AZIMUTH

Environmental Approvals

Fisheries & Aquatic Ecology

Terrestrial & Wetland Ecology

Environmental Engineering

Hydrogeology & Contaminant Hydrogeology

Arborist Services

Environmental Site Assessment

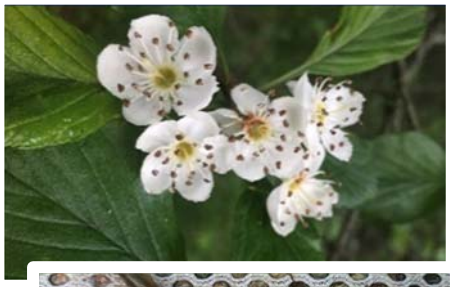
Species at Risk

Project Management

Environmental Impact Assessment

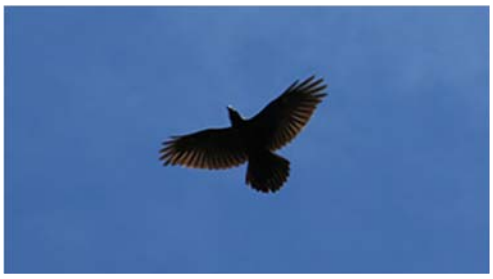
Water and Wastewater Engineering

Environmental Site Inspection / Construction Monitoring











Fenelon Landfill Site

341 Mark Road

City of Kawartha Lakes

Prepared for City of Kawartha Lakes

AEC Project No. 25-010 | May 2025

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

May 27, 2025 AEC 25-010

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

Attention: Ms. Kayla Pantaleo -Regulatory Compliance Officer

Re: 2024 Annual Monitoring Report – Fenelon Landfill Site

Dear Kayla:

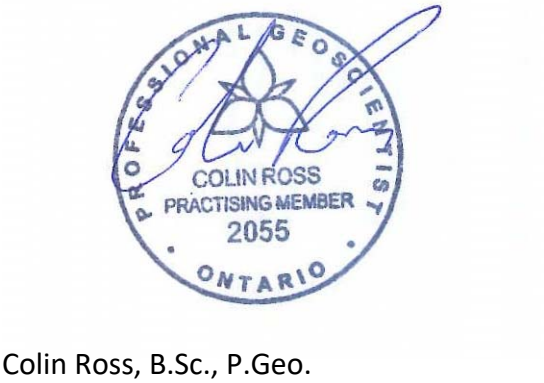
Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide the 2024 Annual Monitoring Report (AMR) for the Fenelon Waste Disposal Site (Site). The data and interpretation included provides a summary of the 2024 monitoring data with comparison to the historical data and accurate assessment 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 2024 data with the historic data set for the majority of monitoring locations.

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

Table of Contents

page

Letter of Transmittal ..... **i**

EXECUTIVE SUMMARY **6**

1.0 INTRODUCTION **8**

1.1 Site Background **8**

2.0 GEOLOGY **9**

3.0 HYDROGEOLOGIC INTERPRETATION **10**

4.0 SITE CONCEPTUAL MODEL **12**

5.0 SUMMARY OF 2024 MONITORING PROGRAM **14**

5.1 2024 QA/QC Samples **17**

5.2 Ground Water & Leachate **19**

5.2.1 Ground Water & Leachate Flow 19

5.2.2 Background Ground Water Quality 20

5.2.3 Leachate Quality 20

5.2.4 Downgradient Ground Water Quality 22

5.3 Wetland Ground Water Monitoring **28**

5.4 Surface Water **30**

5.4.1 Surface Water Flow 30

5.4.2 Surface Water Quality 30

5.5 Organic Sampling Results **36**

5.6 Graphical Analysis **38**

5.7 PFAS Sampling Results **39**

5.8 Ground Water Trigger Mechanism **41**

5.8.1 Reasonable Use Policy Compliance Trigger Parameters/Locations 42

5.8.2 Martin Creek / Wetland Protection Trigger Parameters/Locations 44

5.9 Surface Water Trigger Mechanism **45**

5.10 Landfill Gas **45**

6.0 SITE OPERATIONS **45**

6.1 2024 Site Maintenance & Activities **45**

6.2 2024 Waste Volumes / Site Capacity **46**

6.3 Recyclable Materials Summary **46**

6.4 Compost Operations 47
6.5 Household Hazardous Waste Depot 48
6.6 Active Waste Area 48
6.6.1 Daily/ Interim Cover 49
6.6.2 Final Cover 49
6.7 Other Site Activities / Incidents 49
7.0 CONCLUSIONS 50
8.0 RECOMMENDATIONS 52
9.0 REFERENCES 55

List of In-Text Tables

page

Table 1: Hydraulic Conductivity Values 10
Table 2: Ground Water Flow Velocities 12
Table 3: 2024 Monitoring Program 15
Table 4: QA/QC Analysis 17
Table 5: Average Leachate Indicator Parameter Concentrations – Perimeter Overburden 24
Table 6: Average Leachate Indicator Parameter Concentrations – Shallow Overburden 24
Table 7: Average Leachate Indicator Parameter Concentrations – Lower Overburden 25
Table 8: Average Leachate Indicator Parameter Concentrations – Shallow Bedrock 26
Table 9: Average Leachate Indicator Parameter Concentrations – Wetland Probes 29
Table 10: Average Leachate Indicator Parameter Concentrations – Martin Creek 32
Table 11: Average Leachate Indicator Parameter Concentrations – Perimeter SW Locations 32
Table 12: PWQO Exceedances Summary Table 34
Table 13: Electrical Conductivity Transect Results 35
Table 14: VOC Detection and Exceedance Summary 37
Table 15: PFAS Results Summary 40
Table 16: Reasonable Use Policy Exceedance Summary Table 43
Table 17: Shallow Overburden Triggers for Martin Creek 44
Table 18: Summary of Waste Amounts in Phase II Area 46
Table 19: Summary of Recyclable Materials Received in 2024 47
Table 20: Proposed 2025 Monitoring Program 53

List of Figures

Figure 1 Site Location
Figure 2 Ground Water Monitoring Network
Figure 3 Surface Water Monitoring Network
Figure 4 Regional Hydrogeology
Figure 5 Geological Cross-Sections
Figure 6 Shallow Overburden Ground Water Contours – April 2024
Figure 7 Shallow Overburden Ground Water Contours – October 2024
Figure 8 Lower Overburden Ground Water Contours – April 2024
Figure 9 Lower Overburden Ground Water Contours – October 2024
Figure 10 Bedrock Ground Water Contours – April 2024
Figure 11 Bedrock Ground Water Contours – October 2024
Figure 12 2024 Site Survey

List of 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: Sampling Protocols
Appendix G: Chemistry Over Time Graphs
Appendix H: Surface Water Photos
Appendix I: Piper Diagrams
Appendix J: Site Inspection Forms
Appendix K: MECP Landfill Reporting Submission Forms

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 January, 2019.

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 2024, 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 2024 monitoring period.

The monitoring program for 2025 follows what was included in the 2025 ECA amendment, which is similar to what has been completed historically, although pesticide and PCB sampling have been removed along with MW27-I, which was confirmed with the MECP to target a deeper mineralized bedrock water such that the data collected was not useful to the monitoring program. Additional changes for 2025 include PFAS sampling at five perimeter surface water locations during the April 2025 monitoring event as most of the locations during previous PFAS sampling program completed in 2023 were dry. Finally, a new Guideline B7 – Reasonable Use compliance monitoring well is required to be installed at the western property boundary, which the City intends to construct in 2025.

Based on the remaining capacity (76,800 m^3) and an annual average waste and interim cover material volume of 7,000 m^3, there is ~11 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), issued October 28, 2003 and last amended March 17th, 2025 to facilitate a volumetric expansion (39,385 m^3) of the Site.

The following report provides a summary of the 2024 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*	5×10^{-4}	0.004	0.25	250
Fine to Medium Sand*	1×10^{-4}	0.004	0.25	50
Lower Overburden	9×10^{-6}	0.003	0.25	3
Upper Bedrock	1×10^{-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. 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 from 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 2024 MONITORING PROGRAM

The 2024 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 2024, 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.

In 2024, 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. Also, for a more detailed description of the field protocols employed for all monitoring activities associated with the 2024 monitoring program, the City's standard field protocols have been included in Appendix F.

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

Table 3: 2024 Monitoring Program

Monitoring Station	Frequency	Parameters
Ground Water 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-I, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III, Office, WP1, WP2, WP3, 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). * - Water Level Measurements Only During Fall Monitoring Event
MW-7*/**, MW12, MW14, MW15*, MW15A*, MW15B*, MW16*, MW26*, MW26-1*, MW26-2*, MW27-I*, MW27-II*, MW27-III*, MW28-I*, MW28-II*, MW28-III*, WP1, WP2, WP3, WP3, WP4, WP5 & WP6		VOCs * PCB's ** Pesticides

Table 3: 2024 Monitoring Program

Monitoring Station	Frequency	Parameters
Surface Water 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) * - PCB's during fall event Additional filtered metals analysis for all locations except SW2, SW3 & SW4.
SW12 (10m), SW13 (10m), SW15 (10m), SW14		Toluene
SW2, SW3, SW4	(April / May, & July)	VOC's

The 2024 program was completed as required with the exception of ground water sample collection from MW1 (April), MW16 (both events) & MW17 (both events) and surface water locations WP4 (30m) (April & October), SW12 (all events), SW13 (October), SW15 (all events), SW16 (October). 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 water system was not yet running.

5.1 2024 QA/QC Samples

As part of the routine sampling program for the Site, duplicate samples were collected and analyzed for quality assurance purposes. In 2024, 10 QA/QC samples were collected out of 114 samples collected. The laboratory was not advised of the sample duplication prior to analysis of these samples. 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. As well, some of the variance in the surface water samples could be attributed to sediment entrainment during sample collection as a few samples indicated elevated total suspended solids concentrations which could create both elevations and variance depending on the sediment load in a given sample bottle.

There were two instances (April samples for SW3 and SW17) where ammonia and TKN values were more significantly elevated in the duplicate samples relative to the main sample as well as the historical range. It is uncertain as to the source of this variance, and the TSS concentrations were not elevated for these samples such that sediment influence is not likely the cause.

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. As such, the laboratory quality is considered sufficient for 2024, but nutrient analysis in the duplicate samples will be closely monitored in 2025.

Table 4: QA/QC Analysis

April (MW11A)			
Parameter	**Results (mg/L)**		**Difference (%)**
TKN	1.8	0.6	100%
Ammonia	0.14	0.1	33%
Lead	0.00002	0.00003	40%
Nickel	0.0003	<0.0002	40%
October (MW11A)			
Parameter	**Results (mg/L)**		**Difference (%)**
COD	37	30	21%
Sulphate	5	4	22%
Ammonia	0.2	0.14	35%
Copper	0.0005	0.0004	22%

Table 4: QA/QC Analysis

October (MW19)			
Parameter	**Results (mg/L)**		**Difference (%)**
Chloride	39.7	30.4	27%
Sulphate	18	14	25%
Ammonia	0.09	<0.05	57%
Lead	0.00002	0.00006	100%
October (MW26-2)			
Parameter	**Results**		**Difference (%)**
TKN	1	0.5	67%
Ammonia	0.28	0.22	24%
TSS	8	12	40%
Aluminum	0.05	0.04	22%
April (SW3)			
Parameter	**Results**		**Difference (%)**
Total Phosphorus	0.01	0.02	67%
TKN	0.5	3.8	153%
Ammonia	0.05	3.76	195%
Aluminum	0.06	0.03	67%
Lead	0.00004	0.00003	29%
Molybdenum	0.0002	0.0001	67%
Zinc	0.007	0.005	33%
October (SW3)			
Parameter	**Results**		**Difference (%)**
Total Phosphorus	0.03	0.04	29%
Potassium	1.5	2	29%
Ammonia	0.23	0.12	63%
TSS	104	<3	189%
Aluminum	0.04	0.03	29%
Antimony	0.0003	<0.0001	100%
Arsenic	0.0003	0.0004	29%
Cobalt	0.0003	0.0002	40%
Vanadium	0.0001	0.0002	67%

July (SW14)			
Parameter	**Results**		**Difference (%)**
BOD	<3	4	29%
COD	60	103	53%
Iron	0.341	2.04	143%
Manganese	0.06	0.29	131%
Total Phosphorus	0.08	0.22	93%
TKN	1.1	1.7	43%
Ammonia	0.32	0.07	128%
TSS	27	143	136%
Turbidity	2.8	45.9	177%
Aluminum	0.06	0.26	125%
Arsenic	0.0005	0.0007	33%
Barium	0.02	0.033	49%
Boron	0.008	0.012	40%
Cobalt	0.0003	0.0007	80%
Copper	0.0005	0.0014	95%
Lead	0.00018	0.00185	165%
Nickel	0.0007	0.0009	25%
Vanadium	0.0002	0.0006	100%
Zinc	0.006	0.022	114%
April (SW17)			
Parameter	**Results**		**Difference (%)**
Manganese	0.011	0.007	44%
Total Phosphorus	0.03	0.05	50%
TKN	0.7	2.1	100%
Ammonia	0.09	1.63	179%
Nickel	0.0007	0.0011	44%

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 2024 was generally consistent with the historical data set; however, a shift in reference elevations was noted following a survey of all monitoring locations in 2019, which caused the results between 2019 and the historical values to differ slightly. The 2024 and historical ground water elevations have been included in Appendix C. The 2024 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 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. 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 2024 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 similar to 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 2024, 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 six wetland probes (WP1, 2, 3, 4, 5 & 6) which are constructed shallow (~3 m) and are located in close proximity to the perimeter of the waste fill area.

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.

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 suggest 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, suggest 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).

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	**2322**	**1548**	**1180**	**1570**	**1082**	324	**669**	**864**	**980**	347	**1874**
Boron	5	0.02	4	2	1	1	0.3	0.1	0.5	1	2	0.04	2
COD		31	798	368	362	252	168	48	70	294	326	45	393
Chloride	250	146	**659**	195	111	**253**	144	21	49	66	232	**338**	**278**
DOC	5	**7**	**77**	**53**	**34**	**56**	**30**	**11**	**17**	**32**	**54**	**7**	**67**
Iron	0.3	**3**	**10**	**8**	**27**	**11**	**24**	**4**	**53**	**76**	**67**	**5**	**20**
Manganese	0.05	**0.2**	**0.1**	**1**	**1**	**1**	**0.4**	**0.2**	**1**	**5**	**1**	**0.3**	**3**
Potassium		2	274	109	60	179	106	13	53	49	63	2	161
TKN		1	501	167	99	209	85	14	46	13	47	2	221
Ammonia (total)		1	457	139	85	188	75	13	43	9	41	1	198
TDS	500	**524**	**3592**	**1997**	**1400**	**2127**	**1418**	385	**808**	**1083**	**1461**	**926**	**2501**

Bold Highlighting indicates ODWQS exceedance

Average data from 2020 to 2024, 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	**2322**	256	213	241	183	179	199	151	241	287	187
Boron	5	0.02	4	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.04	0.05	0.01
COD		31	798	41	7	8	26	12	57	17	35	61	388
Chloride	250	146	**659**	4	4	4	4	2	16	1	32	44	21
DOC	5	**7**	**77**	**11**	3	3	3	4	4	3	3	4	2
Iron	0.3	**3**	**10**	0.03	0.01	0.02	**1**	0.01	0.02	0.02	**0.4**	**1**	0.3
Manganese	0.05	**0.2**	**0.1**	0.004	0.001	0.002	**0.1**	0.001	0.009	0.03	**0.1**	0.04	0.03
Potassium		2	274	35	1	1	3	0.2	0.3	0.3	2	3	2
TKN		1	501	1	0.2	0.4	1	0.3	1	0.4	0.3	0.5	5
Ammonia (total)		1	457	0.2	0.1	0.2	1	0.1	0.05	0.1	0.1	0.1	0.1
TDS	500	**524**	**3592**	323	231	259	200	187	239	155	357	383	249

Bold Highlighting indicates ODWQS exceedance

Average data from 2020 to 2024, 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	**2322**	334	405	416	401	244	227	364	211
Boron	5	0.02	4	0.1	0.1	0.1	0.1	0.02	0.02	0.04	0.01
COD		31	798	16	17	29	26	6	112	17	43
Chloride	250	146	**659**	26	36	64	70	12	34	52	15
DOC	5	**7**	**77**	**8**	**7**	**10**	**8**	3	2	**7**	2
Iron	0.3	**3**	**10**	0.01	0.2	**9**	**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	274	4	4	5	4	1	2	2	2
TKN		1	501	1	0.4	2	1	0.3	1	1	1
Ammonia (total)		1	457	0.3	0.1	2	1	0.2	0.2	0.2	0.1
TDS	500	**524**	**3592**	413	**505**	**542**	**525**	273	304	457	258

Bold Highlighting indicates ODWQS exceedance

Average data from 2020 to 2024, where available

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 marginal influence may also be present at MW15B and MW23.

The water quality from MW27-I indicates a very different geochemical signature than the most bedrock monitoring wells. While most LIPs are elevated, several other parameters such as barium, sodium, selenium, hardness and strontium are significantly elevated above those found in the leachate monitoring well (MW7). This, coupled with its large distance from the waste source, suggests that the source of these elevations is from natural mineralization within the bedrock aquifer environment. Other distant locations MW26-1 and MW28-I do appear to have elevated LIPs (*i.e.,* ammonia, boron and DOC) concentrations; however, these are similar or below those concentrations observed in the background well (Office). Chloride concentrations at these locations are also elevated; however, this is likely the result of influence from Mark Road.

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	MW27-I
Alkalinity	500	220	**2322**	263	404	380	363	215	322	165
Boron	5	0.1	3.94	0.1	0.2	0.1	0.1	0.02	0.1	1
COD		13	798	31	26	20	27	6	11	143
Chloride	250	15	**659**	54	86	71	60	37	52	**3206**
DOC	5	**7**	**77**	**10**	**8**	**7**	**10**	2	**5**	1
Iron	0.3	**3**	**10**	**2**	**3**	**2**	**5**	**0.5**	**1**	**1**
Manganese	0.05	**0.1**	**0.1**	0.04	**0.1**	**0.1**	**0.1**	0.02	**0.1**	0.02
Potassium		4	274	5	8	4	3	2	3	54
TKN		1	501	2	2	1	1	0.2	0.4	10
Ammonia (total)		0.5	457	1	2	0.5	1	0.1	0.1	8
TDS	500	245	**3592**	353	**546**	499	469	297	418	**5190**

Bold Highlighting indicates ODWQS exceedance

Average data from 2020 to 2024, where available

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.

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. 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 has been present for many years with no obvious increasing trends and the concentrations are still relatively minimal.

MW23 and MW23B have concentrations falling within a predictable range with the exception of ammonia and TKN which remain somewhat elevated following slight increases in 2022 (though within the historical range). Other LIPs remain within their respective range, suggesting independent sources but these trends will continue to be monitored in 2025.

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 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 2024 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, MW18A & MW18B which are more likely sourced to the landfill based on their proximity and centerline location of the perceived dilute leachate plume orientation. Beyond the exceedances noted above, several other parameters including barium, chloride and sodium were noted to exceed at MW27-I, with concentrations consistent for the period of record. As noted above, this location had been determined to target a naturally mineralized horizon within the bedrock such that these exceedances are not related to the landfill. This is further supported by the fact these exceedances represent significant elevations in concentrations at the most distant monitoring location. It is noted that this location has been removed from the monitoring program for 2025 under direction of the MECP based on confirmation of a natural source through PFAS sampling described in Section 5.6.

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. 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		314	235	2322	480	622	787	271
Boron*	1.5	0.02	0.01	**4**	0.1	0.4	0.5	0.2
COD		105	414	798	1801	391	691	421
Chloride*	120	28	18	**659**	27	37	87	11
DOC		10	18	77	21	29	35	22
Iron	0.3	**4**	**1**	**10**	**14**	**1**	**1**	**17**
Manganese		0.1	0.5	0.1	0.5	0.3	0.2	0.9
Potassium		2	2	274	13	40	66	15
TKN		2	6	501	47	61	41	6
Ammonia (total)		0.4	1	457	6	46	33	1
TDS		406	274	3592	570	883	952	320

* - CWQG

Bold Highlighting indicates PWQO CWQG exceedance

Average data from 2020 to 2024, 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. As well, the average concentration at WP5 is strongly influenced by a single concentration from October, 2020 (95.7 mg/L). 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 for these wetland monitors in 2024 include iron, aluminum, zinc, phenols, phosphorus and unionized ammonia at various locations. The zinc exceedances were historically related to the galvanized steel drive-point construction (2021 and prior), which registered concentrations about two-orders higher than current suggesting they are not sourced to the landfill. While variability amongst the dataset is noted, these elevated concentrations are not attributable to the landfill.

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 for most parameters 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, VOC's, and PCB's.

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 2024 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		160	238	2322	167	145
Boron	0.2	0.01	0.01	**4**	0.01	0.01
COD		32	17	798	49	57
Chloride		11	15	659	15	13
DOC		14	8	77	18	20
Iron	0.3	0.1	0.1	**10**	**1**	**0.4**
Manganese		0.03	0.04	0.1	0.2	0.1
Potassium		1	2	274	1	1
TKN		1	1	501	1	1
Ammonia (total)		0.2	0.3	457	0.1	0.1
TDS		188	283	3592	200	171

Bold Highlighting indicates PWQO / CWQG exceedance

Average data from 2020 to 2024, 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	Background	Leachate	Perimeter Locations						
				West	North				South	
		SW14*	MW7	SW12	WP2	WP3	SW13	SW17	SW15	WP4
Alkalinity		136	2322	191	155	229	357	171	291	296
Boron	0.2	0.02	**4**	0.04	0.01	0.1	0.2	0.01	0.2	0.2
COD		604	798	83	53	50	237	92	100	154
Chloride		8	659	12	9	13	31	14	7	14
DOC		21	77	19	19	22	26	21	32	25
Iron	0.3	**8.4**	**10**	**1**	**1**	0.3	**32**	**1**	0.2	**5**
Manganese		0.5	0.1	0.1	0.2	0.05	1	0.2	0.2	2
Potassium		2	274	3	2	6	10	4	14	12
TKN		2	501	2	1	2	9	2	2	4
Ammonia (total)		0.5	457	0.2	0.3	1	3	0.1	0.1	1
TDS		158	3592	221	176	257	449	197	314	340

Bold Highlighting indicates PWQO exceedance

Average data from 2020 to 2024, 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 shown in the trend charts for all surface water locations (Appendix G), surface water quality over time varies 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 three 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 locations plotted 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. 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 increase 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.

The 2024 results were also compared to the PWQO as is standard for surface water quality evaluations. Elevated concentrations relative to the PWQO during 2024 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: PWQO Exceedances Summary Table

Location	Parameter	PWQO	Concentrations (mg/L)		
			April	August	October
SW2	Total Phosphorus	0.03	0.03	**0.04**	0.01
SW3	Iron	0.3	0.086	**0.631**	**0.314**
	Total Phosphorus	0.03	0.01	**0.08**	0.03
SW4	Iron	0.3	0.065	**1.06**	**1.24**
	Total Phosphorus	0.03	0.02	**0.04**	**0.24**
	Chromium	0.001	**0.004**	<0.001	<0.001
	Aluminum	0.075	0.03	0.05	**0.1**
SW12 (10m)	No samples		Dry	Dry	Dry
SW13 (10m)	Total Phosphorus	0.03	**0.19**	0.03	Dry
	Iron	0.3	**0.598**	**13.3**	
	Aluminum	0.075	0.06	**0.28**	
	Boron	0.2	0.024	**0.37**	
	Cobalt	0.0009	0.0002	**0.0031**	
SW13 (30m)	Total Phosphorus	0.03	**0.14**	**0.1**	**0.59**
	Iron	0.3	**0.95**	**0.889**	**2.97**
	Aluminum	0.075	**0.17**	**0.14**	**0.26**
SW14	Total Phosphorus	0.03	**0.4**	**0.08**	**8.14**
SW14	Iron	0.3	0.272	**0.341**	**105**
	Aluminum	0.075	0.06	0.06	**18.1**
	Boron	0.2	<0.005	0.008	**0.216**
	Cobalt	0.0009	0.0002	0.0003	**0.0213**
	Chromium	0.001	<0.001	**0.002**	**0.032**
	Cadmium	0.0005	<0.000015	<0.000015	**0.00458**
	Arsenic	0.005	0.0003	0.0005	**0.0203**
	Phenols	0.001	<0.001	<0.001	**0.003**
SW15 (10m)	Iron	0.3	**0.593**	Dry	Dry
	Total Phosphorus	0.03	**0.13**		
	Aluminum	0.075	**0.09**		
	Boron	0.2	**0.267**		
SW15 (30m)	Total Phosphorus	0.03	**0.14**	**0.19**	Dry
	Total Phosphorus	0.03	0.01	**0.06**	
	Boron	0.2	**0.245**	0.138	
SW16	Total Phosphorus	0.03	0.01	**0.06**	Dry
SW17	Iron	0.3	0.099	**1.4**	**1.89**
	Total Phosphorus	0.03	0.03	**0.19**	**0.36**
	Aluminum	0.075	0.04	**0.96**	**0.95**
WP4 (30m)	Iron	0.3	**0.535**	0.292	Dry

Table 12: PWQO Exceedances Summary Table

Location	Parameter	PWQO	Concentrations (mg/L)		
			April	August	October
	Total Phosphorus	0.03	**0.14**	**0.15**	
	Aluminum	0.075	0.07	**0.11**	

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 18, 2024 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. 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, with the exception of SW15 and WP4 which showed variability across the transect. 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 are 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) groundwater / surface water monitoring events, which was accomplished in 2024 as the conductivity profile was completed the same week of 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 with the exception of WP4 which indicated variable concentrations between the 15 & 30 m distance. Compared to PWQO values, the only exceedances at the furthest offset stations were for iron (0.95 & 0.535 mg/L versus 0.3 mg/L) at SW13 and WP4, unionized ammonia (0.04 mg/L versus 0.02 mg/L) at SW13, aluminum (0.17 & 0.09 mg/L versus 0.075 mg/L) at SW13 & SW15 and boron (0.245 mg/L versus 0.2 mg/L) at SW15. Total phosphorus was exceeded at SW13, SW15 and WP4 with concentrations ranging from 0.06 to 0.14 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)	257
	SW12-10m	Dry
	SW12-15m	728
	SW12-20m	642
	SW12-25m	501
	SW12-30m	376
	SW13-10m	396
	SW13-15m	262
	SW13-20m	222
	SW13-25m	241
	SW13-30m	241
	SW15-10m	703
	SW15-15m	714
	SW15-20m	751
	SW15-25m	556
	SW15-30m	704
	WP2-10m	287
	WP2-15m	238
	WP2-20m	235
	WP2-25m	232
	WP2-30m	238
	WP3-10m	570
	WP3-15m	471
	WP3-20m	297
	WP3-25m	254
	WP3-30m	249
	WP4-10m	Dry
	WP4-15m	620
	WP4-20m	592
	WP4-25m	707
	WP4-30m	620

5.5 Organic Sampling Results

As part of the monitoring program in 2024, 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 are targeted during the April and July monitoring events. SW12, SW13, SW14 and SW15 are analyzed for toluene during the April, July and October monitoring events; however, were all noted to be dry during 2024 with the exception of SW13 in April & July and SW14 during all events. In addition to the VOC parameters, Polychlorinated biphenyl (PCB) samples were also collected at MW7, MW15, MW15A, MW15B, MW26, MW26-1, MW26-2, MW27-I, MW27-II, MW27-III, MW28-I, MW28-II, MW28-III during both the April and October monitoring events, as well as from SW3 during the October monitoring event. Finally, pesticides were targeted at MW7 during the April monitoring event. The results for PCB's were similar to previous years with no detection at any

location, which is similar to the past 13 years. Similarly, pesticide results from MW7 did not indicate any detection in 2024.

