medical emergency kits (eye wash stations and first aid kits).

NOT INSPECTED

M.4 Staff knowledge of emergency procedures/numbers?

NOT INSPECTED

## N. OTHER COMMENTS:

## O. RECOMMENDATIONS:

# APPENDIX J

## MECP Landfill Reporting Submission Forms

# Appendix D-Monitoring and Screening Checklist
# General Information and Instructions

**General Information: The checklist is to be completed, and submitted with the Monitoring Report.**
**Instructions:** A complete checklist consists of:
(a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
(b) completed contact information for the Competent Environmental Practitioner (CEP)
(c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

**Definition of Groundwater CEP:**
For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:
(a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
(b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..
**Definition of Surface water CEP:**
A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

| Monitoring Report and Site Information | |
|---|---|
| **Waste Disposal Site Name** | Fenelon Landfill Site |
| **Location (e.g. street address, lot, concession)** | 341 Mark Road |
| **GPS Location (taken within the property boundary at front gate/ front entry)** | 674086 / 4927110 |
| **Municipality** | City of Kawartha Lakes |
| **Client and/or Site Owner** | City of Kawartha Lakes |
| **Monitoring Period (Year)** | 2025 |
| This Monitoring Report is being submitted under the following: | |
| **Certificate of Approval No.:** | Landfill - A321206 |
| **Director's Order No.:** | Type Here |
| **Provincial Officer's Order No.:** | Type Here |
| **Other:** | Type Here |

| | | |
|---|---|---|
| **Report Submission Frequency** | ◉ **Annual**<br>○ **Other** | Specify (Type Here): |
| **The site is:** | ◉ **Active**<br>○ **Inactive**<br>○ **Closed** | |
| **If closed, specify C of A, control or authorizing document closure date:** | | |
| **Has the nature of the operations at the site changed during this monitoring period?** | ◉ **Yes**<br>○ **No** | |
| **If yes, provide details:** | the operations will generally remain the same, but a volumetric capacity increase was included in an ammended ECA for the Site creating an additional 39,385 m3 | |
| **Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)** | ○ Yes<br>◉ No | |

## Groundwater WDS Verification:

**Based on all available information about the site and site knowledge, it is my opinion that:**

## Sampling and Monitoring Program Status:

| | | |
|---|---|---|
| **1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:** | ◉ **Yes**<br>○ **No** | |
| **2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):** | ○ **Yes**<br>◉ **No**<br>○ **Not Applicable** | If no, list exceptions below or attach information. |

| **Groundwater Sampling Location** | **Description/Explanation for change (change in name or location, additions, deletions)** | **Date** |
|---|---|---|
| see section 5 of report | | Select Date |
| | | Select Date |
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |

| | | |
|---|---|---|
| **3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.** | ◯ **Yes**<br>◉ **No**<br>◯ **Not Applicable** | |
| **b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:** | ◉ **Yes**<br>◯ **No**<br>◯ **Not Applicable** | If no, list exceptions below or attach additional information. |

| **Groundwater Sampling Location** | **Description/Explanation for change (change in name or location, additions, deletions)** | **Date** |
|---|---|---|
| | Type Here | Select Date |
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |

| | | |
|---|---|---|
| **4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):** | ◉ **Yes**<br>◯ **No** | If no, specify (Type Here): |

## Sampling and Monitoring Program Results/WDS Conditions and Assessment:

| | | | |
|---|---|---|---|
| **5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.** | ◉ **Yes**<br>○ **No** | If no, the potential design and operational concerns/ exceptions are as follows (Type Here): | |
| **6) The site meets compliance and assessment criteria.** | ○ **Yes**<br>◉ **No** | See Section 5.8.1 of report for RUP exceedances | |
| **7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.** | ◉ **Yes**<br>○ **No** | If no, list exceptions and explain reason for increase/change (Type Here): | |
| **1) Is one or more of the following risk reduction practices in place at the site:**<br>***(a)*** **There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/treatment; or**<br>***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or**<br>***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):**<br>***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and**<br>***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.** | ◉ **Yes**<br>○ **No** | **Note which practice(s):** | ☐ **(a)**<br>☒ **(b)**<br>☒ **(c)** |
| **9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):** | ○ **Yes**<br>◉ **No**<br>○ **Not Applicable** | | |

## Groundwater CEP Declaration:

**I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.**

**I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.**

**If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:**

**13-Mar-2026**

## Recommendations:

**Based on my technical review of the monitoring results for the waste disposal site:**

| | |
|---|---|
| ◉ **No changes to the monitoring program are recommended**<br><br>○ **The following change(s) to the monitoring program is/are recommended:** | |
| ◉ **No Changes to site design and operation are recommended**<br><br>○ **The following change(s) to the site design and operation is/ are recommended:** | Type Here |

| | | | |
|---|---|---|---|
| **Name:** | Colin Ross, B.Sc., P.Geo. | | |
| **Seal:** | Add Image | | |
| **Signature:** | | **Date:** | 13-Mar-2026 |
| **CEP Contact Information:** | Colin Ross | | |
| **Company:** | Azimuth Environmental Consulting Inc. | | |
| **Address:** | 642 Welham Road, Barrie, ON<br>L4N 9A1 | | |
| **Telephone No.:** | 705-721-8451 | Fax No. : | 705-721-8926 |
| **E-mail Address:** | colin@azimuthenvironmental.com | | |
| **Co-signers for additional expertise provided:** | | | |
| **Signature:** | | **Date:** | Select Date |
| **Signature:** | | **Date:** | Select Date |