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: VOC Detection and Exceedance Summary

Parameter	ODWQS / PWQO	MW7*	MW26	MW26-1	MW26-2	SW14
C1,2-Dichloro-ethene		ND	**0.5**	**1.6 / 1.8**	**1.4 / 1.8**	--
Benzene	5	**3.6**	ND	ND	ND	--
Toluene	60 / 2	ND	ND	ND	ND	**2.2**
Chlorobenzene		**19.5**	ND	ND	ND	--
1,4-Dichlorobenzene	5	**2**	ND	ND	ND	--
1,2-Dichlorobenzene	200	**0.8**	ND	ND	ND	--
m/p-Xylene		**22**	ND	ND	ND	--
o-Xylene		**1.9**	ND	ND	ND	--
Total Xylene	0.3	**23.9**	ND	ND	ND	--

samples from MW12, MW14, MW15, MW15A, MW15B, MW16, MW26, MW26-1, MW26-2, MW27-I, 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 found at MW26 at all three (3) intervals. A trace detection of vinyl chloride was noted during the October monitoring event at MW26-1 and MW26-2; however, this parameter has been occasionally observed at these locations in the past. No other detections were reported in the shallower or deeper monitoring intervals at this location suggesting this is an isolated detection.

Toluene was noted to exceed PWQO during the October monitoring event, which is the first detection for this parameter since it was first sampled for in 2017. Given the significantly elevated TSS concentration of 4,240 mg/L, which is two orders of magnitude above the typical values, the results may be reflective of the elevated sediment load. The toluene concentrations can be re-evaluated in 2025 when additional sample data with lower TSS concentrations are available.

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 2024. 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 with the exception of MW27-I, which shows a drastically different signature to all others owing to the natural bedrock mineralization that is observed at that location where there is a strong sodium and chloride dominance in the water quality. 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. 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 would suggest 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: 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	
WP2-10	Perimeter - North	**0.234**	5
WP3-10	Perimeter - West	**2.072**	7
WP4-10	Perimeter - South	**0.706**	5
WP1 (30m)*	Background	Dry	
WP2 (30m)*	Perimeter - North	<1.1	0
WP3 (30m)*	Perimeter - West	<1.1	0
WP4 (30m)*	Perimeter - South	Dry	
WP5 (30m)*	South of Waste Area	Dry	

* - Surface water locations

Bold indicates MECP Guideline of 0.07 µg/L

OB - Overburden

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, it does not appear to represent an appropriate monitoring location and should be removed from the monitoring program, which was agreed upon by the MECP as part of the recent ECA amendment and associated monitoring program.

Further to this, surface water samples were collected at a couple of perimeter locations, at the 30m distance mark to assess the horizontal extent of leachate from the waste mound. The results to the north and west indicated no detection, but given the dry background and southern locations, it was recommended by the MECP that additional round of samples be collected in the Spring of 2025 when water levels will permit sample collection at all locations. These results will be summarized and presented in the 2025 annual monitoring report.

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 8.2(a) and 8(3) 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 2024 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 2024 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 2024, 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. It is noted that MW27-I was historically included, but given the removal of this location from the monitoring program with the ECA amendment, it was not included in the 2024 assessment

Table 16: Reasonable Use Policy Exceedance Summary Table

Location	Screened Unit	Parameter	ODWQS	RUP	Concentrations Exceeding RUP*	
					April, 2024	October, 2024
MW26	Shallow OB	No Exceedances				
MW26-1	Bedrock	TDS	500	372	**409**	**409**
		Hardness	500	362	358	**373**
		Aluminum	0.1	0.06	**0.08**	0.04
		Alkalinity	500	360	**374**	**369**
MW26-2	Lower OB	TDS	500	372	**454**	**463**
		Hardness	500	362	**404**	**427**
		Aluminum	0.1	0.06	**0.08**	0.05
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 2024 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 5.7, 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 2024, only a single parameter exceedance was noted for boron at SW15 (30m) during the April monitoring event, with a concentration of 0.245mg/L. However, as the subsequent July event indicated a concentration (0.138 mg/L) below the trigger criteria, compliance with the trigger program has been met.

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 2024 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 2024 Site Maintenance & Activities

The Site inspection logs are included in Appendix I, which were completed as part of the monitoring events during January, July and October. These reports did not identify any concerns requiring action or mitigation measures.

No public complaints were received, no operational issues were encountered at the Site during 2024 and the monitoring well network was noted to be in good working order.

6.2 2024 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. Based on the remaining capacity (76,800 m^3) and an annual average waste and interim cover material volume of 7,000 m^3, there is ~11 years of capacity remaining within the Phase II area of the Site. It is noted that this volume includes approximately 13,300 m^3 of overfill from Phase I 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

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 2024.

Table 19: Summary of Recyclable Materials Received in 2024

Item	Number of Units	Units
Recycling (containers)	4.1	Tonnes
Recycling (fibres)	22.5	Tonnes
Leaf and Yard Waste	321.7	Tonnes
Electronics	17.5	Tonnes
Scrap Metal	58.3	Tonnes
Textiles	1.0	Tonnes
Household Hazardous Waste	24.7	Tonnes

Based on the diversion quantities listed above, and 3,968 tonnes of waste received in 2024, the total divertible material received at the Site in 2024 was approximately 450 tonnes. Of the material received at the Fenelon WDS, approximately 11% 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 consists 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 246 tonnes of leaf and yard waste was received at the Site in 2024, while the 250 tonnes daily limit was not exceeded in 2024.

As the progression of filling within Phase 2 had continued towards the composting area, it 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 2024. Furthermore, there were no complaints received from the public relating to odours or vermin associated with the composting facility in 2024.

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 2024, 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 2024 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 as Waste Generator No. ON0293706 with Ontario's Hazardous Waste Information Network ("HWIN"). Wastes that are accepted at the HHW Depot are described according to their Waste Class as defined in the MECP "New Ontario Waste Classes", dated January 1986.

In 2024, the HHW Depot accepted approximately 25 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 2024.

6.6 Active Waste Area

As shown in Figure 12, the active fill area during 2024 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 2024.

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 2024. No additional final cover was placed during 2024.

6.7 Other Site Activities / Incidents

As documented by the City, the following activities and incidents took place at the Site in 2024.

- Calcium chloride was sprayed for dust control on active Site roadways; and
- Methane detection system and weigh scale calibration.

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. The presence of this plume was further evaluated by undertaking PFAS sampling. Similar trends and elevated parameter detections were reported. Thus, supporting the site conceptual model presented herein.

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 is completely retained within approximately 200 m from the waste mound. Reasonable Use is considered met at the Site in 2024. Some exceedances were noted; however, these were more related to natural variation and mineralized ground water found within the bedrock aquifer 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.

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 2024.

Based on the remaining capacity (76,800 m^3) and an annual average waste and interim cover material volume of 7,000 m^3, there is ~11 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 2025 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. The monitoring program outlined in Table 19 below is what was included in the most recent ECA amendment.

It is noted that surface water PFAS sampling is to target the April 2025 surface water monitoring program at five locations at the request of the MECP given dry locations encountered during the original PFAS monitoring event in 2023. As well, a requirement of the amended ECA in 2025 was that a new boundary well be installed at the western property boundary to ensure compliance with Guideline B7 - Reasonable Use at the western property boundary. The City intends to have this monitoring well installed in 2025 such that it can be incorporated into the fall 2025 monitoring program.

Table 20: Proposed 2025 Monitoring Program

Monitoring Station	Frequency	Parameters
Ground Water 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, 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). * - 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 20: Proposed 2025 Monitoring Program

Monitoring Station	Frequency	Parameters
Surface Water 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) * 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), 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.

9.0 REFERENCES

Armstrong D.K., and Rheaume P., 1994
Paleozoic Geology of the Fenelon Falls Area – Southern Ontario, Ontario Geological Survey Ontario, Open File Map 235, Scale 1:50,000.

Azimuth Environmental Consulting Inc. 2024.
2023 Annual Monitoring Report - Fenelon Waste Disposal Site

Azimuth Environmental Consulting Inc. 2023.
2022 Annual Monitoring Report - Fenelon Waste Disposal Site

Azimuth Environmental Consulting Inc. 2023b.
MECP Review Comment Response - Fenelon Landfill Expansion

Azimuth Environmental Consulting Inc. 2022.
2021 Annual Monitoring Report - Fenelon Waste Disposal Site

Azimuth Environmental Consulting Inc. 2021.
2020 Annual Monitoring Report - Fenelon Waste Disposal Site

Azimuth Environmental Consulting Inc. 2020.
2019 Annual Monitoring Report - Fenelon Waste Disposal Site

Azimuth Environmental Consulting Inc. 2011.
Performance Monitoring Program Efficiency Evaluation, Fenelon Landfill Site. February 2011.

Boyce, J. 1990.
*An integrated outcrop and subsurface investigation of drumlins in Peterborough, Ontario***.** Bachelor's of science thesis, McMaster University

Chapman, L.J. and D.F. Putnam, 1984
The Physiography of Southern Ontario
3rd Edition, OGS Special Volume 2, MNR, ISBN 0-7743-9422-6.

Finamore P.F., and Bajc A.F., 1981
Quaternary Geology of the Fenelon Falls Area – Southern Ontario, Preliminary Map P. 2596, Ontario Geological Survey Ontario, Scale 1:50,000.

Golder Associates, 2019
Annual Status Report –2018 Fenelon Landfill Site

Golder Associates, 2010
Annual Status Report – January 1 to December 31, 2009 Fenelon Landfill Site

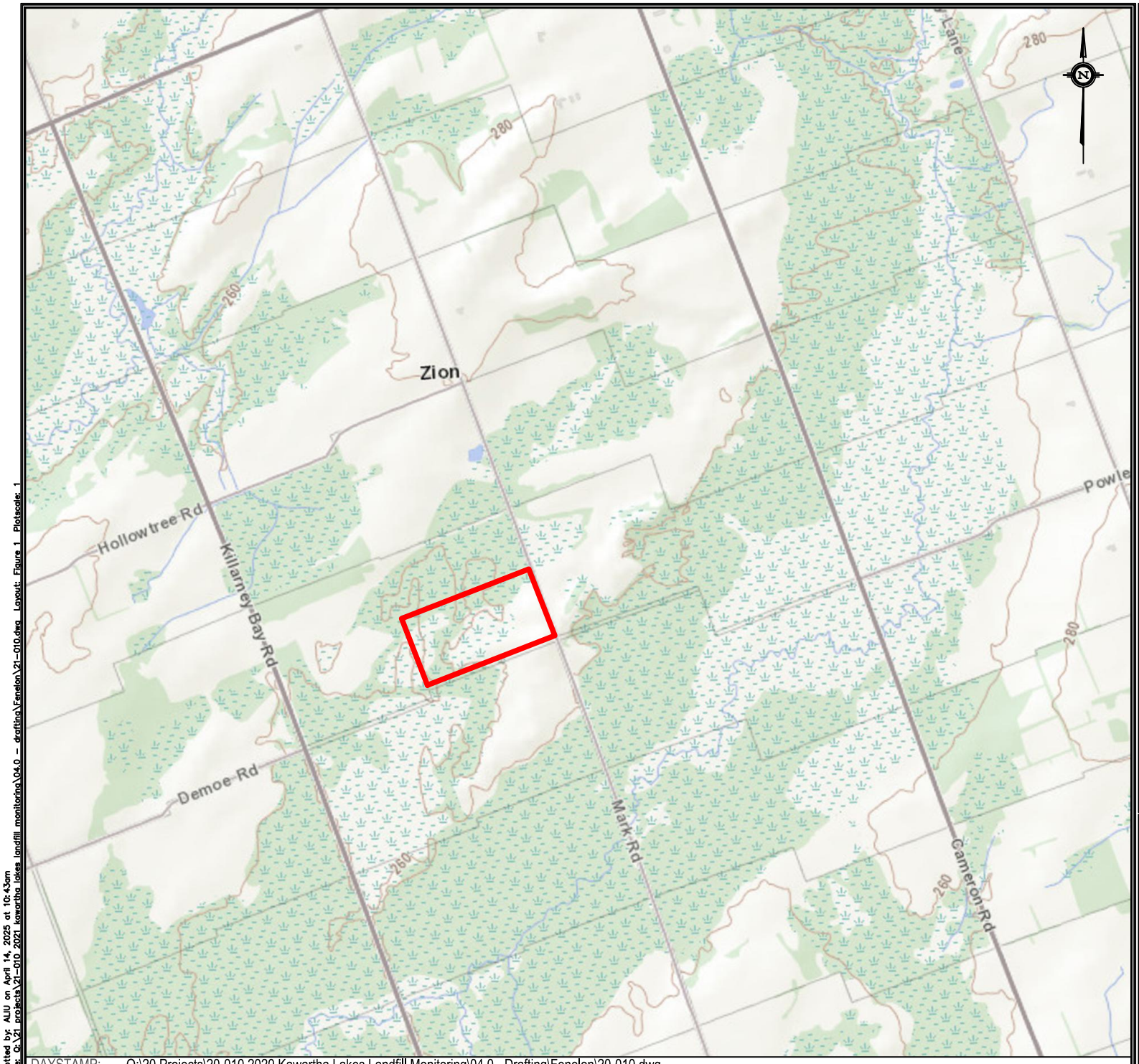
Golder Associates Ltd. 2015.
Updated Design and Operations Report – Fenelon Landfill Site.

Jones, M.G. 2001
Factors Controlling Leachate Quality and Quantity
Technical Lecture for the MOE Landfill Design Course

Ministry of the Environment, 2003
Technical Support Document for Ontario Drinking Water Standards, Objectives, and Guidelines
Queen's Printer for Ontario.

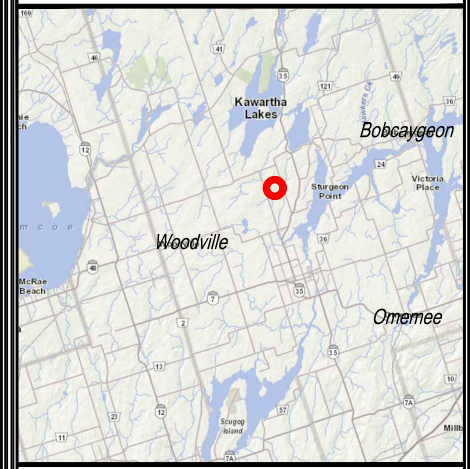
Ministry of the Environment and Energy, 1994
Provincial Water Quality Objectives
Queen's Printer for Ontario.

FIGURES



LEGEND:

Approx. Property Boundary



REG MAP

250m 0 750m

HORIZONTAL SCALE 1:25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

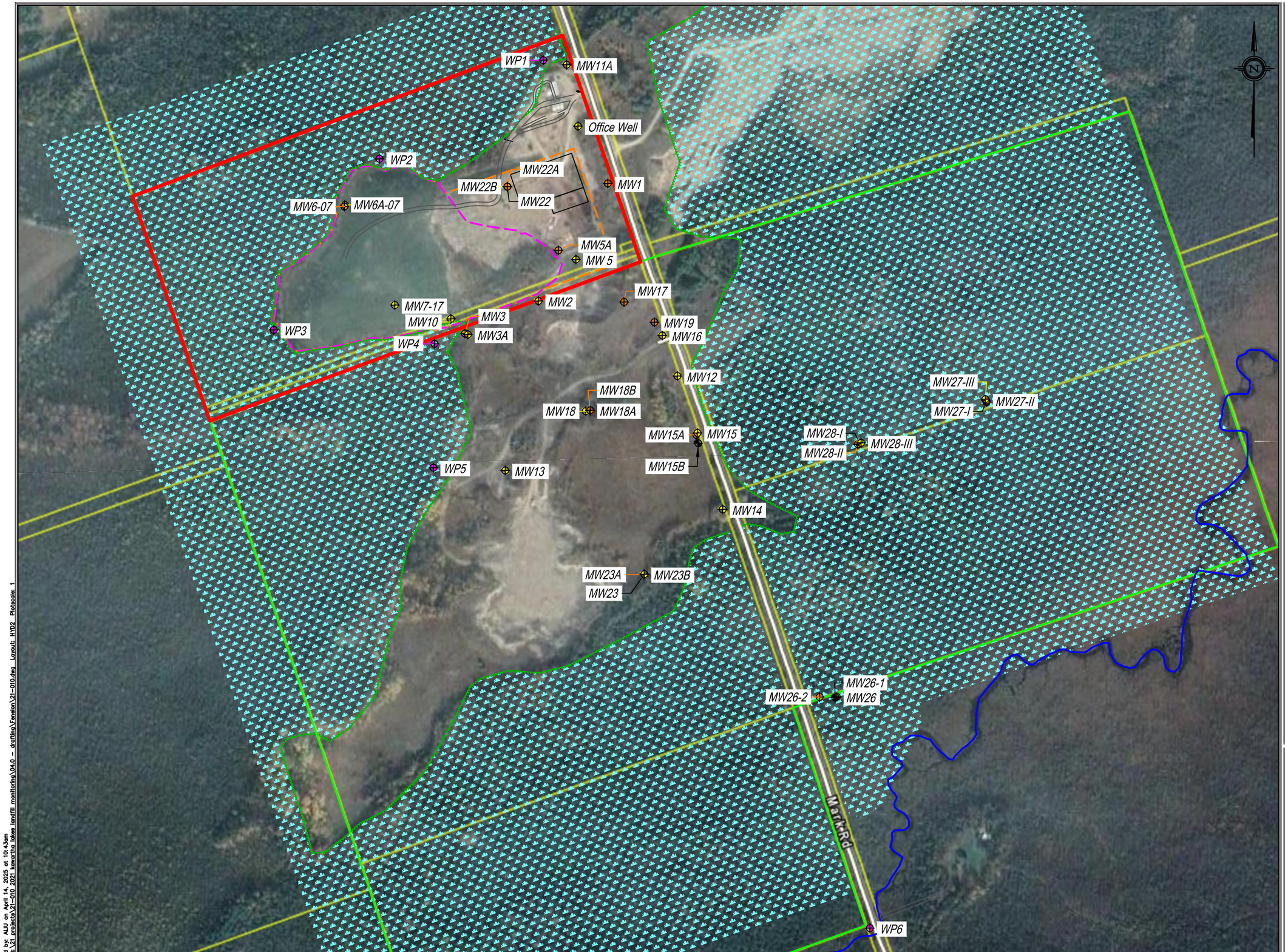
Study Area Location

Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED: *April 2025*	Figure No.
CREATED BY: *JLM*	1
PROJECT NO.: *25-010*	
REFERENCE: *MNRF*	

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

Plotted by: ALIU on April 14, 2025 at 10:43am
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: Figure 1 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

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

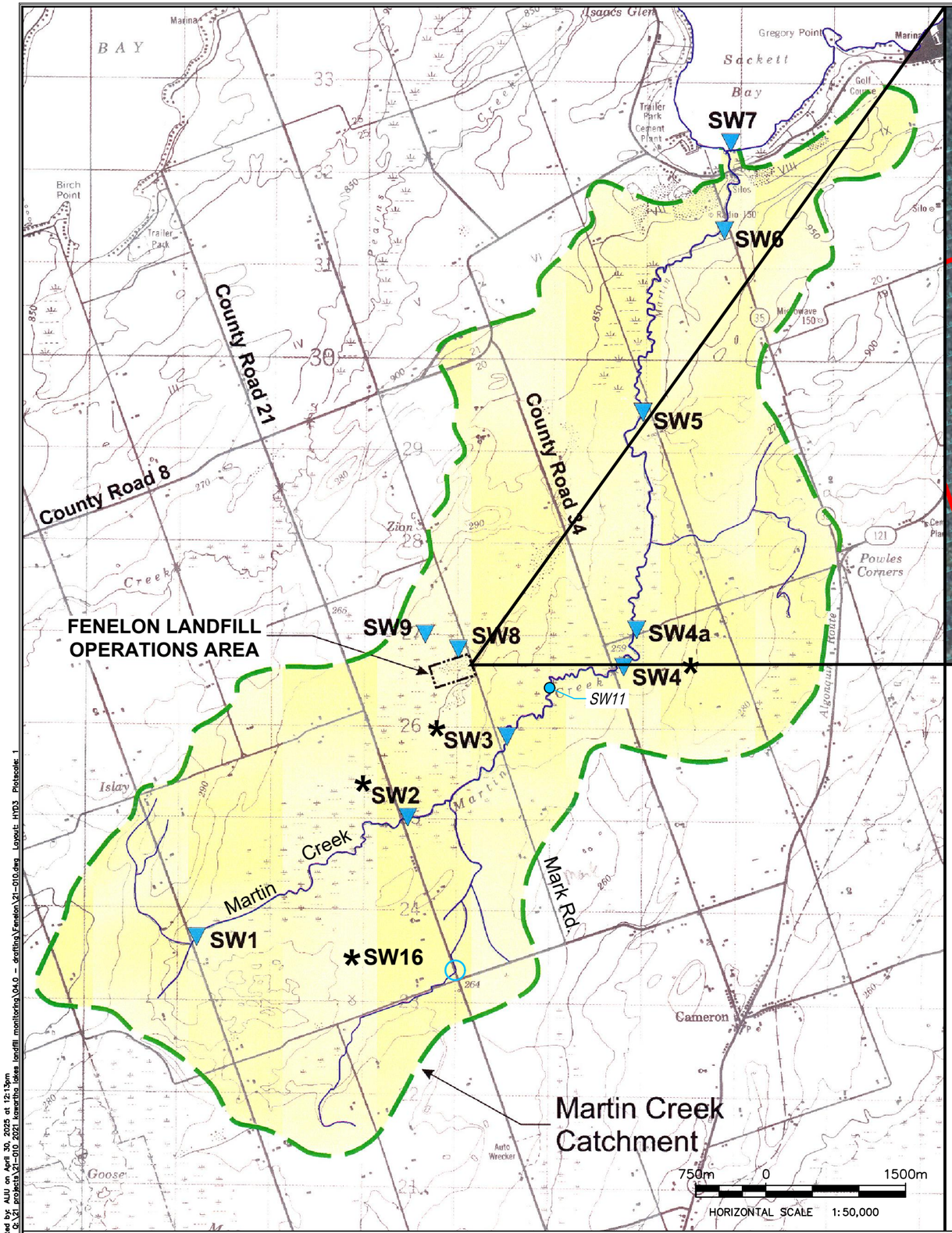
Ground Water Monitoring Network

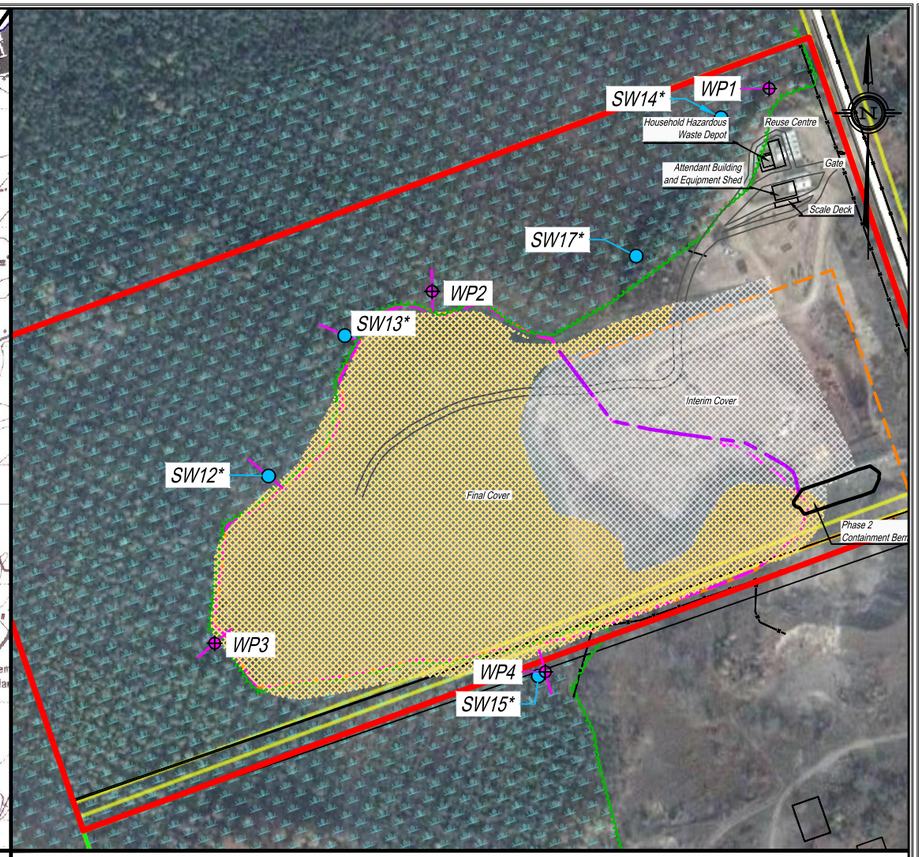
Fenelon Falls Landfill, Fenelon Falls, ON

DATE ISSUED:	April 2025	Figure No. 2
CREATED BY:	JLM	
PROJECT NO.:	25-010	
REFERENCE:	First Base Solutions	

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

Plotted by: ALLI on April 14, 2025 at 10:43am
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 — drafting\Fenelon\21-010.dwg Layout: HYD2 Plotscale: 1





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)
- Conductivity Monitoring Transect Line
- 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.

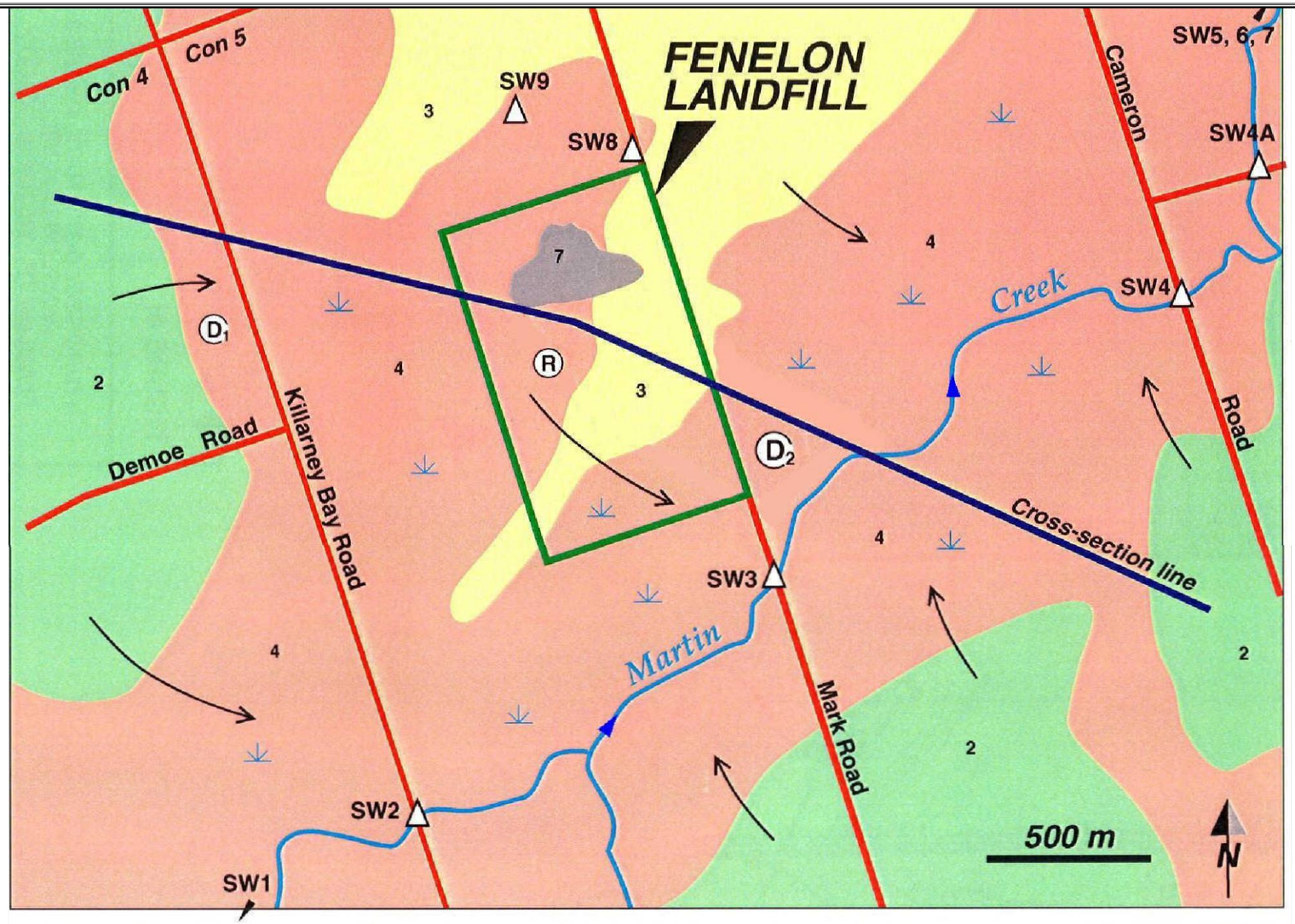
Surface Water Monitoring Network

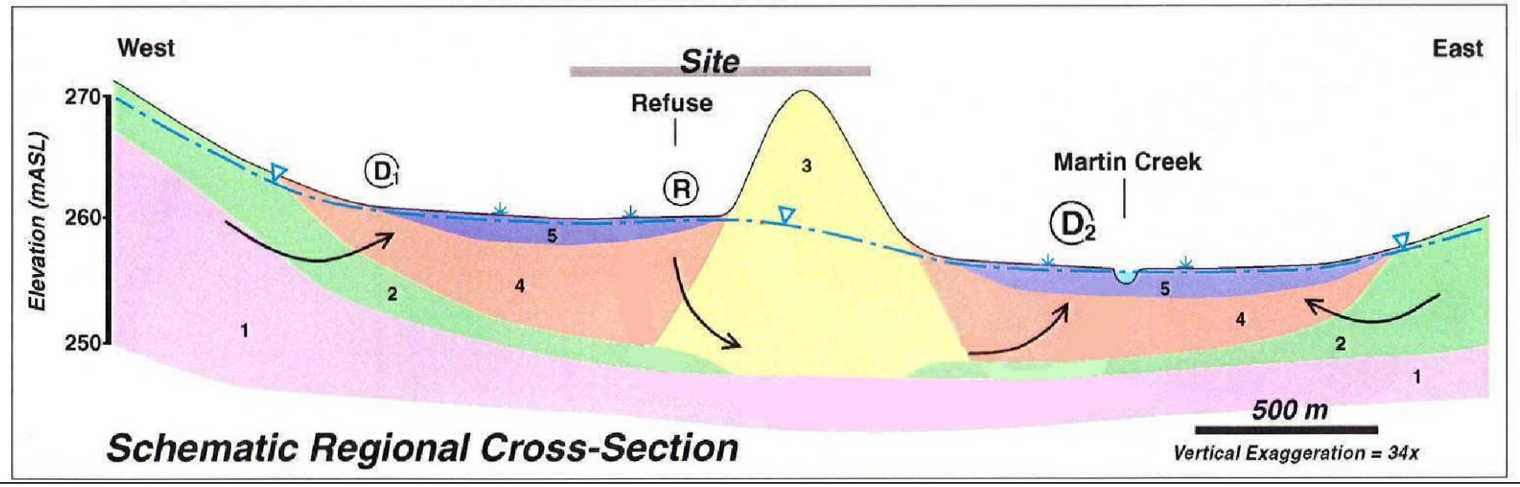
Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED:	April 2025	Figure No.
CREATED BY:	JLM	3
PROJECT NO.:	25-010	
REFERENCE:	First Base Solutions	

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

Plotted by: ALW on April 30, 2025 at 12:13pm
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 – drafting\Fenelon\21-010.dwg Layout: HY03 Plotscale: 1





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
- (D) Discharge area
- (R) Recharge area
- Wetland
- Surface Water Sampling Station

Source: Golder, 2019

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

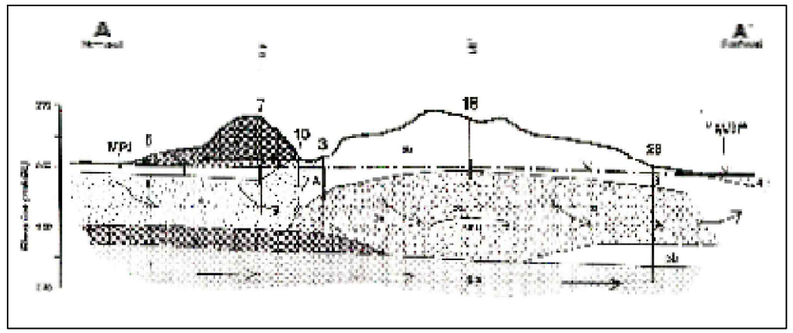
Regional Hydrogeology

Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED:	*April 2025*	Figure No.
CREATED BY:	*JLM*	4
PROJECT NO.:	*25-010*	
REFERENCE:	*Golder, 2019*	

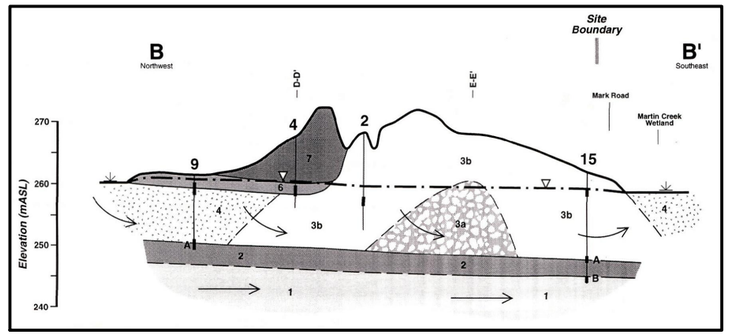
DAYSTAMP: April 2024

Plotted by: AJU on April 14, 2025 at 10:43am
File: Q:\21_projects\21-010_2021 kawartha lakes landfill monitoring\04.0 - drafting\Fenelon\21-010.dwg Layout: HYD4 Plotscale: 1

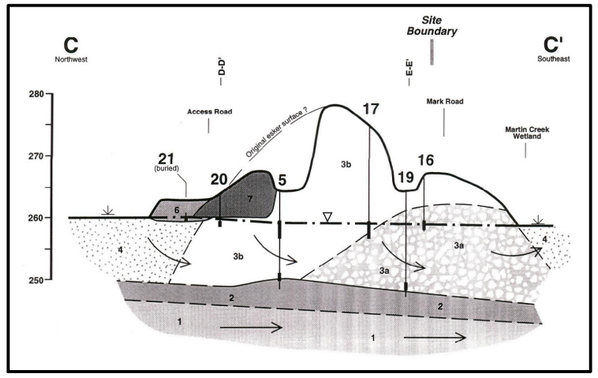


CROSS-SECTION A-A'

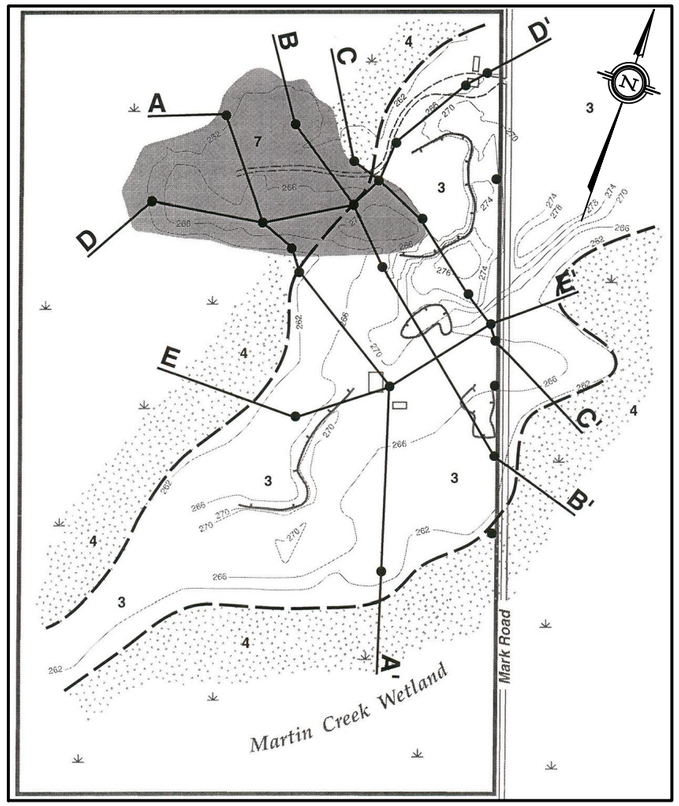
Geological Units		Symbols	
7	Refuse		Well with intake interval
6	Fill: sand	10	Well number
5	Bog deposit: peat		Water Table
4	Glaciolacustrine sediments: silty fine sand		Schematic groundwater flow
3b	Glaciofluvial (esker) sediments: fine-medium sand		Geological contact (defined, inferred)
3a	Glaciofluvial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



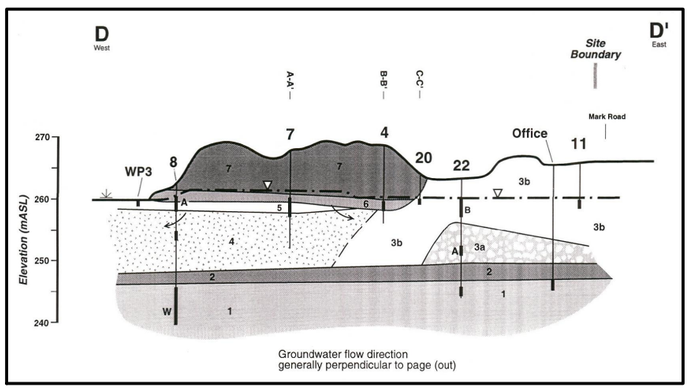
CROSS-SECTION B-B'



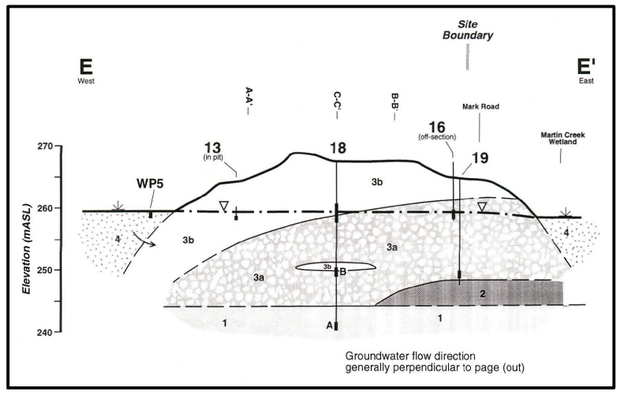
CROSS-SECTION C-C'



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.

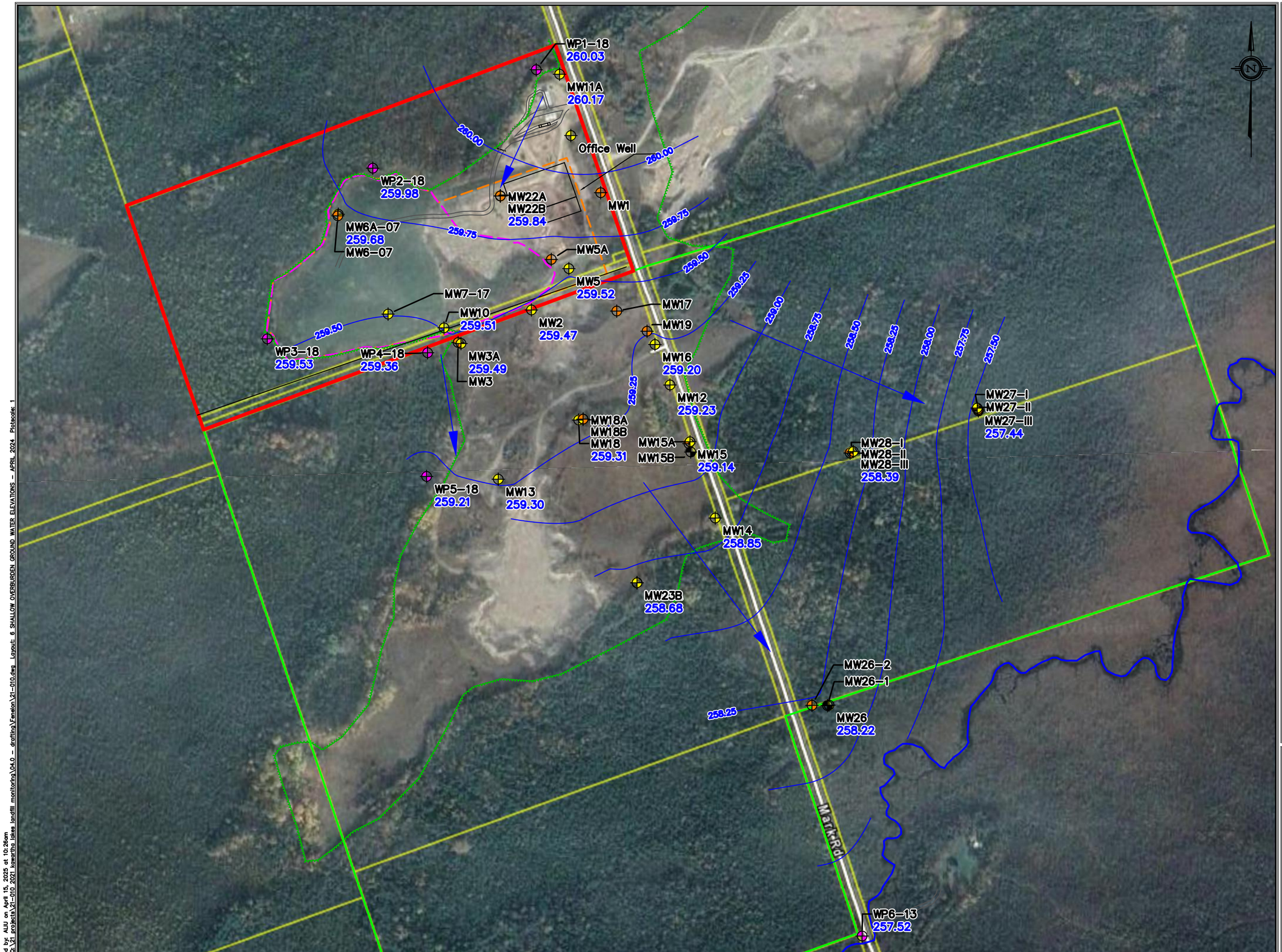
Geological Cross-Sections

Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED:	*April 2025*	Figure No.
CREATED BY:	*JLM*	5
PROJECT NO.:	*25-010*	
REFERENCE:		

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

Plotted by: AJU on April 14, 2025 at 10:43am
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 2024)*
- *0.5m Ground Water Contour*

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

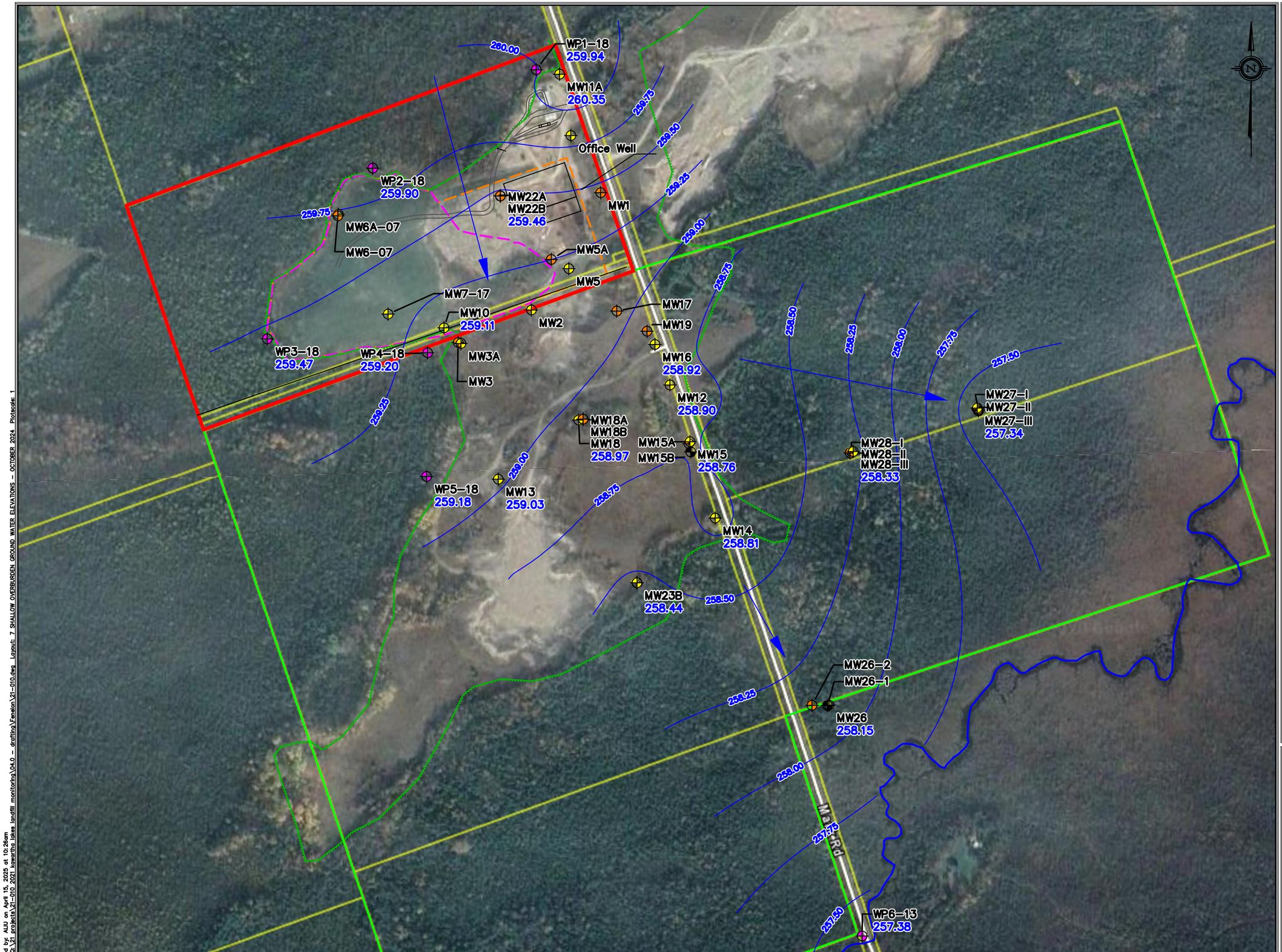
Shallow Overburden Ground Water Elevations April 2024

Fenelon Falls Landfill, Fenelon Falls, ON

DATE ISSUED:	*April 2025*	Figure No. 6
CREATED BY:	*JLM*	
PROJECT NO.:	*25-010*	
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 15, 2025 at 10:26am
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 2024)
- 0.5m Ground Water Contour

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Shallow Overburden Ground Water Elevations October 2024

Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED:	April 2025	Figure No. 7
CREATED BY:	JLM	
PROJECT NO.:	25-010	
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 15, 2025 at 10:26am
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

WP1–18
MW11A
Office Well
WP2–18
MW22A
259.74
MW22B
MW1
DRY
MW6A–07
MW6–07
259.92
MW5A
259.52
MW 5
MW7–17
260.33
MW10
MW2
MW17
DRY
MW19
259.23
MW16
WP3–18
WP4–18
MW3A
MW3
259.46
MW12
MW18A
MW18B
259.32
MW18
MW15A
259.10
MW15B
MW15
MW27–I
MW27–II
FLOWING
MW27–III
MW28–I
MW28–II
258.41
MW28–III
WP5–18
MW13
MW14
MW23B
258.68
MW26–2
258.22
MW26–1
MW26
WP6–13
Mark Rd
259.75
259.50
259.25
259.00
258.75
258.50
258.25

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 2024)
- 0.25m Ground Water Contour

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Lower Overburden Ground Water Elevations April 2024

Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED:	April 2025	Figure No. 8
CREATED BY:	JLM	
PROJECT NO.:	25-010	
REFERENCE:	First Base Solutions	

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

Plotted by: ALU on April 15, 2025 at 10:26am
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

WP1–18
MW11A
Office Well
WP2–18
MW22A
259.37
MW22B
MW1
MW6A–07
MW6–07
MW5A
MW 5
MW7–17
DRY
MW10
MW2
MW17
DRY
MW19
258.94
MW16
WP3–18
WP4–18
MW3A
MW3
259.00
MW12
MW18A
MW18B
259.00
MW18
MW15A
258.81
MW15B
MW15
258.50
MW27–I
MW27–II
258.32
MW27–III
MW28–I
MW28–II
258.29
MW28–III
WP5–18
MW13
258.75
MW14
258.50
MW23B
258.48
MW26–2
258.15
MW26–1
MW26
258.25
Mark Rd
WP6–13

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

Plotted by: AUU on April 14, 2025 at 10:44am
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 (October 2024)
- 0.25m Ground Water Contour

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Lower Overburden Ground Water Elevations October 2024

Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED:	April 2025	Figure No. 9
CREATED BY:	JLM	
PROJECT NO.:	25-010	
REFERENCE:	First Base Solutions	

WP1–18
MW11A
Office Well
WP2–18
MW22A
MW22B
MW22
259.84
MW1
MW6A–07
MW6–07
259.75
MW5A
MW 5
MW7–17
MW10
MW2
MW17
MW19
WP3–18
WP4–18
MW3A
259.50
MW3
MW16
MW12
MW18A
259.32
MW18B
MW18
259.25
MW15A
MW15
MW15B
258.90
259.75
MW27–I
FLOWING
MW27–II
MW27–III
MW28–I
258.51
MW28–II
MW28–III
259.50
WP5–18
MW13
259.00
MW14
MW23
258.75
MW23B
258.50
MW26–2
MW26–1
258.24
MW26
259.25
Mark Rd
WP6–13

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

Plotted by: AUU on April 14, 2025 at 10:44am
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 – drafting\Fenelon\21-010.dwg Layout: 10 BEDROCK 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 (April 2024)
- 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:	April 2024	Figure No. 10
CREATED BY:	JLM	
PROJECT NO.:	25-010	
REFERENCE:	First Base Solutions	

WP1–18
MW11A
Office Well
WP2–18
MW22A
MW22B
MW22
259.54
MW1
MW6A–07
MW6–07
MW5A
259.25
MW 5
MW7–17
MW10
MW2
MW17
MW19
MW16
WP3–18
WP4–18
MW3A
MW3
MW12
259.00
259.75
MW18A
259.01
MW18B
MW18
MW15A
MW15
MW15B
258.67
MW27–I
258.48
MW27–II
MW27–III
MW28–I
258.52
MW28–II
MW28–III
258.50
WP5–18
MW13
259.75
MW14
MW23
258.42
259.00
MW23B
MW26–2
MW26–1
258.17
MW26
Mark Rd
WP6–13

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

Plotted by: AUU on April 14, 2025 at 10:44am
File: Q:\21 projects\21-010 2021 kawartha lakes landfill monitoring\04.0 – drafting\Fenelon\21-010.dwg Layout: 11 BEDROCK 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 (October 2024)*

75m 0 150m

HORIZONTAL SCALE 1:5,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Bedrock Ground Water Elevations October 2024

Fenelon Falls Landfill,
Fenelon Falls, ON

DATE ISSUED:	*April 2025*	Figure No. 11
CREATED BY:	*JLM*	
PROJECT NO.:	*25-010*	
REFERENCE:	*First Base Solutions*	



LEGEND:

- Approx. Property Boundary (~XXha)
- Interim Cover
- Final Cover
- Overfill Areas (0.0m- 3.8m Depth)
- 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, 2024 (masl)
- 2.5m Contours, 2024 (masl)

30m 0 60m

HORIZONTAL SCALE 1:2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

2024 Site Survey

Fenelon Falls Landfill, Fenelon Falls, ON

DATE ISSUED:	April 2025	Figure No. 12
CREATED BY:	JLM	
PROJECT NO.:	25-010	
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 May 29, 2025 at 10:27am
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:	**Sampling Protocols**
Appendix G:	**Chemistry Over Time Graphs**
Appendix H:	**Surface Water Photos**
Appendix I:	**Piper Diagrams**
Appendix J:	**Site Inspection Forms**
Appendix K:	**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



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

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 Mailing Address: 12 Peel St, Post Office Box, 9000, Lindsay, Ontario, Canada, K9V 5R8 Physical Address: 12 Peel St Lindsay, Kawartha Lakes, City, Ontario, Canada, K9V 5R8 Telephone: (705)324-9411, Extension: 1151, email: rmacpherson@kawarthalakes.ca Client #: 4353-78NJW9, Client Type: Municipal Government, NAICS: 913910 Additional Address Info: Lindsay		
Inspection Site Address:	Fenelon Landfill Site Address: 341 Mark Rd Lot 16 Concession 4 former Township of Fenelon, Kawartha Lakes, City District Office: Peterborough GeoReference: Map Datum: NAD83, Zone: 17, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: GIS Software, UTM Easting: 674066, UTM Northing: 4927117, , LIO GeoReference: Zone: 17, UTM Easting: 673824.0, UTM Northing: 4926928.5, Latitude: 44.474754, Longitude: -78.81442 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"

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

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) * 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), 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). * - 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: M. ABBOTT
DATE DRILLED: 15-16 APRIL 1991

GROUND ELEVATION (mASL): 271.8
STATIC WATER ELEVATION (19MAY92, mASL): 260.18

DEPTH (m)	DESCRIPTION	MONITOR DETAILS	SAMPLE NO.	SAMPLE TYPE	SAMPLE 'N'	REMARKS
	HOLLOW STEM AUGERS					
	FINE SAND: Light brown, stratified, compact, dry.		2	SS	13	
3.4			3	SS	23	
	FINE SAND AND GRAVEL: Light brown, stratified, dense to very dense, dry.		4	SS	35	
			5	SS	70	
7.0			6	SS	33	
	FINE SAND: Light brown, stratified, dense to very dense, saturated below about 12 m.		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: M. ABBOTT
DATE DRILLED: 16-19 APRIL 1991

GROUND ELEVATION (mASL): 268.4
STATIC WATER ELEVATION (19MAY92, mASL): 260.00

DEPTH (m)	DESCRIPTION	MONITOR DETAILS	SAMPLE NO.	SAMPLE TYPE	SAMPLE 'N'	REMARKS
	HOLLOW STEM AUGERS					
	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			7	SS	32	
	MEDIUM TO COARSE SAND: Medium grey, trace gravel, compact to dense, saturated, becomes finer grained below about 13.5 m.		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.	SAMPLE TYPE	SAMPLE 'N'	REMARKS
HOLLOW STEM AUGERS (16APR91)	MEDIUM SAND: Medium brown to grey, stratified, compact, saturated below about 2.3 m.		1	SS	10	
		3A	2	HP	-	
		Cave	3	GS	-	Heaving sand starts about 6 m.
			4	HP	-	
			5	GS	-	
6.0	SANDY GRAVEL: Medium grey, stratified, alternating sand and sandy gravel layers, saturated.	3	6	SS	80	
HOLLOW STEM AUGERS (5SEP91)		Cave	7	SS	-	
			8	SS	76	
			9	SS	64	
			10	SS	63	
			11	SS	63	
			12	SS	-	All monitors installed in separate boreholes.
SOLID STEM AUGERS (5SEP91) 12.8	SILT TILL:		13	SS	-	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

Ted Rannie, M.Sc.
Hydrogeologist

BOREHOLE LOG
BOREHOLE NO. 3

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

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.	SAMPLE TYPE	SAMPLE '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	-	
9.0	MEDIUM TO COARSE SAND: Medium grey, stratified, trace coarse round gravel, compact, saturated.		3	SS	61	
			4	SS	15	
	END OF BOREHOLE AT 11.3 m DEPTH					

MONITOR SCREEN SAND PACK BENTONITE SEAL CEMENT SEAL

Ted Rannie, M.Sc.
Hydrogeologist

BOREHOLE LOG
BOREHOLE NO. 4

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): 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	FINE 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

BOREHOLE LOG
BOREHOLE NO. 5

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): 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.					
1.5	? ? ?	6A	1	SS	19	
	PEAT: Dark brown to black, compact, saturated below about 1 m.		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					

BOREHOLE LOG
BOREHOLE NO. 6

HYDROGEOLOGICAL STUDY
FENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

RILLING RIG: CME 75
ONTRACTOR: EASTERN SOIL INVESTIGATION LTD
'OLOGIST: 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 15.6 m DEPTH					

HOLLOW STEM AUGERS

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	
		8	6	SS	4	
			7	SS	7	
8.6	TILL?: Medium grey, unsorted gravel in silty sand matrix, hard, saturated, exact thickness unkown.		8	SS	8	
9.4	SILTY FINE SAND: Medium grey, homogeneous, well sorted, trace of fine gravel, poorly stratified, saturated.		9	SS	69	Heaving sand starts at 9.5 m.
11.6	SILT TILL:	8 in CASING	10	GS	-	Drill to refusal with solid stem from 10.7 m to 11.6 m.
14.6	LIMESTONE: Dark brown, aphanitic.	8W				
	END OF BOREHOLE AT 20.1 m DEPTH	Open Hole in Bedrock				All monitors installed in separate boreholes.