## Surface Water WDS Verification:

**Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):**

| | |
|---|---|
| **Name (s)** | Martin Creek Wetland / Martin Creek |
| **Distance(s)** | immediately adjacent / 800m |

**Based on all available information and site knowledge, it is my opinion that:**

## Sampling and Monitoring Program Status:

| | | |
|---|---|---|
| **1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:** | ◉ Yes<br>○ No | |
| **2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):** | ○ Yes<br>◉ No<br>○ **Not applicable (No C of A, authorizing / control document applies)** | If no, specify below or provide details in an attachment. |

| Surface Water Sampling Location | Description/Explanation for change (change in name or location, additions, deletions) | Date |
|---|---|---|
| see section 5 of report | | Select Date |
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |

| | | |
|---|---|---|
| **3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.** | ◯ **Yes**<br>◉ **No**<br>◯ **Not Applicable** | |
| **b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:** | ◯ **Yes**<br>◯ **No**<br>◯ **Not Applicable** | If no, specify below or provide details in an attachment. |

| Surface Water Sampling Location | Description/Explanation for change (change in name or location, additions, deletions) | Date |
|---|---|---|
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |
| Type Here | Type Here | Select Date |

| | | |
|---|---|---|
| **4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/ outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):** | ◉ **Yes**<br>◯ **No** | If no, specify (Type Here): |

## Sampling and Monitoring Program Results/WDS Conditions and Assessment:

| | |
|---|---|
| **5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):** | ○ **Yes**<br>◉ **No** |

**If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:**

| Parameter | Compliance or Assessment Criteria or Background | Amount by which Compliance or Assessment Criteria or Background Exceeded |
|---|---|---|
| e.g. Nickel | e.g. C of A limit, PWQO, background | e.g. X% above PWQO |
| Iron<br>Zinc<br>Total Phosphorus<br>Cobalt<br>Chromium<br>Aluminum | 0.3 mg/L<br>0.02 mg/L<br>0.03 mg/L<br>0.0009 mg/L<br>0.001 mg/L<br>0.075 mg/L | >100%<br>>100%<br>>100%<br>>100%<br>>100%<br>>100% |
| Boron<br>Phenols<br>unionized ammonia | 0.2 mg/L<br>0.001 mg/L<br>0.02 mg/L | 96%<br>>100%<br>>100% |
| | | |
| Type Here | Type Here | Type Here |
| **6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?** | ◉ **Yes**<br>○ **No** | some are landfill some are natural see section 5.4 of report |

| | | |
|---|---|---|
| **7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.** | ◉ **Yes**<br>○ **No** | Some variability exists over time with respect to parameter concentrations however, there are no upward trends |
| **8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):** | ◉ Yes<br>○ No<br>○ Not Known<br>○ Not Applicable | If yes, provide details and whether remedial measures are necessary (Type Here)<br><br>attenuation is adequate to limit exceedances noted in GW monitors to be found in SW locations. as well, the site was designed as a natural attenuation facility such that there is an expectation that impacts will be observed in the adjacent wetland but are noted not to extend much beyond the perimeter area. A such, no remedial measures proposed |
| **9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):** | ◉ **Yes**<br>○ **No**<br>○ **Not Applicable** | boron at SW15 has exceeded single parameter criteria, but subsequent october sampling event indicated compliance, such that no further actions were required |

## Surface Water CEP Declaration:

**I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.**

**I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.**

**If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:**

13-Mar-2026

## Recommendations:

**Based on my technical review of the monitoring results for the waste disposal site:**

| | |
|---|---|
| ○ **No Changes to the monitoring program are recommended**<br>◉ **The following change(s) to the monitoring program is/are recommended:** | |
| ◉ **No changes to the site design and operation are recommended**<br>○ **The following change(s) to the site design and operation is/are recommended:** | Type Here |

| | |
|---|---|
| **CEP Signature** | |
| **Relevant Discipline** | Hydrogeology |
| **Date:** | 13-Mar-2026 |
| **CEP Contact Information:** | Colin Ross |
| **Company:** | Azimuth Environmental Consulting Inc. |
| **Address:** | 642 Welham Road, Barrie, ON<br>L4N 9A1 |
| **Telephone No.:** | 705-721-8451 x 205 |
| **Fax No. :** | 705-721-8926 |
| **E-mail Address:** | colin@azimuthenvironmental.com |

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