HOLLOW STEM AUGERS (4SEP91)
SOLID STEM AUGERS (5SEP91)
AIR ROTARY (18NOV91)

MONITOR SCREEN | SAND PACK | BENTONITE SEAL | CEMENT SEAL

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
0		Ground Surface 268.384	0.0							
1		***Fill - Sand and Gravel*** Domestic refuse, moist, brown, fine to coarse grained		NA	NA	NA	NA	NA		
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	
1.8			3	SS	2	
2.2	PEAT: Dark reddish brown, loose, saturated; greenish grey silt layer at base.	9	4	SS	4	
			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

BOREHOLE LOG
BOREHOLE NO. 9

HYDROGEOLOGICAL STUDY
PENELON TOWNSHIP LANDFILL SITE

Ted Rannie, M.Sc.
Hydrogeologist

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					

BOREHOLE LOG
BOREHOLE NO. 10

HYDROGEOLOGICAL STUDY
PENELON 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
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					

MONITOR SCREEN · SAND PACK · BENTONITE SEAL · CEMENT SEAL

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 trace silt grey to brown 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 black, moist very loose			1	SS	4	
1	SILTY FINE SAND & GRAVEL grey to brown compact 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 #	SAMPLE type	SAMPLE N'	REMARKS
0	ORGANICS brown, dry very loose				1	SS	2	
	SILTY FINE SAND grey to brown compact to dense							
1					2	SS	21	
	fine black striations in SA#2							
2								
3					3	SS	39	shooting" sands below water table use water to flush inside of augers during monitor installation
4								
								unable to sample because of shooting" sands
5								no change in aguer cuttings
6								no change in aguer cuttings
7								no change in aguer cuttings
8								no change in aguer cuttings
9					4	SS	14	shooting" sands use water to flush inside of augers 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 #	SAMPLE type	SAMPLE N'	REMARKS
10	SILTY FINE SAND grey to brown compact to dense						
11							
12							
13							
	trace to some gravel in top portion of SA#5			5	SS	65	
14	SILTY SAND TILL grey 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: EGLINTON LANDFILL	DATE: 98/04/20
CLIENT: VICTORIA COUNTY	LOCATION: EGLINTON LANDFILL SITE
DRILLING FIRM: SSFC	DRILLER: SSFC
BORE HOLE: 1SB 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	2					9		
						10	▽	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: EGLINTON LANDFILL	DATE: 98/04/20
CLIENT: VICTORIA COUNTY	LOCATION: EGLINTON LANDFILL SITE
DRILLING FIRM: SSFC	DRILLER: SSFC
BORE HOLE: 1SB 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')
						21		DENSE LIGHT GRAY BROWN MEDIUM SAND WITH TRACE SILT
						22		
						23		
						24		
						25		
SS	4					26		
						27		
						28		
						29		
						30		98/04/20 FINISHED
						31		98/04/21 START
						32		
						33		
						34		
						35		
						13		

Remarks:

Groundwater Record

date	grnd el.	depth to	water el.

Sir Sandford Fleming College
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: 15-13 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
						56		WITH CASING DRILLED TO 55'6"
						57		
SS	U							

Remarks:

Groundwater Record			
date	grnd el.	depth to	water el.

Sir Sandford Fleming College
School of Natural Resources

SOIL PROFILE and TEST DATA FIELD SHEET

JOB NAME: FENELON LANDFILL	DATE: 98/04/21
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		TILL: 30 MM BRAINAITE ELVIS FROM 15B THROUGH FORMATIONS AND UP BH 15A - MISSISSAUGA CONTAMINATED
						38		
						39		
						40		
						41		
						42		
						43		
SS	U					44		
						45		
						46		
						47		
						48		BEDROCK 47' FROM SURFACE
						49		TRI-CONE DRILLED TO 48'3" FOR CONFIRMATION (DIA 3 7/8")
						50		CASING DRILLED TO 48'3"
						51		BEDROCK NOT FOUND DRILLING THROUGH GRAVEL AND COBBLE ABOVE BEDROCK OCCURS
						52		LIMESTONE AND GNEISS
						53		DRILL WITH COBBLES OF GRAY DRILLING TRACE SAND & SILT.

Remarks:

Groundwater Record			
date	grnd el.	depth to	water el.

THIS SAM IN T SIA OF CAVE BE

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	SS	37	
3	fine to coarse grain sand, gravel						
4				4	SS	23	
	fine to coarse grain sand, gravel						
5							
				5	SS	26	
6	fine to coarse grain sand, gravel						
7				6	SS	29	
8				7	SS	40	
9				8	SS	34	
	end of borehole (9.2 metres)						

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							
3	MEDIUM SAND			3	SS	4	
4	FINE SAND			4	SS	7	
5							
6				5	SS	12	
7				6	SS	15	
8							
9				7	SS	22	
	continued on next page						

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

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

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							
				10	SS	39	
14							
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 cover						
5	end of borehole (5.12 metres)						

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						
2.5	end of borehole (2.5 metres)						

See Table 4 for installation details

24-Nov-95 fenlog

COUNTY OF VICTORIA TRANSPORTATION AND PUBLIC WORKS DEPARTMENT

Fenelon - Working File

OFFICE

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

Shed

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 K6 FRANKLIN 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	1
BROWN	SAND	SAND	FINE	1	17
GREY & BROWN	"	CLAY	FINE-MED	17	37
GREY	CLAY	STONES	TILL	37	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
6¼	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	188	0	60
6½	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☑ OPEN HOLE ☐ PLASTIC		60	66
	☐ STEEL ☑ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			

SCREEN

SIZE-SLOT 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	CEMENT GROUT

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☐ PUMP ☑ BAILER	5 GPM	3 HOURS MINS

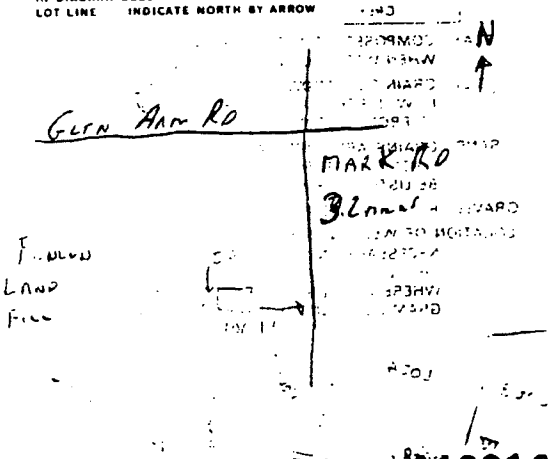
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING ☑ PUMPING ☐ RECOVERY			
		10 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
14'5" FEET	41 FEET	FEET	7 FEET	41 FEET	41 FEET

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 ☐ ABANDONED, INSUFFICIENT SUPPLY
☐ OBSERVATION WELL ☐ ABANDONED, POOR QUALITY
☐ TEST HOLE ☐ UNFINISHED
☐ RECHARGE WELL ☐ DEWATERING

WATER USE

☐ DOMESTIC ☐ COMMERCIAL
☐ STOCK ☐ MUNICIPAL
☐ IRRIGATION ☐ PUBLIC SUPPLY
☐ INDUSTRIAL ☐ COOLING OR AIR CONDITIONING
☑ OTHER WASHING TRUCKS ☐ NOT USED

METHOD OF CONSTRUCTION

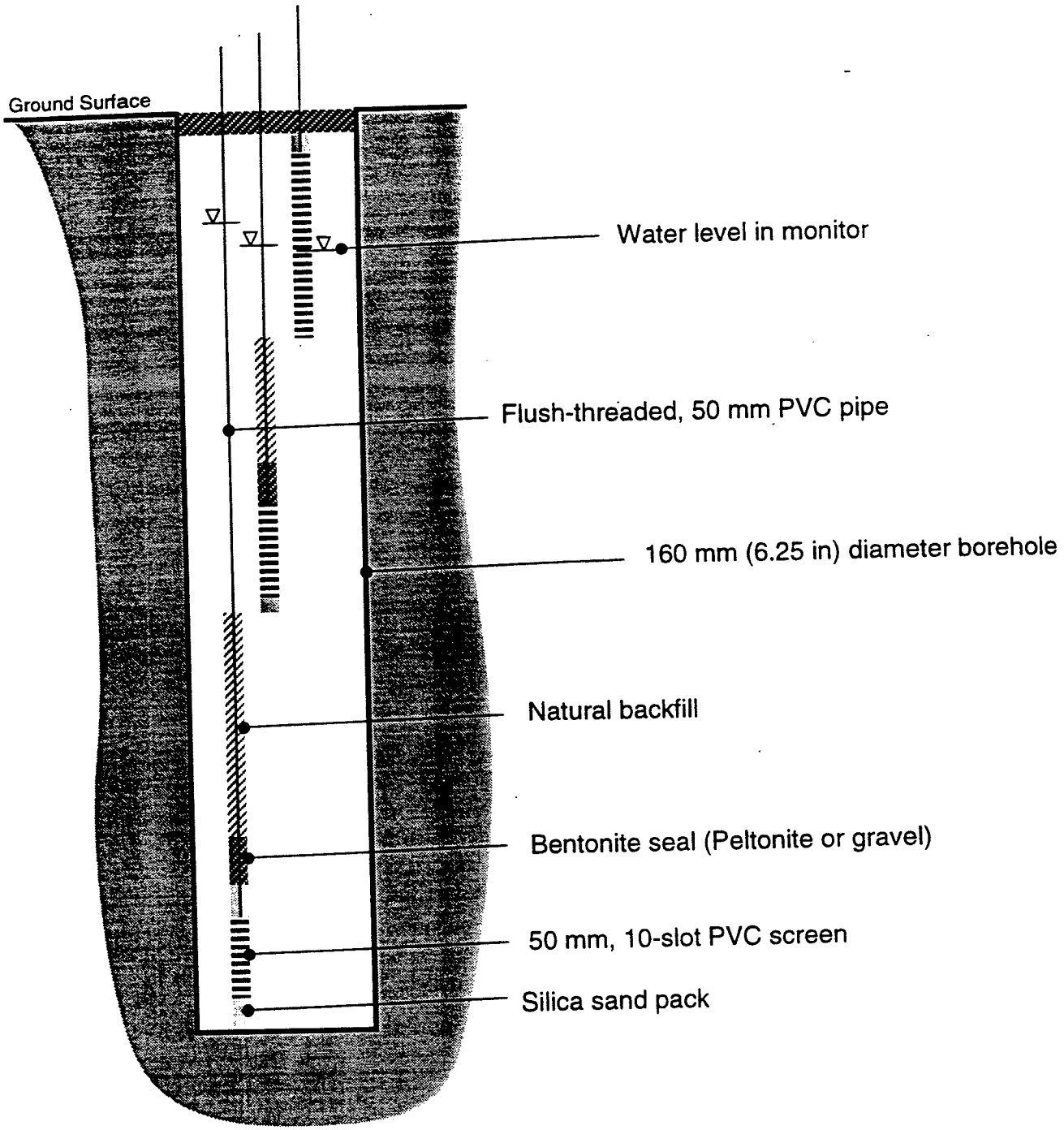
☐ CABLE TOOL ☐ BORING
☐ ROTARY (CONVENTIONAL) ☐ DIAMOND
☐ ROTARY (REVERSE) ☐ JETTING
☐ ROTARY (AIR) ☑ DRIVING
☐ AIR PERCUSSION ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: BRATHWAITE DRILLING
WELL CONTRACTOR'S LICENCE NUMBER: 1396
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	-		
259.5	8.4	***GRAVELLY SAND:*** Medium brown, loose, poorly sorted, wet.						6	GS	-		
								7	GS	-		
								8	GS	-		
							2×10^{-4}	9	GS	-	x	
								10	GS	-		
								11	GS	-		
251.9	16.0	***FINE SAND:*** Medium brown, minor coarse gravel, saturated.						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	-		

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	-		
					2×10^{-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)
260.35 (22A)
DATE: 12NOV99 260.39 (22P

ELEVATION (mASL)	DEPTH (m)	DESCRIPTION	LITHOLOGY	MONITORS (22 / 22A / 22B)	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 3.1 m.				$2x10^{-4}$		1	GS	-		All monitors installed in the same borehole.
								2	GS	-		Monitors consist of flush-threaded, 50 mm PVC pipe and 10-slot screen.
								3	GS	-		GS = Grab sample
								4	GS	-	x	
256.5	7.0	***COARSE SAND AND GRAVEL:*** Medium brown, loose, poorly sorted, saturated.						5	GS	-		
								6	GS	-		
								7	GS	-		
								8	GS	-		
								9	GS	-		
249.8	13.7	***TILL:*** Medium grey, minor coarse gravel, saturated.				$3x10^{-5}$		10	GS	-	x	
								11	GS	-		
244.1	16.2	***LIMESTONE:*** Medium grey, fractured, aphanitic.				$2x10^{-5}$		12	GS	-		
								13	GS	-		
		Borehole depth = 19.2 m										

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

ELEVATION (mASL)	DEPTH (m)	DESCRIPTION	LITHOLOGY	MONITORS (23 / 23A / 23B)	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.				4×10^{-3}		4	GS	-	x	
								5	GS	-		
251.8	8.4	***FINE-MEDIUM SAND:*** Medium brown, minor coarse gravel, saturated.						6	GS	-		
								7	GS	-		
						4×10^{-4}		8	GS	-	x	
								9	GS	-		
247.3	13.0	***FINE SAND:*** Medium brown, minor coarse gravel, saturated.				1×10^{-4}		10	GS	-	x	
								11	GS	-		
244.1	16.2	***LIMESTONE:*** Medium grey, fractured, aphanitic.				7×10^{-4}		12	GS	-		
								13	GS	-		
		Borehole depth = 19.2 m										

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. GS = Grab sample
								2	GS	-		
260.0	2.4	***PEAT:*** Dark brown, saturated.										
259.7	2.7	***FINE SAND:*** Medium grey, saturated.						3	GS	-		
		Borehole depth = 4.9 m										

HYDROGEOLOGICAL STUDY, PHASE 3
FENELON LANDFILL
VICTORIA COUNTY, ONTARIO

Middle Earth Hydrogeology Inc.

Environment

...only in spaces provided.
...rk 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 (day / month / year)
Victoia County		P.O. Box 9000 Lindsay, ON K9V 5R8	16 / 07 / 99

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	
55-60	☐ 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	Depth - feet To
2	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☒ Plastic	Sch 40	+3 +3	84 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	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
89	89½	silica sand
81½	79	peltonite
79	60	sand fill
60	52	silica sand #cont'd

PUMPING TEST

Pumping test method ☐ Pump ☐ Bailer	Pumping rate GPM	Duration of pumping ..... Hours ..... Mins
Static level: 29½ feet	Water level end of pumping: feet	Water levels during ☐ Pumping ☐ Recovery
15 minutes: feet	30 minutes: feet	45 minutes: feet / 60 minutes: feet
If flowing give rate: GPM	Pump intake set at: feet	Water at end of test ☐ Clear ☐ Cloudy
Recommended pump type ☐ Shallow ☐ Deep	Recommended pump setting: feet	Recommended pump rate: GPM

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 .....

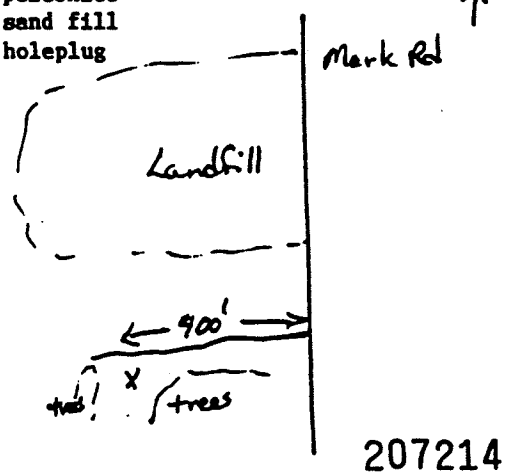
METHOD OF CONSTRUCTION

☐ Cable tool ☐ Rotary (conventional) ☐ Rotary (reverse) ☒ Rotary (air)
☐ Air percussion ☐ Boring ☐ Diamond ☐ Jetting
☐ Driving ☐ Digging ☐ Other .....

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

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	**Well Technician's Licence No.**
Bryan Watson	
Signature of Technician/Contractor	**Submission date** day / mo / yr

MINISTRY USE ONLY

0506 (11/88) Front Form 9

1 - CONTRACTOR'S COPY

...rio ... of the Environment

...n spaces provided.
...rrect box with a checkmark, where applicable.

WATER WELL RECORD

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 (day / month / year)
Victoria County	P.O. Box 9000 Lindsay, ON K9V 5R8	15 07 99

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 untested ☐ Sulphur ☐ Minerals ☐ Gas
36-41	☐ Fresh ☐ Salty untested ☐ Sulphur ☐ Minerals ☐ Gas
57-62	☐ Fresh ☐ Salty untested ☐ 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 +3 +3	57 36 10
6¼	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic		+3	6½
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Size 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	Depth set at - feet 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

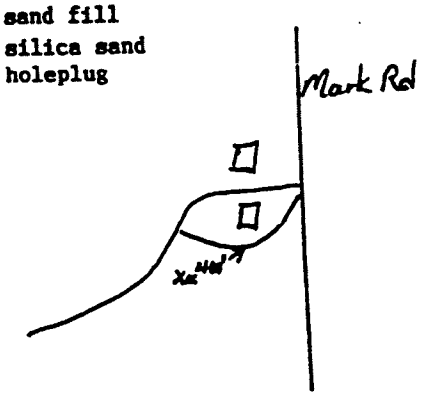
If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☐ Clear ☐ Cloudy

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	Well Technician's Licence No.
Bryan Watson	

Signature of Technician/Contractor	Submission date
Clark Watson	day mo yr

MINISTRY USE ONLY

6506 (11/88) Front Form 9

1 - CONTRACTOR'S COPY

...only in spaces provided.
...rk 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 (day / month / year)
Victoria County	P.O. Box 9000 Lindsay, ON K9V 5R8	19 / 07 / 99

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 (slightly)	☐ Sulphur ☐ Minerals ☐ Gas
35–40	☐ Fresh ☐ Salty (slightly)	☐ Sulphur ☐ Minerals ☐ Gas
3–12	☐ Fresh ☐ Salty (slightly)	☐ 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 +4 +4	58 35 2
6¼	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	,188	+4	5
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Slotted 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	Depth set at - feet 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

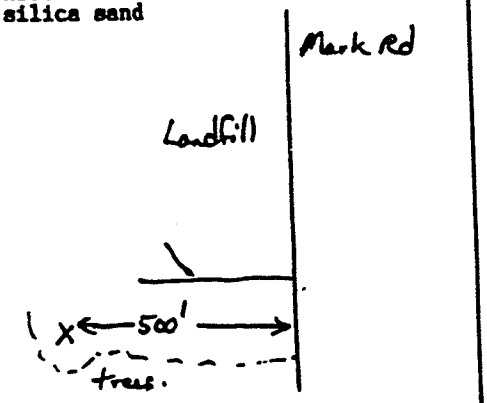
If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☐ Clear ☐ Cloudy

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 K0M 1N0	
Name of Well Technician	**Well Technician's Licence No.**
Bryan Watson	
Signature of Technician/Contractor	**Submission date** day / mo / yr

MINISTRY USE ONLY

1 - CONTRACTOR'S COPY

0506 (11/88) Front Form 9

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	day	month	year
Victoria County		P.O. Box 9000 Lindsay, ON K9V 5R8	14	07	99	

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	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	Depth - feet 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: PVC	Depth at top of screen: 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

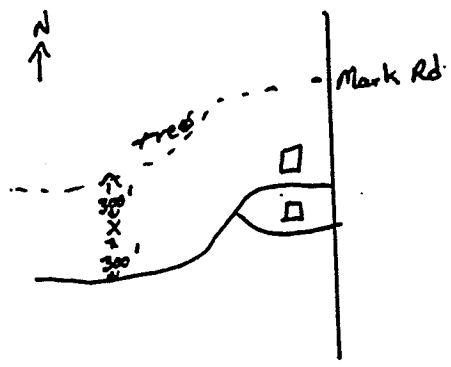
Pumping test method: ☐ Pump ☐ Bailer
Pumping rate: GPM
Duration of pumping: Hours Mins

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: GPM
Pump intake set at: feet
Water at end of test: ☐ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☐ Deep
Recommended pump setting: feet
Recommended pump rate: 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: Box 850 Fenelon Falls, ON KOM 1NO	
Name of Well Technician	Well Technician's Licence No.
Signature of Technician/Contractor	Submission date: day mo yr

MINISTRY USE ONLY

1 - CONTRACTOR'S COPY

6506 (11/88) 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	Depth
						Ground Surface		0
0	Grab		1			***FILL*** refuse	0	0
1						***PEAT*** black, saturated	-4	4
2	SS	2		5		***SAND*** fine, grey, saturated	-6	6
3	SS	3		28				
4								
5								
6								
7								

Well Installation: Concrete; Bentonite; Raised Steel Casing, padlocked; #2 Silca Sand; 2" Slot 10 Screen

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	Concrete		
					FILL 0 refuse	Bentonite		
1						Raised Steel Casing, padlocked		
					-4 ***PEAT*** 4 black, saturated			
					-6 ***SAND*** 6 fine, grey, saturated	#2 Silca Sand		
2								
3						2" Slot 10 Screen		
4								

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

Location: 341 Mark Road, Fenelon Twp, ON

Enclosure:

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
			-4.0						
4 / 2		***Sand*** Loose, dense, drown sand	4.0						sand pack with 3.05 m screening
			-8.0						
8		***Sand*** Loose, wet, brown/grey sand	8.0			70			
10						80			
			-12.0						
12 / 4		***Sand*** Loose, wet, brown/grey sand	12.0						
14						80			
16									Well depth at 4.88 m; End of Borehole
18									
20 / 6									

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

Location: 341 Mark Road, Fenelon Twp, ON

Enclosure:

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						
4		***Sand*** Loose, moist, dark brown silty sand with peat	4.0						Sand pack with 3.05 m of screening
2 / 6			-8.0			10			
8		***Sand*** Loose, moist, grey silty sand with peat	8.0						
10			-12.0						
12		***Sand*** Loose, wet, grey silty sand	12.0			15			Well Depth at 4.88 m; End of Borehole
4 / 14									
16									
18									
6 / 20						70			

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) A075535

Measurements recorded in: ☐ Metric ☒ Imperial

Well Record

Regulation 903 Ontario Water Resources Act

4943 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)
12 Peel St P.O Box 9000	Lindsay	ON	K9V5R8	7053494111

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	0678442	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	Depth (m/ft) 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	Depth Set at (m/ft) 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)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery 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	Depth (m/ft) To
5.20	Puc	0.390	0	10'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
6.03	Puc	10	10'	15'

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

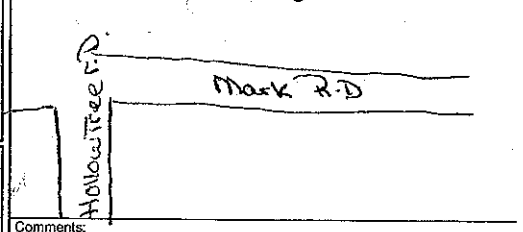
Water found at Depth (m/ft)	Kind of Water	Water found at Depth (m/ft)	Kind of Water	Water found at Depth (m/ft)	Kind of Water
☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify

Hole Diameter

Depth (m/ft) From	Depth (m/ft) 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.
Strata Soil Sampling INC	7214

Business Address (Street Number/Name)	Municipality
47-2 West Beaver Creek.	Richmond Hill

Province	Postal Code	Business E-mail Address
ON	L4B1C6	wecords@stratasoil.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
7056164713014	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	Ministry Use Only
☐ Yes ☐ No	Y Y Y Y M M D D	Z 81722
	Date Work Completed 2008 08 07	

0506E (12/2007) Ministry's Copy

© Queen's Printer for Ontario, 2007

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	7053244944

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Fenelon Landfill (operating) – 341 Hyde Rd.	Fenelon		

County/District/Municipality	City/Town/Village	Province	Postal Code
south of the site on the right side of Hyde 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	Depth (m/ft) To
	Sand		Wet	0.00	7.62
Grey	Sand	gravel		7.62	11.28
	Mixed hills	Sand, gravel, limestone slabs		11.28	15.24
	Silt (fine)			15.24	18.29
	Mixed hills	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

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
6.1	Plastic	.010	16.31	19.36

Water Details

Water found at Depth (m/ft)	Kind of Water	
	☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify
	☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify
	☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0.00	8.23	20.0
8.23	20.27	8.9

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
All-Terrain Drilling Ltd.	7412

Business Address (Street Number/Name)	Municipality
3-6161 Cotton Drive	Waterloo

Province	Postal Code	Business E-mail Address
ON	N2V1C8	allterrain@golden.net

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5199866868	Grant, Dan

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3211		

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)

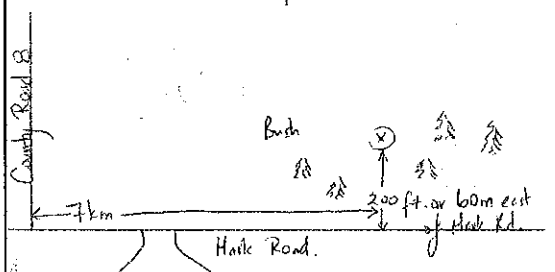
Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery 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.

Please see attached map. ← N



Comments:
Tagged well is located on the south side of the Fenelon Landfill site (operating) on the right side of Hyde Rd.

Well owner's Information package delivered	Date Package Delivered	Ministry Use Only
☐ Yes ☐ No	Y Y Y Y M M D D	Audit No. Z099100
	Date Work Completed	Received

0508E (12/2007) **Well Owner's Copy** © Queen's Printer for Ontario, 2007

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	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m
		GROUND SURFACE					
0	Wash Boring 114 mm HW Casing	Wet, dark brown to black, Organic TOPSOIL/PEAT, containing rootlets and debris		0.00	1	AS	
1					2	AS	
		Dense, wet, brown to grey, well graded, SAND and GRAVEL, trace to some silt, cobbles		1.42			
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
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							
		CONTINUED NEXT PAGE					

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)

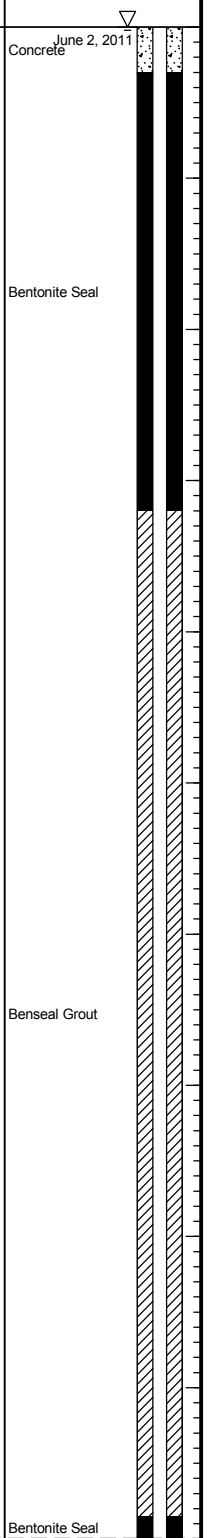
SHEAR STRENGTH Cu, kPa — nat V. + Q - ● / rem V. ⊕ U - ○ (20 40 60 80)

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



DEPTH SCALE

1 : 50

Golder Associates

LOGGED: CR

CHECKED: FB

MIS-BHS 001 11-1188-0007.GPJ GAL-MIS.GDT 6/16/11 DD

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	SAMPLES: TYPE	SAMPLES: 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
10		*--- 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
14		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

MIS-BHS 001 11-1188-0007.GPJ GAL-MIS.GDT 6/16/11 DD

BOREHOLE LOG	PROJECT: 60317459	BOREHOLE: BH27-I 1 of 2
Fenelon Landfill Drilling Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HQ Casing **Contractor:** Lantech Drilling	**DATE:** March 13, 2014 **LOGGED BY** KGA **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
0		**PEAT** Black silty organic soil, rootlets, twigs, saturated, very loose.		▽							
1.7		**SILTY SAND / SANDY SILT** Grey silty sand to sandy silt, saturated, compact.									Lithology above 13 m is inferred from BH27-II and BH27-III.
3.1		**SANDY SILT** Grey sandy silt, trace clay, trace gravel, saturated, loose to compact.									
5.0		**SILTY SAND** Grey silty fine sand, trace clay, trace gravel, saturated, compact.									
6.1		**SAND** Grey fine sand, trace silt, saturated, loose to compact. - Grey fine sand below about 7.6 m.									
9.9		**SAND** Light brown fine sand, saturated, compact.									

BOREHOLE LOG	PROJECT: 60317459	BOREHOLE: BH27-I 2 of 2
Fenelon Landfill Drilling Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HQ Casing **Contractor:** Lantech Drilling	**DATE:** March 13, 2014 **LOGGED BY** KGA **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
13.1		**SAND & GRAVEL** Grey coarse sand and gravel, minor oxidation, rounded gravel, saturated.			1		SS	33		46	
13.7		**SAND** Brown medium coarse sand, trace silt, saturated.			2		SS	26		38	
16.5		**GRAVEL** Gravel, some sand, gravel is angular, broken metamorphic rock, saturated.			3		SS	33		25	
18.3		**LIMESTONE BEDROCK** 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.			4		SS	>50		44	
					1		HQ				RQD 76%
					2		HQ				RQD 80%
21.3											

BOREHOLE LOG	PROJECT: 60317459	BOREHOLE: BH27-II 1 of 1
Fenelon Landfill Drilling Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HSA / SS **Contractor:** Lantech Drilling	**DATE:** March 10, 2014 **LOGGED BY** SRB **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
0		**PEAT** Black silty organic soil, rootlets, twigs, saturated, very loose.									
1.7		**SILTY SAND / SANDY SILT** Grey silty sand to sandy silt, saturated, compact.									
3.1		**SANDY SILT** Grey sandy silt, trace clay, trace gravel, saturated, loose to compact.			1		SS	15		83	
5.0		**SILTY SAND** Grey silty fine sand, trace clay, trace gravel, saturated, compact.			2		SS	14		71	
6.1		**SAND** Grey fine sand, trace silt, saturated, loose to compact.			3		SS	7		92	
		- Grey fine sand below about 7.6 m.			4		SS	10		63	
					5		SS	6		75	
					6		SS	10		67	
											Rod sinking in the flowing sand past augers.
9.9		**SAND** Light brown fine sand, saturated, compact.			7		SS	23		75	
10.7		Borehole terminated at 10.67 m in fine sand. Augered directly to 4.57 m without sampling, stratigraphy inferred from adjacent borehole BH27-III.									

BOREHOLE LOG	PROJECT: 60317459	BOREHOLE: BH27-III 1 of 1
Fenelon Landfill Drilling Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HSA / SS **Contractor:** Lantech Drilling	**DATE:** March 6, 2014 **LOGGED BY** SRB **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
0		**PEAT** Black silty organic soil, rootlets, twigs, saturated, very loose.		▽	1		SS	3		100	
1					2		SS	2		54	
1.7		**SILTY SAND / SANDY SILT** Grey silty sand to sandy silt, saturated, compact.			3		SS	2		54	
2					4		SS	14		63	
3.1		**SANDY SILT** 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.									

Cambium Environmental Inc.
PO Box 325 • 52 Hunter Street East
Peterborough • Ontario • K9H 1G5

Log of Borehole: WP1

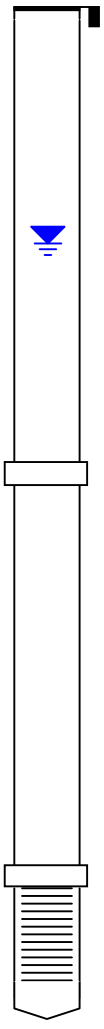
Project No.: 1816-001

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
0		Ground Surface		Well stick up 0.87m
		Organic Material Dark brown, wet		Steel well riser equiped with lockable J-Plug and weather proof lock
		Drive Point Well – No Samples		Water level December 2, 2010 from top of pipe (0.72 m)
				0.051m steel well riser
				0.051m x 0.30m stainless steel screen
8		End of Borehole		

Drilled By: S. Dolstra ***Input By:*** S. Dolstra

Drill Method: Drive Point ***Checked By:*** D. Bucholtz

Drill Date: December 2, 2010 ***Sheet:*** 1 of 1

Cambium Environmental Inc.
PO Box 325 • 52 Hunter Street East
Peterborough • Ontario • K9H 1G5

Log of Borehole: WP2

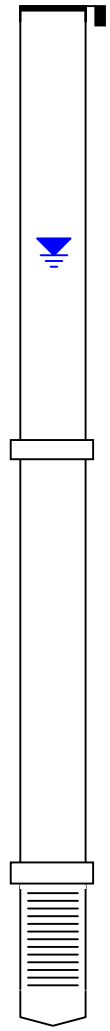
Project No.: 1816-001

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
0		Ground Surface		Well stick up 1.0m
		Organic Material Dark brown, wet		Steel well riser equiped with lockable J-Plug and weather proof lock
		Drive Point Well – No Samples		Water level December 2, 2010 from top of pipe (0.85 m)
				0.051m steel well riser
				0.051m x 0.30m stainless steel screen
		End of Borehole		

Drilled By: S. Dolstra ***Input By:*** S. Dolstra

Drill Method: Drive Point ***Checked By:*** D. Bucholtz

Drill Date: December 2, 2010 ***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 / 4				Water level December 2, 2010 from top of pipe (2.04 m)
6 /				0.051m x 0.30m stainless steel screen
8 /		End of Borehole		

Drilled By: S. Dolstra ***Input By:*** S. Dolstra

Drill Method: Drive Point ***Checked By:*** D. Bucholtz

Drill Date: December 2, 2010 ***Sheet:*** 1 of 1

Cambium Environmental Inc.
PO Box 325 • 52 Hunter Street East
Peterborough • Ontario • K9H 1G5

Log of Borehole: WP4

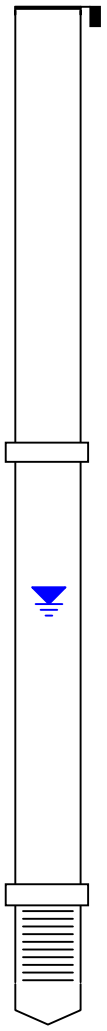
Project No.: 1816-001

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 ***Input By:*** S. Dolstra

Drill Method: Drive Point ***Checked By:*** D. Bucholtz

Drill Date: December 2, 2010 ***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) Δ 50 ppm 100 150 Δ 200	Monitoring Well
0		Ground Surface 258.592	0.0	NA	NA	NA	NA	NA		
		Topsoil	-0.2							
		Sand Wet, brown, fine to coarse grained, no odour		NA	NA	NA	NA	NA		
1				NA	NA	NA	NA	NA		
			-1.5							
		Silty Clay Wet, grey, no odour		NA	NA	NA	NA	NA		
2				NA	NA	NA	NA	NA		
			-3.0							
3		End of Borehole		NA	NA	NA	NA	NA		
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

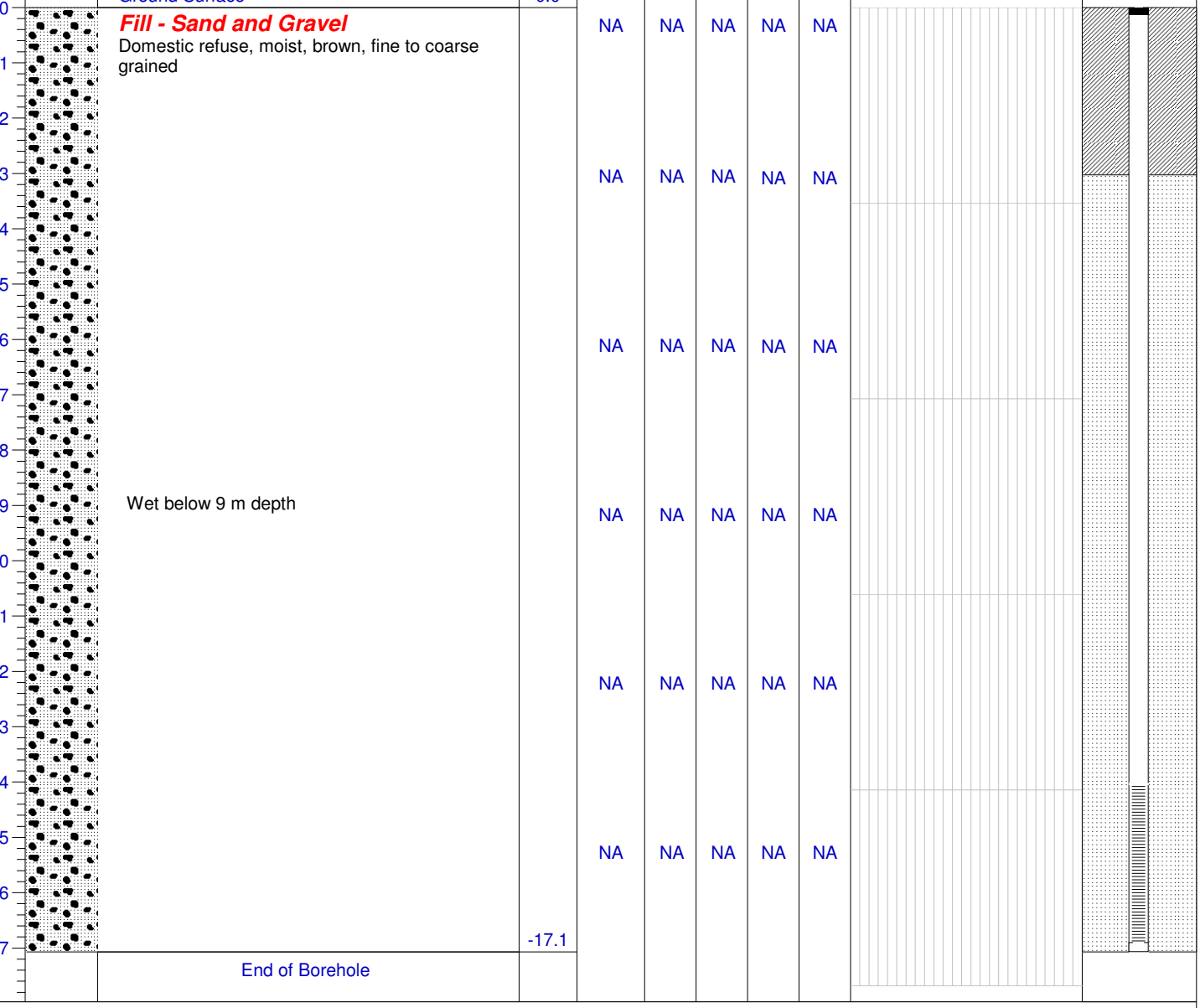
Pinchin Environmental
204-160 Charlotte Street
Peterborough, Ontario, K9J 2T8

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
0		Ground Surface	0.0							
0		***Fill - Sand and Gravel*** Domestic refuse, moist, brown, fine to coarse grained		NA	NA	NA	NA	NA		
3				NA	NA	NA	NA	NA		
6				NA	NA	NA	NA	NA		
9		Wet below 9 m depth		NA	NA	NA	NA	NA		
12				NA	NA	NA	NA	NA		
15				NA	NA	NA	NA	NA		
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 Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HQ Casing **Contractor:** Lantech Drilling	**DATE:** March 13, 2014 **LOGGED BY** KGA **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
0		**PEAT** Black silty organic soil, rootlets, twigs, saturated, very loose.		▽							
1.7		**SILTY SAND / SANDY SILT** Grey silty sand to sandy silt, saturated, compact.									Lithology above 13 m is inferred from BH27-II and BH27-III.
3.1		**SANDY SILT** Grey sandy silt, trace clay, trace gravel, saturated, loose to compact.									
5.0		**SILTY SAND** Grey silty fine sand, trace clay, trace gravel, saturated, compact.									
6.1		**SAND** Grey fine sand, trace silt, saturated, loose to compact. - Grey fine sand below about 7.6 m.									
9.9		**SAND** Light brown fine sand, saturated, compact.									

BOREHOLE LOG	PROJECT: 60317459	BOREHOLE: BH27-I 2 of 2
Fenelon Landfill Drilling Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HQ Casing **Contractor:** Lantech Drilling	**DATE:** March 13, 2014 **LOGGED BY** KGA **GROUND ELEV** N/A m ASL

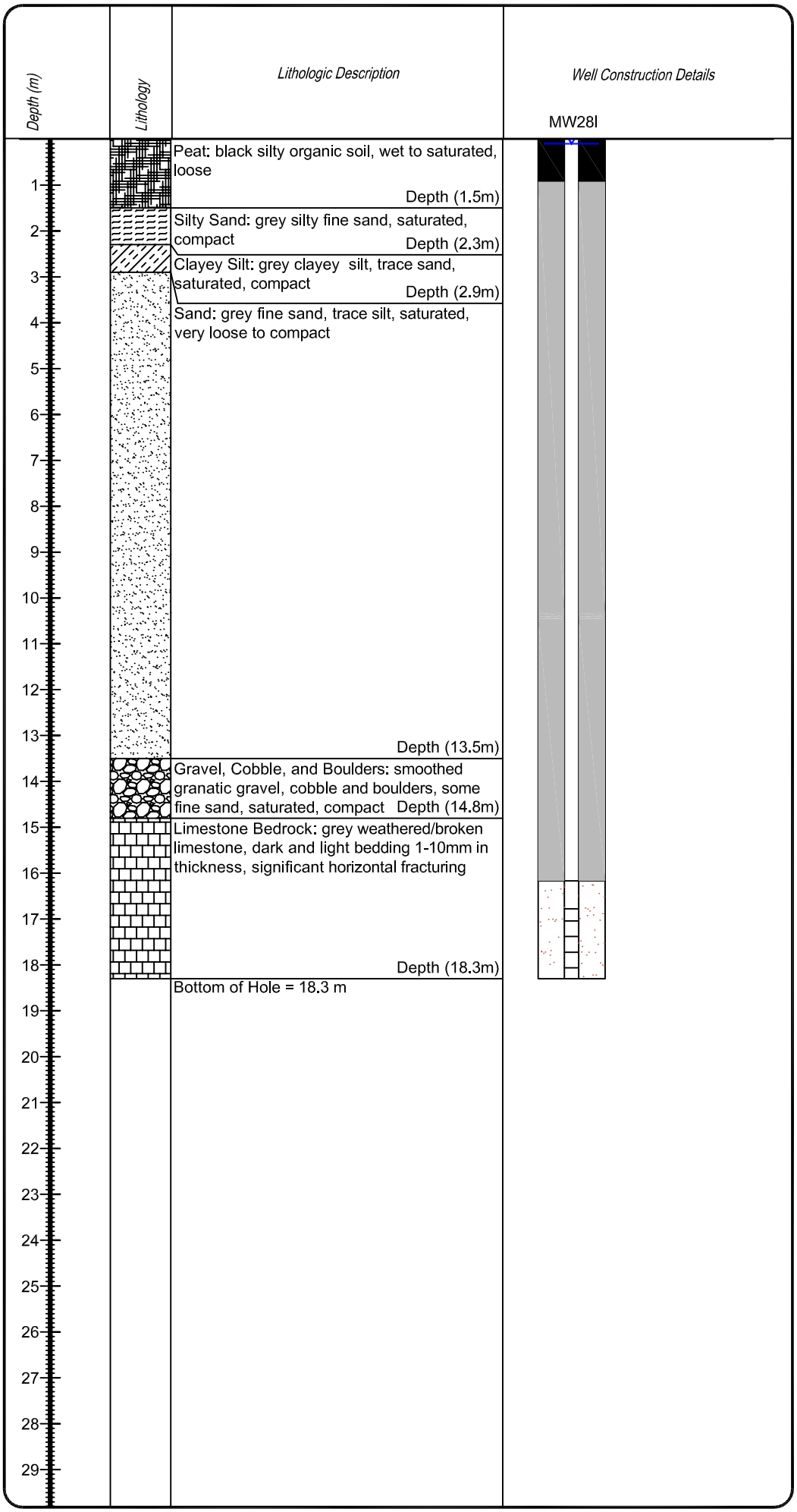
DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	WATER LEVEL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % REC	COMMENTS
13.1		**SAND & GRAVEL** Grey coarse sand and gravel, minor oxidation, rounded gravel, saturated.			1		SS	33		46	
13.7		**SAND** Brown medium coarse sand, trace silt, saturated.			2		SS	26		38	
16.5		**GRAVEL** Gravel, some sand, gravel is angular, broken metamorphic rock, saturated.			3		SS	33		25	
18.3		**LIMESTONE BEDROCK** 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.			4		SS	>50		44	
					1		HQ				RQD 76%
					2		HQ				RQD 80%
21.3											

BOREHOLE LOG	PROJECT: 60317459	BOREHOLE: BH27-II 1 of 1
Fenelon Landfill Drilling Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HSA / SS **Contractor:** Lantech Drilling	**DATE:** March 10, 2014 **LOGGED BY** SRB **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
0		**PEAT** Black silty organic soil, rootlets, twigs, saturated, very loose.									
1.7		**SILTY SAND / SANDY SILT** Grey silty sand to sandy silt, saturated, compact.									
3.1		**SANDY SILT** Grey sandy silt, trace clay, trace gravel, saturated, loose to compact.			1		SS	15		83	
5.0		**SILTY SAND** Grey silty fine sand, trace clay, trace gravel, saturated, compact.			2		SS	14		71	
6.1		**SAND** Grey fine sand, trace silt, saturated, loose to compact.			3		SS	7		92	
		- Grey fine sand below about 7.6 m.			4		SS	10		63	
					5		SS	6		75	
					6		SS	10		67	
											Rod sinking in the flowing sand past augers.
9.9		**SAND** Light brown fine sand, saturated, compact.			7		SS	23		75	
10.7		Borehole terminated at 10.67 m in fine sand. Augered directly to 4.57 m without sampling, stratigraphy inferred from adjacent borehole BH27-III.									

BOREHOLE LOG	PROJECT: 60317459	BOREHOLE: BH27-III 1 of 1
Fenelon Landfill Drilling Fenelon Landfill **Client:** City of Kawartha Lakes	**Northing:** 4926696 **Easting:** 675656 **Methodology:** HSA / SS **Contractor:** Lantech Drilling	**DATE:** March 6, 2014 **LOGGED BY** SRB **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
0		**PEAT** Black silty organic soil, rootlets, twigs, saturated, very loose.		▽	1		SS	3		100	
1					2		SS	2		54	
1.7		**SILTY SAND / SANDY SILT** Grey silty sand to sandy silt, saturated, compact.			3		SS	2		54	
2					4		SS	14		63	
3.1		**SANDY SILT** 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.									



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")

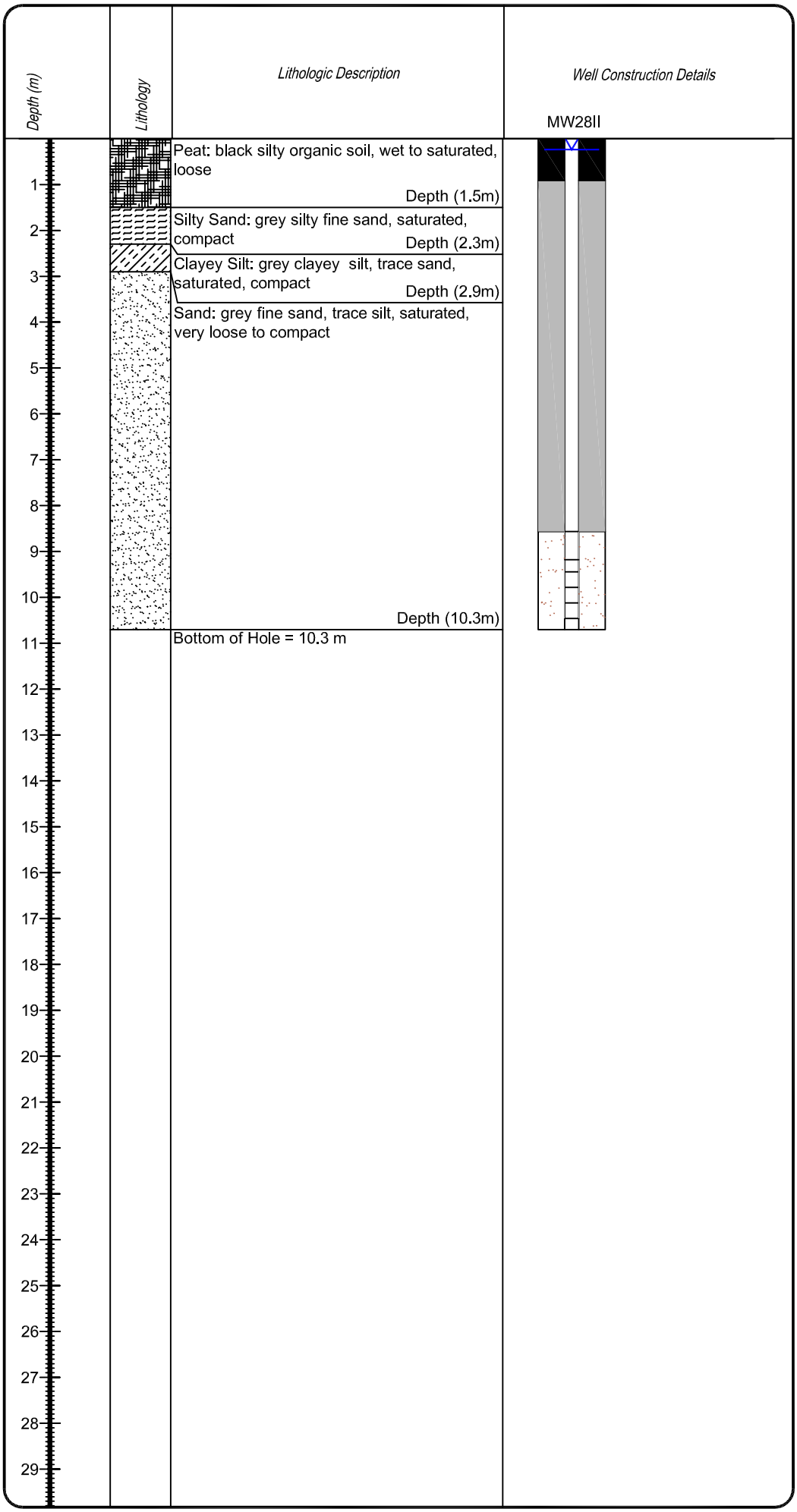
Geologic materials recovered and evaluated by: Drew West

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Date Issued:	February 2015
Created By:	JLM
Project No.	14-367
File Name:	14-367bh

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: MW28I Plotscale: 40



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")

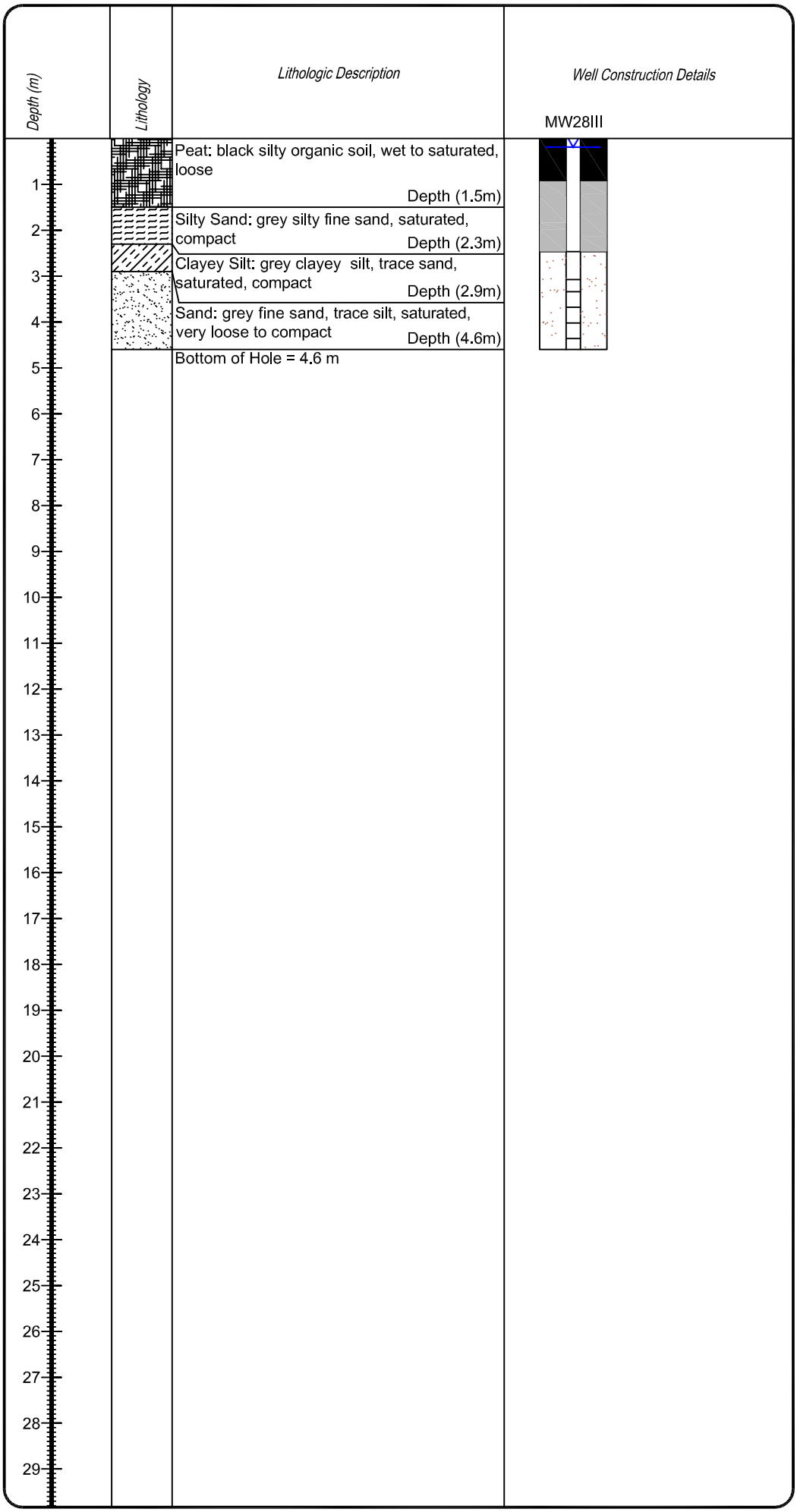
Geologic materials recovered and evaluated by: Drew West

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



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

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 50 100 150 200 (Intact (MaX) Cu, Remoulded Cu)	WATER CONTENT % 10 20 30 (W_P, W_L)	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)			DP2			20				
2.0												
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												
14.0		**SILTY SAND:** Grey SILTY SAND, saturated			DP7			50				
14.6		Borehole terminated at 14.6 m below ground surface in SILTY SAND.										
15.0												
16.0												

UTM CO-ORDINATES
UTM Zone: NAD:
Easting:
Northing:

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.										**UTM CO-ORDINATES** UTM Zone: NAD: Easting: Northing: 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												

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.
2.4	257.2	Borehole terminated at 2.4 m below ground surface in SILTY SAND.										

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)	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.
2.4	257.0	Borehole terminated at 2.4 m below ground surface in SILTY SAND.										

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 (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 = 260.05 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.										**UTM CO-ORDINATES** UTM Zone: NAD: Easting: Northing: 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												

WSP GEOTECH (METRIC) WITH UTM AND MASL FENELON BOREHOLE LOGS.GPJ WSP_ENV_V1.GDT 8/9/18

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-I	257.25	258.48	Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-
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-I	257.25	258.48	Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	258.336
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	Apr-21
1	271.47	272.25	Lower OB	Dry	260.22	Dry	-	260.47	-	260.11	260.49	Dry	259.63	Dry	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	259.32
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	259.30
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	259.30
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	261.16
5A	268.10	269.50	Lower OB	259.66	260.35	259.71	-	260.40	-	257.70	259.92	Dry	Dry	Dry	Dry	Dry	259.34
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	259.78
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	258.98
7-17	270.87	271.67	Leachate	-	-	-	-	260.11	-	-	260.47	260.15	263.67	259.99	260.47	260.02	260.30
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	259.32
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	260.02
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	259.07
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	259.21
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	258.57
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	258.96
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	258.97
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	258.84
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	259.09
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	259.17
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	259.18
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	259.17
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	259.18
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	259.12
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	259.67
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	259.64
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	259.64
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	258.64
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	258.60
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	258.58
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	258.20
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	258.21
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	258.21
27-I	257.25	258.48	Bedrock	257.226	258.37	258.126	258.35	258.31	Flowing	258.34	258.44	258.19	258.40	258.14	258.33	258.37	258.46
27-II	257.34	258.32	Lower OB	257.155	-	Flowing	Flowing	Flowing	Flowing	Flowing	couldn't open	Flowing	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	257.35
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	258.51
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	258.40
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	258.38
WP1-18	259.77	260.62	Shallow OB	-	-	-	-	-	-	-	-	259.67	260.12	259.43	259.99	259.67	259.96
WP2-18	259.54	260.64	Shallow OB	-	-	-	-	-	-	-	-	259.62	plugged	259.70	259.92	259.86	259.92
WP3-18	259.43	260.34	Shallow OB	-	-	-	-	-	-	-	-	259.28	259.64	259.10	259.52	259.40	259.51
WP4-18	259.43	260.05	Shallow OB	-	-	-	-	-	-	-	-	259.04	259.40	258.84	259.34	259.08	259.33
WP5-18	259.16	260.18	Shallow OB	-	-	-	-	-	-	-	-	258.92	259.31	258.77	259.24	259.07	259.24
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	257.37

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-21	May-22	Nov-22	Apr-23	Oct-23	Apr-24	Oct-24
1	271.47	272.25	Lower OB	Dry	Dry	Dry	Dry	Dry	Dry	-
2	267.79	268.35	Shallow OB	259.25	259.44	259.18	259.54	259.08	259.47	-
3	261.15	261.65	Lower OB	259.23	259.42	259.14	259.47	259.06	259.46	-
3A	261.25	261.93	Shallow OB	259.25	259.43	259.15	259.52	259.08	259.49	-
5	268.56	269.33	Shallow OB	259.28	259.49	259.19	259.59	259.12	259.52	-
5A	268.10	269.50	Lower OB	259.30	259.50	259.20	259.62	259.13	259.52	-
6-07	260.91	261.53	Lower OB	259.68	259.86	259.61	259.88	259.59	259.92	-
6A-07	260.93	260.65	Shallow OB	258.89	259.06	258.81	259.15	258.79	259.68	-
7-17	270.87	271.67	Leachate	260.17	260.47	260.12	260.13	263.97	260.33	-
10	262.43	262.71	Shallow OB	259.19	259.47	Dry	259.55	Dry	259.51	259.11
11A	261.354	261.82	Shallow OB	260.01	260.10	259.89	260.14	259.82	260.17	260.35
12	263.70	264.24	Shallow OB	259.00	259.17	258.92	259.26	258.86	261.23	258.90
13	259.84	260.59	Shallow OB	259.15	259.32	259.04	259.41	258.99	259.30	259.03
14	259.18	260.52	Shallow OB	258.58	258.56	258.47	258.60	258.51	258.85	259.81
15	261.53	262.44	Shallow OB	258.87	259.02	258.78	259.09	258.75	259.14	258.76
15A	261.45	262.11	Lower OB	258.93	259.08	258.83	259.14	258.81	259.10	258.81
15B	261.45	262.30	Bedrock	258.77	258.92	258.67	258.98	258.65	258.90	258.67
16	267.11	267.82	Shallow OB	259.05	259.19	258.94	259.29	258.90	259.20	258.92
17	274.06	274.53	Lower OB	259.11	259.27	Dry	259.38	Dry	Dry	Dry
18	267.07	267.62	Shallow OB	259.11	259.32	259.02	259.42	258.96	259.31	258.97
18A	267.17	268.06	Bedrock	259.12	259.30	259.02	259.38	258.97	259.32	259.01
18B	267.17	268.07	Lower OB	259.11	259.29	259.02	259.29	258.97	259.32	259.00
19	264.43	265.04	Lower OB	259.06	259.22	258.97	259.30	258.93	261.23	258.94
22	269.81	270.84	Bedrock	259.67	260.67	259.57	260.67	259.52	259.84	259.54
22A	269.81	270.74	Lower OB	259.62	260.64	259.47	260.64	263.35	259.74	259.37
22B	269.81	270.80	Shallow OB	259.64	260.64	259.57	260.64	259.47	259.84	259.46
23	259.44	260.68	Bedrock	258.58	258.73	258.52	258.74	258.49	258.75	258.45
23A	259.44	260.68	Lower OB	258.56	258.65	258.48	258.66	258.47	258.68	258.48
23B	259.44	260.65	Shallow OB	258.55	258.63	258.49	258.63	258.48	258.68	258.44
26	258.036	259.00	Shallow OB	258.20	258.24	258.17	258.23	258.17	258.22	258.15
26-1	258.08	258.87	Bedrock	258.21	258.24	258.17	258.24	258.24	258.24	258.17
26-2	258.22	259.01	Lower OB	258.20	258.22	258.16	258.22	258.17	258.22	258.15
27-I	257.25	258.48	Bedrock	258.48	258.40	258.48	258.48	258.47	Flowing	258.48
27-II	257.34	258.32	Lower OB	Flowing	Flowing	Flowing	Flowing	Flowing	Flowing	258.32
27-III	257.40	258.44	Shallow OB	257.38	257.40	257.33	257.39	257.35	257.44	257.34
28-I	258.30	259.41	Bedrock	258.51	258.53	258.44	258.54	258.47	258.51	258.52
28-II	258.44	259.47	Lower OB	258.41	258.39	258.34	258.41	258.37	258.41	258.29
28-III	258.32	259.48	Shallow OB	258.39	258.39	258.32	258.40	258.36	258.39	258.33
WP1-18	259.77	260.62	Shallow OB	259.97	259.99	259.84	260.01	259.79	260.03	259.94
WP2-18	259.54	260.64	Shallow OB	259.90	259.96	259.90	259.97	259.89	259.98	259.90
WP3-18	259.43	260.34	Shallow OB	259.51	259.53	259.47	259.54	258.36	259.53	259.47
WP4-18	259.43	260.05	Shallow OB	259.33	259.36	259.24	259.38	259.24	259.36	259.20
WP5-18	259.16	260.18	Shallow OB	259.25	259.26	259.21	259.26	259.23	259.21	259.18
WP6-13	257.84	258.61	Shallow OB	257.41	257.46	257.33	256.89	257.40	257.52	257.38

Notes:
new survey completed in 2019, many reference elevations
shifted from previous years
OB - Overburden

APPENDIX D

Laboratory Certificates of Analysis

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-010845 - 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: Bonnie Ferguson

DATE RECEIVED: 2024-Apr-18
DATE REPORTED: 2024-Apr-30
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Conductivity
P.O. NUMBER:

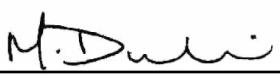
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	13	OTTAWA	PCURIEL	2024-Apr-23	A-IC-01	SM 4110B
BOD5 (Liquid)	13	KINGSTON	JWOLFE2	2024-Apr-25	BOD-001	SM 5210B
COD (Liquid)	13	KINGSTON	EHINCH	2024-Apr-24	COD-001	SM 5220D
Colour (Liquid)	13	OTTAWA	STAILLON	2024-Apr-24	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	13	OTTAWA	SBOUDREAU	2024-Apr-22	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	13	KINGSTON	EHINCH	2024-Apr-24	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	13	OTTAWA	VKASYAN	2024-Apr-25	C-OC-01	EPA 415.2
Ion Balance (Calc.)	13	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	13	OTTAWA	STAILLON	2024-Apr-26	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	13	OTTAWA	AOZKAYMAK	2024-Apr-26	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	13	OTTAWA	APRUDYVUS	2024-Apr-24	D-ICP-01	SM 3120B
ICP/OES (Liquid)	13	OTTAWA	NHOGAN	2024-Apr-24	D-ICP-01	SM 3120B
Mercury (Liquid)	13	OTTAWA	TBENNETT	2024-Apr-23	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	13	KINGSTON	JYEARWOOD	2024-Apr-26	NH3-001	SM 4500NH3
Phenols (Liquid)	13	KINGSTON	JMACINNES	2024-Apr-26	PHEN-01	MECP E3179
TP & TKN (Liquid)	13	KINGSTON	KDIBBITS	2024-Apr-26	TPTKN-001	MECP E3516.2
TSS (Liquid)	13	KINGSTON	DCASSIDY	2024-Apr-29	TSS-001	SM 2540D
Turbidity (Liquid)	13	OTTAWA	STAILLON	2024-Apr-23	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 *

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.	WP2-10m	WP2-30m	WP3-10m	WP3-30m	WP4-15m
	Sample I.D.	24-010845-1	24-010845-2	24-010845-3	24-010845-4	24-010845-5
	Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units** **R.L.**	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L 5	127	117	378	120	290
Conductivity @25°C	uS/cm 1	259	243	794	254	547
pH @25°C	pH units -	7.36	7.28	8.04	7.39	8.09
Colour	TCU 2	116	95	76	85	76
Turbidity	NTU 0.1	1.6	2.6	34.5	1.4	19.4
Fluoride	mg/L 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L 0.5	5.5	5.1	23.8	5.7	2.5
Nitrate (N)	mg/L 0.05	<0.05	<0.05	1.22	<0.05	0.06
Nitrite (N)	mg/L 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L 1	2	2	4	2	2
BOD5	mg/L 3	<3	<3	13	<3	<3
Total Suspended Solids	mg/L 3	10	14	68	<3	66
Phosphorus (Total)	mg/L 0.01	0.04	0.02	0.09	0.02	0.10
Total Kjeldahl Nitrogen	mg/L 0.1	0.8	0.6	4.1	0.6	1.6
Ammonia (N)-Total (NH3+NH4)	mg/L 0.05	0.06	<0.05	2.54	<0.05	0.41
Ammonia (N)-unionized	mg/L 0.01	<0.01	<0.01	0.06	<0.01	<0.01
Dissolved Organic Carbon	mg/L 0.2	19.0	19.4	29.8	17.7	17.4
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	<0.001	<0.001
COD	mg/L 5	56	48	71	39	50
Aluminum	mg/L 0.01	0.04	0.03	0.09	0.03	0.06



Michelle Dubien
Data Specialist

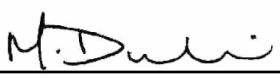
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

	Client I.D.	WP2-10m	WP2-30m	WP3-10m	WP3-30m	WP4-15m
	Sample I.D.	24-010845-1	24-010845-2	24-010845-3	24-010845-4	24-010845-5
	Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units** **R.L.**	-	-	-	-	-
Hardness (as CaCO3)	mg/L -	128	125	338	128	298
Aluminum (Total)	mg/L 0.01	0.03	0.02	0.08	0.01	0.22
Barium (Total)	mg/L 0.001	0.014	0.012	0.042	0.013	0.047
Boron (Total)	mg/L 0.005	0.007	<0.005	0.204	0.006	0.156
Calcium (Total)	mg/L 0.02	46.4	45.2	118	46.2	104
Iron (Total)	mg/L 0.005	0.249	0.034	0.720	0.050	0.436
Magnesium (Total)	mg/L 0.02	2.95	2.95	10.3	2.97	9.42
Manganese (Total)	mg/L 0.001	0.080	0.003	0.137	0.004	0.059
Phosphorus (Total)	mg/L 0.1	<0.1	<0.1	<0.1	<0.1	0.1
Potassium (Total)	mg/L 0.1	1.6	1.6	13.7	1.6	5.7
Sodium (Total)	mg/L 0.2	3.8	3.8	26.6	4.0	4.6
Strontium (Total)	mg/L 0.001	0.103	0.101	0.348	0.103	0.320
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	0.011
Zinc (Total)	mg/L 0.005	<0.005	<0.005	0.006	<0.005	0.021
Antimony (Total)	mg/L 0.0001	0.0001	0.0003	0.0004	0.0004	0.0006
Arsenic (Total)	mg/L 0.0001	0.0003	0.0002	0.0005	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	<0.000015	<0.000015	0.000051
Chromium (Total)	mg/L 0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Total)	mg/L 0.0001	0.0003	0.0002	0.0009	0.0002	0.0005

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.	WP2-10m	WP2-30m	WP3-10m	WP3-30m	WP4-15m
	Sample I.D.	24-010845-1	24-010845-2	24-010845-3	24-010845-4	24-010845-5
	Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**	-	-	-	-	-
Copper (Total)	mg/L	0.0001	0.0032	0.0003	0.0010	0.0005	0.0038
Lead (Total)	mg/L	0.00002	0.00047	0.00004	0.00036	0.00005	0.00089
Molybdenum (Total)	mg/L	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0009
Nickel (Total)	mg/L	0.0002	0.0006	0.0006	0.0025	0.0005	0.0018
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	<0.00005	0.00021
Vanadium (Total)	mg/L	0.0001	0.0002	<0.0001	0.0002	<0.0001	0.0007
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	-	2.73	2.53	8.39	2.59	5.90
Cation Sum	meq/L	-	2.78	2.70	8.32	2.77	6.34
% Difference	%	-	0.910	3.38	0.403	3.27	3.60
Ion Ratio	-	-	0.982	0.935	1.01	0.937	0.931
Sodium Adsorption Ratio	-	-	0.146	0.147	0.631	0.154	0.116
TDS (Ion Sum Calc)	mg/L	1	139	131	430	134	302
TDS(calc.)/EC(actual)	-	-	0.536	0.539	0.541	0.529	0.553
Conductivity Calc	µmho/cm	-	266	255	759	261	558
Conductivity Calc / Conductivity	-	-	1.03	1.05	0.956	1.03	1.02
Langelier Index(25°C)	-	-	-0.264	-0.380	1.23	-0.249	1.13



Michelle Dubien
Data Specialist

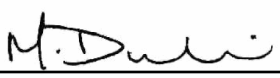
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	WP2-10m	WP2-30m	WP3-10m	WP3-30m	WP4-15m
			Sample I.D.	24-010845-1	24-010845-2	24-010845-3	24-010845-4	24-010845-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		7.62	7.66	6.81	7.64	6.96
pH (Client Data)	pH units	-		8	7.98	8.17	8.06	7.96
Temperature (Client Data)	°C	-		7.2	7.6	7.3	7.7	7.7

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.

Parameter	Units	R.L.	Client I.D.	WP4-30m	SW12-15m	SW12-30m	SW13-10m	SW13-30m
			Sample I.D.	24-010845-6	24-010845-7	24-010845-8	24-010845-9	24-010845-10
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		316	405	180	188	121
Conductivity @25°C	uS/cm	1		598	799	390	405	248
pH @25°C	pH units	-		8.14	7.94	7.79	7.76	7.40
Colour	TCU	2		101	62	102	107	100
Turbidity	NTU	0.1		35.2	36.4	1.0	2.8	3.5
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		2.7	14.6	10.4	11.1	5.4
Nitrate (N)	mg/L	0.05		<0.05	0.06	0.48	0.48	<0.05
Nitrite (N)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1		1	1	4	5	2
BOD5	mg/L	3		4	4	<3	<3	<3
Total Suspended Solids	mg/L	3		58	62	4	5	12
Phosphorus (Total)	mg/L	0.01		0.14	0.10	0.02	0.03	0.06
Total Kjeldahl Nitrogen	mg/L	0.1		2.2	5.5	0.9	1.0	1.1
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.08	4.72	0.19	0.27	0.16
Ammonia (N)-unionized	mg/L	0.01		<0.01	0.15	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2		25.4	22.0	18.1	19.4	16.4
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	<0.001	<0.001
COD	mg/L	5		119	64	49	51	56
Aluminum	mg/L	0.01		0.07	0.10	0.04	0.06	0.04



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.

Parameter	Units	R.L.	Client I.D.	WP4-30m	SW12-15m	SW12-30m	SW13-10m	SW13-30m
			Sample I.D.	24-010845-6	24-010845-7	24-010845-8	24-010845-9	24-010845-10
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
				-	-	-	-	-
Hardness (as CaCO3)	mg/L	-		309	364	174	187	115
Aluminum (Total)	mg/L	0.01		0.21	0.07	0.02	0.04	0.03
Barium (Total)	mg/L	0.001		0.045	0.055	0.022	0.026	0.012
Boron (Total)	mg/L	0.005		0.192	0.102	0.083	0.093	<0.005
Calcium (Total)	mg/L	0.02		103	130	62.1	66.8	41.6
Iron (Total)	mg/L	0.005		0.535	5.47	0.187	0.385	0.102
Magnesium (Total)	mg/L	0.02		12.6	9.68	4.56	4.94	2.72
Manganese (Total)	mg/L	0.001		0.272	0.976	0.006	0.018	0.017
Phosphorus (Total)	mg/L	0.1		0.1	0.1	<0.1	<0.1	<0.1
Potassium (Total)	mg/L	0.1		15.2	8.6	4.9	5.5	1.6
Sodium (Total)	mg/L	0.2		9.5	17.3	9.2	10.3	3.7
Strontium (Total)	mg/L	0.001		0.318	0.379	0.157	0.171	0.095
Tin (Total)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005		0.010	<0.005	<0.005	<0.005	<0.005
Zinc (Total)	mg/L	0.005		0.016	<0.005	<0.005	<0.005	0.008
Antimony (Total)	mg/L	0.0001		0.0005	0.0003	0.0003	0.0004	0.0006
Arsenic (Total)	mg/L	0.0001		0.0009	0.0011	0.0003	0.0003	0.0003
Beryllium (Total)	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.000015		0.000065	0.000022	<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		0.0007	0.0032	0.0003	0.0004	0.0003

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.	WP4-30m	SW12-15m	SW12-30m	SW13-10m	SW13-30m
			Sample I.D.	24-010845-6	24-010845-7	24-010845-8	24-010845-9	24-010845-10
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper (Total)	mg/L	0.0001		0.0016	0.0010	0.0008	0.0007	0.0005
Lead (Total)	mg/L	0.00002		0.00144	0.00016	0.00008	0.00009	0.00019
Molybdenum (Total)	mg/L	0.0001		0.0005	0.0002	<0.0001	0.0001	<0.0001
Nickel (Total)	mg/L	0.0002		0.0017	0.0033	0.0008	0.0009	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		0.00016	0.00011	<0.00005	<0.00005	<0.00005
Vanadium (Total)	mg/L	0.0001		0.0006	0.0004	<0.0001	0.0001	<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	-		6.41	8.53	4.02	4.21	2.61
Cation Sum	meq/L	-		7.03	8.58	4.01	4.35	2.51
% Difference	%	-		4.55	0.268	0.0566	1.72	1.98
Ion Ratio	-	-		0.913	0.995	1.00	0.966	1.04
Sodium Adsorption Ratio	-	-		0.235	0.394	0.302	0.329	0.149
TDS (Ion Sum Calc)	mg/L	1		335	431	206	219	130
TDS(calc.)/EC(actual)	-	-		0.560	0.539	0.528	0.540	0.523
Conductivity Calc	µmho/cm	-		611	749	384	408	247
Conductivity Calc / Conductivity	-	-		1.02	0.938	0.983	1.01	0.998
Langelier Index(25°C)	-	-		1.21	1.20	0.406	0.427	-0.280

Michelle Dubien
Data Specialist

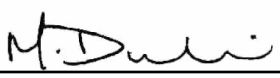
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Parameter	Units	R.L.	Client I.D.	WP4-30m	SW12-15m	SW12-30m	SW13-10m	SW13-30m
			Sample I.D.	24-010845-6	24-010845-7	24-010845-8	24-010845-9	24-010845-10
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
				-	-	-	-	-
Saturation pH (25°C)	-	-		6.93	6.74	7.38	7.33	7.68
pH (Client Data)	pH units	-		8.17	8.35	7.58	7.98	7.97
Temperature (Client Data)	°C	-		8.5	6.9	7.2	7.2	7.7

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.

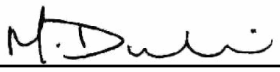
Parameter	Units	R.L.	Client I.D.	SW14-15m	SW15-10m	SW15-30m
			Sample I.D.	24-010845-11	24-010845-12	24-010845-13
			Date Collected	2024-04-18	2024-04-18	2024-04-18
Alkalinity(CaCO3) to pH4.5	mg/L	5		123	383	389
Conductivity @25°C	uS/cm	1		253	738	753
pH @25°C	pH units	-		7.45	7.99	8.05
Colour	TCU	2		135	81	102
Turbidity	NTU	0.1		1.3	59.4	11.3
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1
Chloride	mg/L	0.5		5.9	8.9	12.9
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		2	<1	<1
BOD5	mg/L	3		<3	6	5
Total Suspended Solids	mg/L	3		4	720	165
Phosphorus (Total)	mg/L	0.01		0.02	0.13	0.14
Total Kjeldahl Nitrogen	mg/L	0.1		0.6	2.1	2.2
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.05	0.30	0.26
Ammonia (N)-unionized	mg/L	0.01		<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2		20.4	33.0	34.4
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		53	107	92
Aluminum	mg/L	0.01		0.04	0.09	0.09



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.

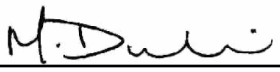
Parameter	Units	R.L.	Client I.D.	SW14-15m	SW15-10m	SW15-30m
			Sample I.D.	24-010845-11	24-010845-12	24-010845-13
			Date Collected	2024-04-18	2024-04-18	2024-04-18
				-	-	-
Hardness (as CaCO3)	mg/L	-		123	358	373
Aluminum (Total)	mg/L	0.01		0.03	0.17	0.04
Barium (Total)	mg/L	0.001		0.010	0.048	0.041
Boron (Total)	mg/L	0.005		<0.005	0.267	0.245
Calcium (Total)	mg/L	0.02		44.4	120	125
Iron (Total)	mg/L	0.005		0.107	0.593	0.120
Magnesium (Total)	mg/L	0.02		2.97	14.3	14.5
Manganese (Total)	mg/L	0.001		0.213	0.271	0.171
Phosphorus (Total)	mg/L	0.1		<0.1	0.1	<0.1
Potassium (Total)	mg/L	0.1		2.1	10.2	11.9
Sodium (Total)	mg/L	0.2		3.9	12.0	16.4
Strontium (Total)	mg/L	0.001		0.102	0.398	0.420
Tin (Total)	mg/L	0.05		<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005		<0.005	0.006	<0.005
Zinc (Total)	mg/L	0.005		0.079	0.013	0.006
Antimony (Total)	mg/L	0.0001		0.0002	0.0004	0.0004
Arsenic (Total)	mg/L	0.0001		0.0003	0.0010	0.0009
Beryllium (Total)	mg/L	0.0001		<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.000015		<0.000015	0.000034	<0.000015
Chromium (Total)	mg/L	0.001		<0.001	0.001	<0.001
Cobalt (Total)	mg/L	0.0001		0.0002	0.0009	0.0007



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.

Parameter	Units	R.L.	Client I.D.	SW14-15m	SW15-10m	SW15-30m
			Sample I.D.	24-010845-11	24-010845-12	24-010845-13
			Date Collected	2024-04-18	2024-04-18	2024-04-18
				-	-	-
Copper (Total)	mg/L	0.0001		0.0003	0.0017	0.0008
Lead (Total)	mg/L	0.00002		0.00004	0.00113	0.00021
Molybdenum (Total)	mg/L	0.0001		<0.0001	0.0004	0.0004
Nickel (Total)	mg/L	0.0002		0.0005	0.0027	0.0020
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		<0.00005	0.00008	0.00011
Vanadium (Total)	mg/L	0.0001		0.0001	0.0005	0.0001
Chromium (VI)	mg/L	0.001		<0.001	<0.001	<0.001
Mercury	mg/L	0.00002		<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-		2.67	7.93	8.15
Cation Sum	meq/L	-		2.70	7.98	8.49
% Difference	%	-		0.567	0.273	2.03
Ion Ratio	-	-		0.989	0.995	0.960
Sodium Adsorption Ratio	-	-		0.154	0.277	0.369
TDS (Ion Sum Calc)	mg/L	1		136	397	416
TDS(calc.)/EC(actual)	-	-		0.536	0.538	0.552
Conductivity Calc	µmho/cm	-		260	711	747
Conductivity Calc / Conductivity	-	-		1.03	0.963	0.993
Langelier Index(25°C)	-	-		-0.206	1.20	1.28



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.	SW14-15m	SW15-10m	SW15-30m
			Sample I.D.	24-010845-11	24-010845-12	24-010845-13
			Date Collected	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-
Saturation pH (25°C)	-	-		7.66	6.79	6.77
pH (Client Data)	pH units	-		8.22	7.84	8.01
Temperature (Client Data)	°C	-		9.5	8.1	7.2

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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-010860 - 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: 2024-Apr-18
DATE REPORTED: 2024-May-02
SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

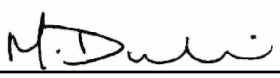
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	8	OTTAWA	LMACGREGOR	2024-Apr-23	A-IC-01	SM 4110B
BOD5 (Liquid)	6	KINGSTON	JWOLFE2	2024-Apr-25	BOD-001	SM 5210B
COD (Liquid)	8	KINGSTON	EHINCH	2024-Apr-25	COD-001	SM 5220D
Colour (Liquid)	6	OTTAWA	STAILLON	2024-Apr-24	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	8	OTTAWA	SBOUDREAU	2024-Apr-22	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	6	KINGSTON	EHINCH	2024-Apr-24	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	8	OTTAWA	VKASYAN	2024-Apr-25	C-OC-01	EPA 415.2
Ion Balance (Calc.)	8	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	8	OTTAWA	STAILLON	2024-Apr-26	D-CRVI-01	MECP E3056
ICP/MS (Liquid)	8	OTTAWA	TPRICE	2024-Apr-26	D-ICPMS-01	EPA 200.8
ICP/OES (Liquid)	8	OTTAWA	APRUDYVUS	2024-Apr-26	D-ICP-01	SM 3120B
Mercury (Liquid)	8	OTTAWA	TBENNETT	2024-Apr-23	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	8	KINGSTON	JYEARWOOD	2024-Apr-26	NH3-001	SM 4500NH3
Phenols (Liquid)	8	KINGSTON	JMACINNES	2024-Apr-29	PHEN-01	MECP E3179
TP & TKN (Liquid)	8	KINGSTON	KDIBBITS	2024-Apr-30	TPTKN-001	MECP E3516.2
TSS (Liquid)	6	KINGSTON	DCASSIDY	2024-Apr-30	TSS-001	SM 2540D
Turbidity (Liquid)	6	OTTAWA	STAILLON	2024-Apr-22	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	6	RICHMOND_HILL	FLENA	2024-Apr-24	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.

Parameter	Units	R.L.	Client I.D.	WP1-10	WP2-10	WP3-10	WP4-10	WP5-10
			Sample I.D.	24-010860-1	24-010860-2	24-010860-3	24-010860-4	24-010860-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-17
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		228	499	374	850	272
TDS (Calc. from Cond.)	mg/L	3		258	536	412	1040	285
Conductivity @25°C	uS/cm	1		498	1000	786	1880	549
pH @25°C	pH units	-		7.28	7.61	7.78	7.77	7.82
Colour	TCU	2		54	33	56	196	26
Turbidity	NTU	0.1		383	1620	292	762	479
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		18.8	25.5	25.5	91.4	9.1
Nitrate (N)	mg/L	0.05		<0.05	0.07	<0.05	<0.05	0.17
Nitrite (N)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1		<1	2	<1	<1	1
BOD5	mg/L	3		<3	16	4	7	4
Total Suspended Solids	mg/L	3		1420	2540	505	2380	260
Phosphorus (Total)	mg/L	0.01		0.89	2.56	0.61	0.97	0.09
Total Kjeldahl Nitrogen	mg/L	0.1		5.5	29.8	7.7	37.2	2.2
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.68	7.81	2.59	39.6	0.79
Ammonia (N)-unionized	mg/L	0.01		<0.01	0.02	0.01	0.09	<0.01
Dissolved Organic Carbon	mg/L	0.2		20.3	28.4	22.1	43.2	22.8
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		378	1170	268	456	97



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.	WP1-10	WP2-10	WP3-10	WP4-10	WP5-10
	Sample I.D.	24-010860-1	24-010860-2	24-010860-3	24-010860-4	24-010860-5
	Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-17
Parameter	Units R.L.	-	-	-	-	-
Hardness (as CaCO3)	mg/L 0.02	220	381	306	451	189
Aluminum	mg/L 0.01	0.05	0.05	0.04	0.09	0.02
Barium	mg/L 0.001	0.028	0.066	0.038	0.422	0.026
Boron	mg/L 0.005	<0.005	0.092	0.046	0.552	0.080
Calcium	mg/L 0.02	79.5	134	107	156	64.4
Iron	mg/L 0.005	0.610	15.7	0.069	0.196	0.037
Magnesium	mg/L 0.02	5.24	11.2	9.15	28.2	6.68
Manganese	mg/L 0.001	0.517	0.430	0.180	0.152	0.724
Phosphorus	mg/L 0.1	0.2	0.2	<0.1	<0.1	<0.1
Potassium	mg/L 0.1	1.8	12.4	9.9	73.6	11.9
Sodium	mg/L 0.2	6.7	40.5	23.3	95.4	24.7
Strontium	mg/L 0.001	0.182	0.377	0.298	0.413	0.193
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	0.472	0.501	0.558	0.147	0.489
Antimony	mg/L 0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002
Arsenic	mg/L 0.0001	0.0002	0.0007	0.0003	0.0004	0.0002
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	0.0015	0.0005	0.0014	0.0004

Michelle Dubien
Data Specialist

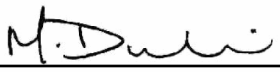
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	WP1-10	WP2-10	WP3-10	WP4-10	WP5-10
			Sample I.D.	24-010860-1	24-010860-2	24-010860-3	24-010860-4	24-010860-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper	mg/L	0.0001		0.0002	0.0004	0.0004	0.0006	0.0002
Lead	mg/L	0.00002		0.00006	0.00007	0.00021	<0.00004	<0.00002
Molybdenum	mg/L	0.0001		<0.0001	0.0003	<0.0001	<0.0001	0.0003
Nickel	mg/L	0.0002		<0.0002	0.0019	0.0010	0.0026	0.0010
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		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Vanadium	mg/L	0.0001		0.0008	0.0003	<0.0001	0.0011	<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	-		5.10	10.7	8.21	19.6	5.74
Cation Sum	meq/L	-		4.85	11.1	7.59	19.0	5.25
% Difference	%	-		2.46	1.76	3.90	1.63	4.45
Ion Ratio	-	-		1.05	0.965	1.08	1.03	1.09
Sodium Adsorption Ratio	-	-		0.196	0.904	0.579	1.84	0.784
TDS (Ion Sum Calc)	mg/L	1		252	551	404	1010	284
TDS(calc.)/EC(actual)	-	-		0.505	0.549	0.514	0.535	0.517
Conductivity Calc	µmho/cm	-		468	929	720	1710	504
Conductivity Calc / Conductivity	-	-		0.939	0.925	0.916	0.911	0.917
Langelier Index(25°C)	-	-		0.105	0.963	0.921	1.38	0.622

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.	WP1-10	WP2-10	WP3-10	WP4-10	WP5-10
			Sample I.D.	24-010860-1	24-010860-2	24-010860-3	24-010860-4	24-010860-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		7.17	6.65	6.86	6.39	7.20
pH (Client Data)	pH units	-		7.38	7.26	7.57	7.22	7.7
Temperature (Client Data)	°C	-		6.7	6	6.3	6.5	6.4



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.	WP6-13	Dup	Dup2
			Sample I.D.	24-010860-6	24-010860-7	24-010860-8
			Date Collected	2024-04-18	2024-04-18	2024-04-18
Parameter	Units	R.L.		-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		328	331	228
TDS (Calc. from Cond.)	mg/L	3		368	366	257
Conductivity @25°C	uS/cm	1		709	705	497
pH @25°C	pH units	-		7.99	8.02	7.53
Colour	TCU	2		12		
Turbidity	NTU	0.1		754		
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1
Chloride	mg/L	0.5		28.2	27.9	18.1
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		5	5	<1
BOD5	mg/L	3		<3		
Total Suspended Solids	mg/L	3		8900		
Phosphorus (Total)	mg/L	0.01		3.27	3.00	0.80
Total Kjeldahl Nitrogen	mg/L	0.1		1.6	1.6	5.7
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.21	0.22	0.80
Ammonia (N)-unionized	mg/L	0.01		<0.01		
Dissolved Organic Carbon	mg/L	0.2		10.9	11.5	17.3
Cyanide (WAD)	mg/L	0.005		<0.005		
Phenolics	mg/L	0.001		<0.001	<0.001	<0.001
COD	mg/L	5		115	109	387

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.	WP6-13	Dup	Dup2
	Sample I.D.	24-010860-6	24-010860-7	24-010860-8
	Date Collected	2024-04-18	2024-04-18	2024-04-18
Parameter	Units R.L.	-	-	-
Hardness (as CaCO3)	mg/L 0.02	313	313	217
Aluminum	mg/L 0.01	0.04	0.04	0.05
Barium	mg/L 0.001	0.176	0.176	0.028
Boron	mg/L 0.005	0.019	0.017	<0.005
Calcium	mg/L 0.02	108	108	78.2
Iron	mg/L 0.005	0.962	0.961	0.605
Magnesium	mg/L 0.02	10.5	10.4	5.18
Manganese	mg/L 0.001	0.265	0.265	0.507
Phosphorus	mg/L 0.1	<0.1	<0.1	0.2
Potassium	mg/L 0.1	1.8	1.8	1.7
Sodium	mg/L 0.2	7.9	7.9	6.6
Strontium	mg/L 0.001	0.444	0.442	0.180
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	0.464
Antimony	mg/L 0.0001	<0.0001	<0.0001	<0.0001
Arsenic	mg/L 0.0001	<0.0001	<0.0001	0.0002
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	0.0004	0.0004	0.0002

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.	WP6-13	Dup	Dup2
			Sample I.D.	24-010860-6	24-010860-7	24-010860-8
			Date Collected	2024-04-18	2024-04-18	2024-04-18
Parameter	Units	R.L.		-	-	-
Copper	mg/L	0.0001		0.0005	0.0005	0.0002
Lead	mg/L	0.00002		<0.00002	<0.00002	0.00006
Molybdenum	mg/L	0.0001		<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.0002		0.0005	0.0005	<0.0002
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		0.0005	0.0005	0.0008
Chromium (VI)	mg/L	0.01		<0.01	<0.01	<0.01
Mercury	mg/L	0.00002		<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-		7.46	7.49	5.09
Cation Sum	meq/L	-		6.73	6.71	4.79
% Difference	%	-		5.16	5.47	3.07
Ion Ratio	-	-		1.11	1.12	1.06
Sodium Adsorption Ratio	-	-		0.195	0.194	0.196
TDS (Ion Sum Calc)	mg/L	1		360	360	250
TDS(calc.)/EC(actual)	-	-		0.507	0.511	0.503
Conductivity Calc	µmho/cm	-		650	650	464
Conductivity Calc / Conductivity	-	-		0.916	0.922	0.933
Langelier Index(25°C)	-	-		1.09	1.12	0.349

Michelle Dubien
Data Specialist

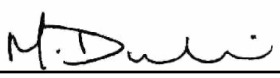
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	WP6-13	Dup	Dup2
			Sample I.D.	24-010860-6	24-010860-7	24-010860-8
			Date Collected	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-
Saturation pH (25°C)	-	-		6.90	6.90	7.18
pH (Client Data)	pH units	-		7.96	7.96	7.38
Temperature (Client Data)	°C	-		7.1	7.1	6.7

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.	WP1-10	WP2-10	WP3-10	WP4-10	WP5-10
			Sample I.D.	24-010860-1	24-010860-2	24-010860-3	24-010860-4	24-010860-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-17
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

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.		WP1-10	WP2-10	WP3-10	WP4-10	WP5-10
	Sample I.D.		24-010860-1	24-010860-2	24-010860-3	24-010860-4	24-010860-5
	Date Collected		2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-17
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

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.	WP6-13
			Sample I.D.	24-010860-6
			Date Collected	2024-04-18
Parameter	Units	R.L.		-
Acetone	µg/L	30		<30
Benzene	µg/L	0.5		<0.5
Bromodichloromethane	µg/L	2		<2
Bromoform	µg/L	5		<5
Bromomethane	µg/L	0.5		<0.5
Carbon Tetrachloride	µg/L	0.2		<0.2
Chlorobenzene	µg/L	0.5		<0.5
Chloroform	µg/L	1		<1
Chloromethane (Methyl Chloride)	µg/L	2		<2
Dibromochloromethane	µg/L	2		<2
Ethylene Dibromide	µg/L	0.2		<0.2
Dichlorobenzene,1,2-	µg/L	0.5		<0.5
Dichlorobenzene,1,3-	µg/L	0.5		<0.5
Dichlorobenzene,1,4-	µg/L	0.5		<0.5
Dichloroethane,1,1-	µg/L	0.5		<0.5
Dichloroethane,1,2-	µg/L	0.5		<0.5
Dichloroethylene,1,1-	µg/L	0.5		<0.5
Dichloroethylene,1,2-cis-	µg/L	0.5		<0.5
Dichloroethylene,1,2-trans-	µg/L	0.5		<0.5
Dichloropropane,1,2-	µg/L	0.5		<0.5
Dichloropropene,1,3-cis-	µg/L	0.5		<0.5

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.	WP6-13
			Sample I.D.	24-010860-6
			Date Collected	2024-04-18
Parameter	Units	R.L.		-
Dichloropropene,1,3-trans-	µg/L	0.5		<0.5
Ethylbenzene	µg/L	0.5		<0.5
Dichloromethane (Methylene Chloride)	µg/L	5		<5
Methyl Ethyl Ketone	µg/L	2		<2
Methyl Isobutyl Ketone	µg/L	20		<20
Methyl tert-Butyl Ether (MTBE)	µg/L	2		<2
Styrene	µg/L	0.5		<0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.5		<0.5
Tetrachloroethane,1,1,2,2-	µg/L	0.5		<0.5
Tetrachloroethylene	µg/L	0.5		<0.5
Toluene	µg/L	0.5		<0.5
Trichlorobenzene,1,2,4-	µg/L	0.5		<0.5
Trichloroethane,1,1,1-	µg/L	0.5		<0.5
Trichloroethane,1,1,2-	µg/L	0.5		<0.5
Trichloroethylene	µg/L	0.5		<0.5
Trichlorofluoromethane (Freon 11)	µg/L	5		<5
Vinyl Chloride	µg/L	0.2		<0.2
Xylene, m,p-	µg/L	1		<1
Xylene, o-	µg/L	0.5		<0.5

24-010860-3, and -5 filtered from unpreserved for metals analysis due to sediment present in metals bottles.

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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-010862 - 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: 2024-Apr-18
DATE REPORTED: 2024-May-02
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

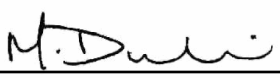
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	10	OTTAWA	PCURIEL	2024-Apr-22	A-IC-01	SM 4110B
BOD5 (Liquid)	8	KINGSTON	JWOLFE2	2024-Apr-25	BOD-001	SM 5210B
COD (Liquid)	10	KINGSTON	EHINCH	2024-May-01	COD-001	SM 5220D
Colour (Liquid)	8	OTTAWA	STAILLON	2024-Apr-26	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	10	OTTAWA	SBOUDREAU	2024-Apr-22	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	8	KINGSTON	EHINCH	2024-Apr-24	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	10	OTTAWA	VKASYAN	2024-Apr-26	C-OC-01	EPA 415.2
Ion Balance (Calc.)	10	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	10	OTTAWA	STAILLON	2024-Apr-26	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	10	OTTAWA	TPRICE	2024-Apr-24	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	10	OTTAWA	NHOGAN	2024-Apr-22	D-ICP-01	SM 3120B
ICP/OES (Liquid)	10	OTTAWA	NHOGAN	2024-Apr-24	D-ICP-01	SM 3120B
Mercury (Liquid)	10	OTTAWA	TBENNETT	2024-Apr-24	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	10	KINGSTON	JYEARWOOD	2024-Apr-26	NH3-001	SM 4500NH3
Phenols (Liquid)	10	KINGSTON	JMACINNES	2024-Apr-29	PHEN-01	MECP E3179
TP & TKN (Liquid)	10	KINGSTON	KDIBBITS	2024-Apr-25	TPTKN-001	MECP E3516.2
TSS (Liquid)	8	KINGSTON	DCASSIDY	2024-Apr-30	TSS-001	SM 2540D
Turbidity (Liquid)	8	OTTAWA	STAILLON	2024-Apr-22	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	5	RICHMOND_HILL	FLENA	2024-Apr-24	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.

Parameter	Units	R.L.	Client I.D.	SW2	SW3	SW4	SW13-10M	SW13-30M
			Sample I.D.	24-010862-1	24-010862-2	24-010862-3	24-010862-4	24-010862-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		161	181	125	141	121
Conductivity @25°C	uS/cm	1		324	390	258	281	245
pH @25°C	pH units	-		7.98	8.05	7.75	7.88	7.79
Colour	TCU	2		43	56	52	104	89
Turbidity	NTU	0.1		0.5	0.8	0.9	2.3	56.1
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		8.1	14.8	7.9	6.4	5.3
Nitrate (N)	mg/L	0.05		0.26	<0.05	<0.05	0.10	<0.05
Nitrite (N)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1		7	4	4	2	2
BOD5	mg/L	3		<3	<3	<3	5	<3
Total Suspended Solids	mg/L	3		3	<3	<3	44	108
Phosphorus (Total)	mg/L	0.01		0.03	0.01	0.02	0.19	0.14
Total Kjeldahl Nitrogen	mg/L	0.1		0.5	0.5	0.5	3.8	2.3
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.07	0.05	0.06	1.81	0.27
Ammonia (N)-unionized	mg/L	0.01		<0.01	<0.01	<0.01	0.02	<0.01
Dissolved Organic Carbon	mg/L	0.2		13.0	13.8	11.2	15.0	20.2
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		32	33	31	114	132
Aluminum	mg/L	0.01		0.02	0.06	0.03	0.03	0.04



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	SW13-10M	SW13-30M
			Sample I.D.	24-010862-1	24-010862-2	24-010862-3	24-010862-4	24-010862-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-	-	-
Hardness (as CaCO3)	mg/L	-		163	197	119	155	147
Aluminum (Total)	mg/L	0.01		0.03	0.06	0.03	0.06	0.17
Barium (Total)	mg/L	0.001		0.022	0.026	0.031	0.020	0.025
Boron (Total)	mg/L	0.005		0.009	0.005	<0.005	0.024	0.005
Calcium (Total)	mg/L	0.02		57.9	71.2	42.3	56.1	53.5
Iron (Total)	mg/L	0.005		0.019	0.086	0.065	0.598	0.950
Magnesium (Total)	mg/L	0.02		4.47	4.72	3.24	3.53	3.11
Manganese (Total)	mg/L	0.001		0.007	0.009	0.004	0.040	0.330
Phosphorus (Total)	mg/L	0.1		<0.1	<0.1	<0.1	0.1	0.2
Potassium (Total)	mg/L	0.1		1.0	1.2	0.6	2.5	1.6
Sodium (Total)	mg/L	0.2		3.5	8.2	4.7	4.8	3.5
Strontium (Total)	mg/L	0.001		0.139	0.173	0.098	0.127	0.118
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	0.007
Zinc (Total)	mg/L	0.005		0.010	0.007	0.010	0.009	0.015
Antimony (Total)	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Arsenic (Total)	mg/L	0.0001		0.0002	0.0002	0.0001	0.0004	0.0004
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	0.000077
Chromium (Total)	mg/L	0.001		<0.001	<0.001	0.004	<0.001	<0.001
Cobalt (Total)	mg/L	0.0001		0.0001	0.0001	<0.0001	0.0002	0.0004

Michelle Dubien
Data Specialist

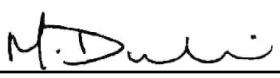
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

	Client I.D.	SW2	SW3	SW4	SW13-10M	SW13-30M
	Sample I.D.	24-010862-1	24-010862-2	24-010862-3	24-010862-4	24-010862-5
	Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	Units R.L.	-	-	-	-	-
Copper (Total)	mg/L 0.0001	0.0005	0.0006	0.0007	0.0008	0.0013
Lead (Total)	mg/L 0.00002	0.00004	0.00004	0.00003	0.00024	0.00397
Molybdenum (Total)	mg/L 0.0001	0.0001	0.0002	0.0002	<0.0001	0.0001
Nickel (Total)	mg/L 0.0002	0.0007	0.0009	0.0007	0.0018	0.0009
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	0.00014	0.00033	<0.00005	<0.00005	<0.00005
Vanadium (Total)	mg/L 0.0001	<0.0001	0.0001	<0.0001	0.0002	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	0.00003
Anion Sum	meq/L -	3.61	4.13	2.80	3.06	2.61
Cation Sum	meq/L -	3.44	4.34	2.60	3.40	3.19
% Difference	% -	2.43	2.41	3.55	5.22	10.0
Ion Ratio	- -	1.05	0.953	1.07	0.901	0.818
Sodium Adsorption Ratio	- -	0.121	0.253	0.188	0.167	0.127
TDS (Ion Sum Calc)	mg/L 1	180	213	137	162	143
TDS(calc.)/EC(actual)	- -	0.555	0.547	0.533	0.575	0.583
Conductivity Calc	µmho/cm -	338	406	262	311	279
Conductivity Calc / Conductivity	- -	1.04	1.04	1.01	1.11	1.14
Langelier Index(25°C)	- -	0.537	0.729	0.0808	0.377	0.209

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	SW13-10M	SW13-30M
			Sample I.D.	24-010862-1	24-010862-2	24-010862-3	24-010862-4	24-010862-5
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		7.44	7.32	7.67	7.50	7.58
pH (Client Data)	pH units	-		8.14	8.18	8.03	7.83	8.09
Temperature (Client Data)	°C	-		7.8	7.8	8.8	7.8	7.3



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.		SW14	SW16	SW17	Dup 3	Dup 4
	Sample I.D.		24-010862-6	24-010862-7	24-010862-8	24-010862-9	24-010862-10
	Date Collected		2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	118	226	125	123	185
Conductivity @25°C	uS/cm	1	237	463	254	253	382
pH @25°C	pH units	-	7.85	8.25	7.73	7.79	8.11
Colour	TCU	2	132	32	109		
Turbidity	NTU	0.1	3.5	0.8	1.9		
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5	4.9	11.7	5.2	5.1	14.8
Nitrate (N)	mg/L	0.05	<0.05	0.34	<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	2	7	2	2	4
BOD5	mg/L	3	<3	<3	<3		
Total Suspended Solids	mg/L	3	22	<3	<3		
Phosphorus (Total)	mg/L	0.01	0.04	0.01	0.03	0.05	0.02
Total Kjeldahl Nitrogen	mg/L	0.1	0.9	0.5	0.7	2.1	3.8
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.06	<0.05	0.09	1.63	3.76
Ammonia (N)-unionized	mg/L	0.01	<0.01	<0.01	<0.01		
Dissolved Organic Carbon	mg/L	0.2	20.8	9.2	15.5	18.2	14.4
Cyanide (WAD)	mg/L	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	70	21	48	48	35
Aluminum	mg/L	0.01	0.04	0.06	0.04	0.04	0.05

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.	SW14	SW16	SW17	Dup 3	Dup 4
			Sample I.D.	24-010862-6	24-010862-7	24-010862-8	24-010862-9	24-010862-10
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-	-	-
Hardness (as CaCO3)	mg/L	-		125	236	118	121	182
Aluminum (Total)	mg/L	0.01		0.06	0.06	0.04	0.04	0.03
Barium (Total)	mg/L	0.001		0.012	0.029	0.011	0.011	0.024
Boron (Total)	mg/L	0.005		<0.005	0.005	<0.005	<0.005	<0.005
Calcium (Total)	mg/L	0.02		45.3	87.1	42.8	44.0	65.8
Iron (Total)	mg/L	0.005		0.272	0.044	0.099	0.094	0.079
Magnesium (Total)	mg/L	0.02		2.90	4.55	2.64	2.70	4.29
Manganese (Total)	mg/L	0.001		0.064	0.005	0.011	0.007	0.008
Phosphorus (Total)	mg/L	0.1		<0.1	<0.1	<0.1	0.1	<0.1
Potassium (Total)	mg/L	0.1		1.5	1.1	1.3	1.4	1.1
Sodium (Total)	mg/L	0.2		3.3	4.3	3.0	3.1	7.4
Strontium (Total)	mg/L	0.001		0.101	0.220	0.094	0.096	0.157
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		0.013	0.006	0.008	0.009	0.005
Antimony (Total)	mg/L	0.0001		0.0002	0.0001	<0.0001	<0.0001	<0.0001
Arsenic (Total)	mg/L	0.0001		0.0003	0.0002	0.0003	0.0003	0.0002
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		0.0002	0.0002	0.0001	0.0001	0.0001

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.	SW14	SW16	SW17	Dup 3	Dup 4
			Sample I.D.	24-010862-6	24-010862-7	24-010862-8	24-010862-9	24-010862-10
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper (Total)	mg/L	0.0001		0.0007	0.0010	0.0006	0.0007	0.0006
Lead (Total)	mg/L	0.00002		0.00030	0.00003	0.00009	0.00008	0.00003
Molybdenum (Total)	mg/L	0.0001		<0.0001	0.0001	<0.0001	<0.0001	0.0001
Nickel (Total)	mg/L	0.0002		0.0007	0.0015	0.0007	0.0011	0.0009
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	0.00072	<0.00005	<0.00005	0.00032
Vanadium (Total)	mg/L	0.0001		0.0001	0.0002	0.0001	0.0001	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	-		2.54	5.01	2.68	2.64	4.20
Cation Sum	meq/L	-		2.70	4.94	2.53	2.60	3.99
% Difference	%	-		3.07	0.656	2.96	0.848	2.54
Ion Ratio	-	-		0.941	1.01	1.06	1.02	1.05
Sodium Adsorption Ratio	-	-		0.127	0.122	0.121	0.124	0.239
TDS (Ion Sum Calc)	mg/L	1		131	253	132	132	209
TDS(calc.)/EC(actual)	-	-		0.553	0.546	0.520	0.523	0.547
Conductivity Calc	µmho/cm	-		254	469	251	253	392
Conductivity Calc / Conductivity	-	-		1.07	1.01	0.988	1.00	1.03
Langelier Index(25°C)	-	-		0.195	1.11	0.0746	0.140	0.762

Michelle Dubien
Data Specialist

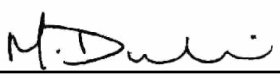
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

		Client I.D.	SW14	SW16	SW17	Dup 3	Dup 4
		Sample I.D.	24-010862-6	24-010862-7	24-010862-8	24-010862-9	24-010862-10
		Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
Parameter	**Units**	**R.L.**	-	-	-	-	-
Saturation pH (25°C)	-	-	7.65	7.14	7.66	7.65	7.35
pH (Client Data)	pH units	-	7.99	8.55	8.03	8.03	8.18
Temperature (Client Data)	°C	-	8	8.3	7.4	7.4	8.8

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	SW13-10M	SW14
	Sample I.D.	24-010862-1	24-010862-2	24-010862-3	24-010862-4	24-010862-6
	Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
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		



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	SW13-10M	SW14
			Sample I.D.	24-010862-1	24-010862-2	24-010862-3	24-010862-4	24-010862-6
			Date Collected	2024-04-18	2024-04-18	2024-04-18	2024-04-18	2024-04-18
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		

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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-010857 - 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: 2024-Apr-18
DATE REPORTED: 2024-May-10
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)	36	OTTAWA	PCURIEL	2024-Apr-23	A-IC-01	SM 4110B
BOD5 (Liquid)	9	KINGSTON	JWOLFE2	2024-Apr-25	BOD-001	SM 5210B
COD (Liquid)	36	KINGSTON	EHINCH	2024-May-01	COD-001	SM 5220D
Colour (Liquid)	9	OTTAWA	STAILLON	2024-Apr-26	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	36	OTTAWA	SBOUDREAU	2024-Apr-24	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	9	KINGSTON	JMACINNES	2024-Apr-25	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	36	OTTAWA	VKASYAN	2024-Apr-24	C-OC-01	EPA 415.2
Ion Balance (Calc.)	36	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	36	OTTAWA	STAILLON	2024-Apr-29	D-CRVI-01	MECP E3056
ICP/MS (Liquid)	36	OTTAWA	AOZKAYMAK	2024-Apr-26	D-ICPMS-01	EPA 200.8
ICP/OES (Liquid)	36	OTTAWA	NHOGAN	2024-Apr-25	D-ICP-01	SM 3120B
Mercury (Liquid)	36	OTTAWA	TBENNETT	2024-Apr-24	D-HG-02	SM 3112B
Ammonia (Liquid)	36	KINGSTON	KDIBBITS	2024-Apr-29	NH3-001	SM 4500NH3
OC Pesticides (Liquid)	1	KINGSTON	CSUMMERHAYS	2024-Apr-23	PESTCL-001	EPA 8081
PCB's (Liquid)	13	KINGSTON	CSUMMERHAYS	2024-Apr-24	PCB-001	EPA 8081
Phenols (Liquid)	36	KINGSTON	JMACINNES	2024-Apr-26	PHEN-01	MECP E3179
TP & TKN (Liquid)	36	KINGSTON	KDIBBITS	2024-Apr-25	TPTKN-001	MECP E3516.2
TSS (Liquid)	9	KINGSTON	DCASSIDY	2024-Apr-23	TSS-001	SM 2540D
Turbidity (Liquid)	9	OTTAWA	STAILLON	2024-Apr-23	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	15	RICHMOND_HILL	FLENA	2024-Apr-24	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.	MW2	MW3	MW3A	MW5	MW5A
	Sample I.D.	24-010857-1	24-010857-2	24-010857-3	24-010857-4	24-010857-5
	Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	Units R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L 5	767	1170	252	707	1180
TDS (Calc. from Cond.)	mg/L 3	940	1490	287	884	1710
Conductivity @25°C	uS/cm 1	1720	2680	553	1620	3060
pH @25°C	pH units -	7.23	7.38	7.60	7.17	7.30
Fluoride	mg/L 0.1	<0.7	<0.7	<0.1	<0.7	<0.7
Chloride	mg/L 0.5	82.8	150	10.0	81.2	274
Nitrate (N)	mg/L 0.05	<0.40	<0.40	0.27	<0.40	<0.40
Nitrite (N)	mg/L 0.05	<0.40	0.50	0.07	<0.40	0.52
Sulphate	mg/L 1	13	12	17	42	25
Phosphorus (Total)	mg/L 0.01	0.04	0.22	0.13	0.29	1.35
Total Kjeldahl Nitrogen	mg/L 0.1	56.6	120	4.1	17.4	92.4
Ammonia (N)-Total (NH3+NH4)	mg/L 0.05	56.1	105	3.36	8.30	84.5
Dissolved Organic Carbon	mg/L 0.2	29.6	75.6	9.9	81.1	109
Phenolics	mg/L 0.001	<0.001	<0.001	<0.001	0.018	<0.001
COD	mg/L 5	93	184	28	314	301
Hardness (as CaCO3)	mg/L 0.02	542	758	255	639	788
Aluminum	mg/L 0.01	0.11	0.14	0.06	0.12	0.34
Barium	mg/L 0.001	1.14	0.610	0.026	0.725	1.83
Boron	mg/L 0.005	0.557	0.517	0.064	0.759	2.50
Calcium	mg/L 0.02	196	263	95.5	225	234
Iron	mg/L 0.005	56.2	22.3	1.65	28.1	70.4



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.

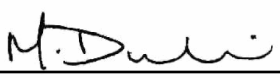
Parameter	Units	R.L.	Client I.D.	MW2	MW3	MW3A	MW5	MW5A
			Sample I.D.	24-010857-1	24-010857-2	24-010857-3	24-010857-4	24-010857-5
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Magnesium	mg/L	0.02		20.2	24.5	3.95	18.5	49.3
Manganese	mg/L	0.001		0.705	0.272	0.135	1.95	0.932
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		62.2	117	5.7	44.8	109
Sodium	mg/L	0.2		43.9	117	5.7	73.7	222
Strontium	mg/L	0.001		0.621	0.878	0.233	0.579	0.893
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	0.012
Zinc	mg/L	0.005		<0.005	<0.005	<0.005	0.011	<0.005
Antimony	mg/L	0.0001		0.0002	0.0002	<0.0001	0.0003	0.0004
Arsenic	mg/L	0.0001		0.0066	0.0008	0.0002	0.0086	0.0086
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	0.000028
Chromium	mg/L	0.001		0.002	0.003	<0.001	0.003	0.007
Cobalt	mg/L	0.0001		0.0192	0.0038	0.0006	0.0040	0.0471
Copper	mg/L	0.0001		0.0007	0.0019	0.0018	0.0009	0.0036
Lead	mg/L	0.00002		0.00004	0.00007	<0.00002	0.00011	0.00074
Molybdenum	mg/L	0.0001		0.0006	0.0002	0.0002	0.0001	0.0019
Nickel	mg/L	0.0002		0.0098	0.0053	0.0007	0.0083	0.0497
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



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.

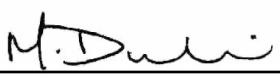
Parameter	Units	R.L.	Client I.D.	MW2	MW3	MW3A	MW5	MW5A
			Sample I.D.	24-010857-1	24-010857-2	24-010857-3	24-010857-4	24-010857-5
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		0.00029	<0.00005	0.00023	0.00115	0.00159
Vanadium	mg/L	0.0001		0.0047	0.0071	0.0004	0.0026	0.0115
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	-		17.9	28.0	5.71	17.3	31.9
Cation Sum	meq/L	-		18.4	25.2	5.72	19.0	32.4
% Difference	%	-		1.31	5.26	0.140	4.78	0.746
Ion Ratio	-	-		0.974	1.11	0.997	0.909	0.985
Sodium Adsorption Ratio	-	-		0.798	1.85	0.155	1.27	3.44
TDS (Ion Sum Calc)	mg/L	1		942	1430	295	946	1700
TDS(calc.)/EC(actual)	-	-		0.549	0.532	0.534	0.585	0.557
Conductivity Calc	µmho/cm	-		1420	2160	534	1500	2490
Conductivity Calc / Conductivity	-	-		0.829	0.807	0.965	0.925	0.815
Langelier Index(25°C)	-	-		0.904	1.36	0.539	0.869	1.23
Saturation pH (25°C)	-	-		6.33	6.02	7.06	6.30	6.07
pH (Client Data)	pH units	-		6.96	7.06	7.74	6.9	10.8
Temperature (Client Data)	°C	-		9.2	7.4	6.6	6.9	9.1



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.

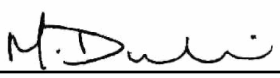
Parameter	Units	R.L.	Client I.D.	MW6-07	MW6A-07	MW7-13	MW10	MW11A
			Sample I.D.	24-010857-6	24-010857-7	24-010857-8	24-010857-9	24-010857-10
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		1690	391	2160	1580	284
TDS (Calc. from Cond.)	mg/L	3		1970	392	3800	2160	598
Conductivity @25°C	uS/cm	1		3510	750	6670	3840	1110
pH @25°C	pH units	-		7.37	7.32	7.43	7.31	7.55
Fluoride	mg/L	0.1		<0.7	<0.1	<0.7	<0.7	<0.1
Chloride	mg/L	0.5		182	4.7	672	226	176
Nitrate (N)	mg/L	0.05		<0.40	<0.05	<0.40	<0.40	<0.05
Nitrite (N)	mg/L	0.05		0.50	0.05	<0.40	0.51	0.07
Sulphate	mg/L	1		14	1	35	13	4
Phosphorus (Total)	mg/L	0.01		18.2	0.42	1.21	0.35	0.19
Total Kjeldahl Nitrogen	mg/L	0.1		154	4.4	495	245	1.8
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		150	3.65	545	191	0.14
Dissolved Organic Carbon	mg/L	0.2		81.4	13.8	175	102	10.4
Phenolics	mg/L	0.001		<0.001	<0.001	0.015	<0.001	<0.001
COD	mg/L	5		426	53	634	241	46
Hardness (as CaCO3)	mg/L	0.02		1040	391	706	870	491
Aluminum	mg/L	0.01		0.14	0.14	0.08	0.15	0.11
Barium	mg/L	0.001		0.165	0.098	0.263	0.851	0.049
Boron	mg/L	0.005		1.66	0.089	3.94	1.80	0.028
Calcium	mg/L	0.02		333	149	157	269	185
Iron	mg/L	0.005		9.95	35.8	0.530	13.0	2.94



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.

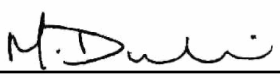
Parameter	Units	R.L.	Client I.D.	MW6-07	MW6A-07	MW7-13	MW10	MW11A
			Sample I.D.	24-010857-6	24-010857-7	24-010857-8	24-010857-9	24-010857-10
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Magnesium	mg/L	0.02		51.7	4.55	74.5	48.1	6.86
Manganese	mg/L	0.001		1.42	0.779	0.114	0.888	0.139
Phosphorus	mg/L	0.1		0.8	0.3	<0.1	0.3	<0.1
Potassium	mg/L	0.1		95.9	3.4	256	168	1.8
Sodium	mg/L	0.2		200	3.8	484	211	32.0
Strontium	mg/L	0.001		1.39	0.270	0.919	0.976	0.578
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	0.007	<0.005
Zinc	mg/L	0.005		<0.005	0.016	0.008	<0.005	<0.005
Antimony	mg/L	0.0001		0.0003	0.0002	0.0012	0.0003	<0.0001
Arsenic	mg/L	0.0001		0.0012	0.0011	0.0032	0.0009	0.0001
Beryllium	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	mg/L	0.000015		<0.000015	0.000020	0.000095	<0.000015	<0.000015
Chromium	mg/L	0.001		0.002	<0.001	0.026	0.003	<0.001
Cobalt	mg/L	0.0001		0.0052	0.0009	0.0096	0.0056	0.0003
Copper	mg/L	0.0001		0.0013	0.0019	0.0073	0.0014	0.0005
Lead	mg/L	0.00002		0.00006	0.00076	0.00144	<0.00004	0.00002
Molybdenum	mg/L	0.0001		0.0002	0.0002	0.0005	0.0002	<0.0001
Nickel	mg/L	0.0002		0.0108	0.0032	0.0242	0.0093	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



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.

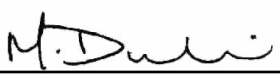
Parameter	Units	R.L.	Client I.D.	MW6-07	MW6A-07	MW7-13	MW10	MW11A
			Sample I.D.	24-010857-6	24-010857-7	24-010857-8	24-010857-9	24-010857-10
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		<0.00005	0.00005	0.00008	<0.00005	0.00011
Vanadium	mg/L	0.0001		0.0006	0.0009	0.0079	0.0058	0.0012
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	-		39.3	7.99	62.9	38.2	10.7
Cation Sum	meq/L	-		33.1	10.2	61.1	32.1	11.4
% Difference	%	-		8.57	12.1	1.40	8.72	3.23
Ion Ratio	-	-		1.19	0.785	1.03	1.19	0.937
Sodium Adsorption Ratio	-	-		2.69	0.0834	7.98	3.11	0.629
TDS (Ion Sum Calc)	mg/L	1		1910	442	3330	1910	580
TDS(calc.)/EC(actual)	-	-		0.545	0.589	0.500	0.496	0.521
Conductivity Calc	µmho/cm	-		2770	714	5360	2790	1100
Conductivity Calc / Conductivity	-	-		0.789	0.952	0.804	0.727	0.989
Langelier Index(25°C)	-	-		1.61	0.623	1.43	1.43	0.798
Saturation pH (25°C)	-	-		5.76	6.70	6.00	5.88	6.75
pH (Client Data)	pH units	-		6.6	7.26	6.98	7.1	7.8
Temperature (Client Data)	°C	-		7.4	6.5	11.1	6.5	6.9



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.

Parameter	Units	R.L.	Client I.D.	MW12	MW13	MW14	MW15	MW15A
			Sample I.D.	24-010857-11	24-010857-12	24-010857-13	24-010857-14	24-010857-15
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		227	186	230	180	441
TDS (Calc. from Cond.)	mg/L	3		238	200	261	177	549
Conductivity @25°C	uS/cm	1		461	388	505	344	1030
pH @25°C	pH units	-		7.85	7.70	7.75	7.76	7.70
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		5.2	6.0	17.5	2.9	68.1
Nitrate (N)	mg/L	0.05		0.42	<0.05	<0.05	<0.05	<0.05
Nitrite (N)	mg/L	0.05		<0.05	0.06	<0.05	<0.05	0.05
Sulphate	mg/L	1		10	9	8	2	2
Phosphorus (Total)	mg/L	0.01		0.05	0.11	7.80	0.08	0.12
Total Kjeldahl Nitrogen	mg/L	0.1		0.7	1.1	3.8	0.2	1.0
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.38	0.53	0.06	<0.05	0.73
Dissolved Organic Carbon	mg/L	0.2		3.1	3.2	5.2	3.6	13.8
Phenolics	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5		14	21	217	15	31
Hardness (as CaCO3)	mg/L	0.02		233	189	249	176	469
Aluminum	mg/L	0.01		0.05	0.05	0.06	0.04	0.08
Barium	mg/L	0.001		0.064	0.049	0.020	0.007	0.354
Boron	mg/L	0.005		0.016	0.014	<0.005	0.007	0.081
Calcium	mg/L	0.02		83.9	68.6	96.3	67.2	159
Iron	mg/L	0.005		0.005	0.792	0.012	<0.005	6.27



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.	MW12	MW13	MW14	MW15	MW15A
			Sample I.D.	24-010857-11	24-010857-12	24-010857-13	24-010857-14	24-010857-15
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	Units	R.L.		-	-	-	-	-
Magnesium	mg/L	0.02		5.54	4.34	2.10	1.90	17.5
Manganese	mg/L	0.001		<0.001	0.065	0.036	<0.001	0.142
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		1.2	2.1	0.2	0.1	3.6
Sodium	mg/L	0.2		2.8	4.2	5.3	2.7	30.6
Strontium	mg/L	0.001		0.151	0.137	0.183	0.135	1.06
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	0.000016	<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	0.0002	0.0002	0.0005
Copper	mg/L	0.0001		0.0010	0.0009	0.0009	0.0015	0.0003
Lead	mg/L	0.00002		0.00002	0.00003	0.00002	0.00003	<0.00002
Molybdenum	mg/L	0.0001		0.0002	0.0002	<0.0001	0.0002	0.0004
Nickel	mg/L	0.0002		0.0009	0.0006	0.0009	0.0006	0.0020
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

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.	MW12	MW13	MW14	MW15	MW15A
			Sample I.D.	24-010857-11	24-010857-12	24-010857-13	24-010857-14	24-010857-15
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		0.00043	0.00034	0.00021	0.00008	<0.00005
Vanadium	mg/L	0.0001		0.0001	<0.0001	0.0003	0.0002	0.0005
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	-		4.91	4.08	5.26	3.73	10.8
Cation Sum	meq/L	-		4.82	4.10	5.23	3.64	11.2
% Difference	%	-		0.878	0.271	0.326	1.26	1.99
Ion Ratio	-	-		1.02	0.995	1.01	1.03	0.961
Sodium Adsorption Ratio	-	-		0.0796	0.132	0.146	0.0886	0.615
TDS (Ion Sum Calc)	mg/L	1		247	207	268	185	553
TDS(calc.)/EC(actual)	-	-		0.535	0.535	0.530	0.538	0.538
Conductivity Calc	µmho/cm	-		456	386	498	347	984
Conductivity Calc / Conductivity	-	-		0.988	0.995	0.986	1.01	0.958
Langelier Index(25°C)	-	-		0.696	0.374	0.662	0.431	1.07
Saturation pH (25°C)	-	-		7.15	7.33	7.09	7.33	6.63
pH (Client Data)	pH units	-		7.85	7.6	7.87	7.75	7.12
Temperature (Client Data)	°C	-		7.0	5.8	5.5	6.4	8.1

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.

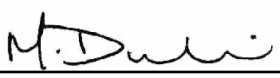
Parameter	Units	R.L.	Client I.D.	MW15B	MW18	MW18A	MW18B	MW22
			Sample I.D.	24-010857-16	24-010857-17	24-010857-18	24-010857-19	24-010857-20
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		410	255	436	511	265
TDS (Calc. from Cond.)	mg/L	3		509	291	587	635	344
Conductivity @25°C	uS/cm	1		957	562	1090	1180	663
pH @25°C	pH units	-		7.82	7.87	7.74	7.61	7.82
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	0.1
Chloride	mg/L	0.5		66.3	5.3	91.6	77.4	50.0
Nitrate (N)	mg/L	0.05		<0.05	2.74	<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		2	15	1	2	1
Phosphorus (Total)	mg/L	0.01		0.02	0.30	0.04	0.14	0.08
Total Kjeldahl Nitrogen	mg/L	0.1		0.9	1.4	2.0	3.5	2.4
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.65	0.41	1.52	2.64	1.79
Dissolved Organic Carbon	mg/L	0.2		11.7	10.2	12.7	19.1	12.2
Phenolics	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5		29	47	33	43	43
Hardness (as CaCO3)	mg/L	0.02		446	241	464	519	292
Aluminum	mg/L	0.01		0.09	0.06	0.08	0.10	0.16
Barium	mg/L	0.001		0.156	0.062	0.247	0.304	0.091
Boron	mg/L	0.005		0.098	0.020	0.273	0.195	0.095
Calcium	mg/L	0.02		139	87.9	134	185	86.7
Iron	mg/L	0.005		1.66	0.007	3.80	12.2	1.92



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.

Parameter	Units	R.L.	Client I.D.	MW15B	MW18	MW18A	MW18B	MW22
			Sample I.D.	24-010857-16	24-010857-17	24-010857-18	24-010857-19	24-010857-20
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Magnesium	mg/L	0.02		24.0	5.27	31.4	13.7	18.3
Manganese	mg/L	0.001		0.052	<0.001	0.141	0.551	0.038
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		3.8	28.2	7.7	5.2	4.1
Sodium	mg/L	0.2		25.3	4.0	40.7	44.5	20.8
Strontium	mg/L	0.001		1.24	0.110	1.75	0.494	1.41
Tin	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	mg/L	0.005		<0.005	<0.005	<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	0.0003	<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		0.018	<0.001	<0.001	0.001	<0.001
Cobalt	mg/L	0.0001		0.0004	0.0002	0.0004	0.0007	0.0002
Copper	mg/L	0.0001		0.0013	0.0066	0.0007	0.0005	0.0004
Lead	mg/L	0.00002		0.00005	<0.00002	0.00003	0.00002	0.00166
Molybdenum	mg/L	0.0001		<0.0001	0.0012	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.0002		0.0007	0.0006	0.0015	0.0030	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



Michelle Dubien
Data Specialist

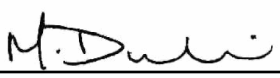
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Parameter	Units	R.L.	Client I.D.	MW15B	MW18	MW18A	MW18B	MW22
			Sample I.D.	24-010857-16	24-010857-17	24-010857-18	24-010857-19	24-010857-20
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		<0.00005	0.00051	<0.00005	0.00028	0.00060
Vanadium	mg/L	0.0001		0.0002	0.0006	0.0005	0.0013	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	-		10.1	5.75	11.3	12.4	6.75
Cation Sum	meq/L	-		10.3	5.75	11.6	13.3	7.10
% Difference	%	-		0.898	0.0168	1.13	3.34	2.56
Ion Ratio	-	-		0.982	1.00	0.978	0.935	0.950
Sodium Adsorption Ratio	-	-		0.521	0.113	0.822	0.850	0.530
TDS (Ion Sum Calc)	mg/L	1		509	311	574	651	345
TDS(calc.)/EC(actual)	-	-		0.531	0.554	0.525	0.552	0.520
Conductivity Calc	µmho/cm	-		928	549	1040	1130	654
Conductivity Calc / Conductivity	-	-		0.970	0.978	0.951	0.954	0.986
Langelier Index(25°C)	-	-		1.11	0.778	1.03	1.11	0.729
Saturation pH (25°C)	-	-		6.71	7.09	6.71	6.50	7.09
pH (Client Data)	pH units	-		7.08	7.78	7.48	6.94	7.62
Temperature (Client Data)	°C	-		8.3	7.9	8.3	8.9	8.7

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.

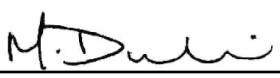
Parameter	Units	R.L.	Client I.D.	MW22A	MW22B	MW23	MW23A	MW23B
			Sample I.D.	24-010857-21	24-010857-22	24-010857-23	24-010857-24	24-010857-25
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		353	1750	419	237	158
TDS (Calc. from Cond.)	mg/L	3		917	2760	521	248	151
Conductivity @25°C	uS/cm	1		1680	4890	977	480	295
pH @25°C	pH units	-		7.75	7.47	7.68	7.83	7.75
Fluoride	mg/L	0.1		<0.7	<0.7	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		310	353	64.1	7.2	2.0
Nitrate (N)	mg/L	0.05		<0.40	<0.40	<0.05	0.13	<0.05
Nitrite (N)	mg/L	0.05		0.52	<0.40	0.05	<0.05	<0.05
Sulphate	mg/L	1		19	36	1	6	2
Phosphorus (Total)	mg/L	0.01		0.18	2.84	0.04	0.01	0.17
Total Kjeldahl Nitrogen	mg/L	0.1		1.6	262	1.0	0.2	0.3
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.86	250	1.13	0.22	0.15
Dissolved Organic Carbon	mg/L	0.2		14.2	151	14.9	3.4	3.3
Phenolics	mg/L	0.001		<0.001	0.023	<0.001	<0.001	<0.001
COD	mg/L	5		68	417	31	<5	31
Hardness (as CaCO3)	mg/L	0.02		570	1020	447	243	157
Aluminum	mg/L	0.01		0.31	0.10	0.09	0.07	0.03
Barium	mg/L	0.001		0.247	0.092	0.172	0.065	0.005
Boron	mg/L	0.005		0.052	2.82	0.100	0.018	0.007
Calcium	mg/L	0.02		204	296	155	88.7	60.6
Iron	mg/L	0.005		3.58	0.442	5.65	0.141	0.010



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.

Parameter	Units	R.L.	Client I.D.	MW22A	MW22B	MW23	MW23A	MW23B
			Sample I.D.	24-010857-21	24-010857-22	24-010857-23	24-010857-24	24-010857-25
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Magnesium	mg/L	0.02		14.7	60.8	14.4	5.29	1.30
Manganese	mg/L	0.001		0.268	5.47	0.137	0.007	0.009
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		2.8	183	3.0	0.9	0.3
Sodium	mg/L	0.2		122	298	28.7	4.8	0.8
Strontium	mg/L	0.001		1.20	1.10	0.799	0.176	0.105
Tin	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	mg/L	0.005		0.011	<0.005	<0.005	<0.005	<0.005
Zinc	mg/L	0.005		0.006	0.009	<0.005	<0.005	<0.005
Antimony	mg/L	0.0001		0.0003	0.0008	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	0.0001		0.0002	0.0026	<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	0.008	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001		0.0004	0.0115	0.0006	0.0002	0.0001
Copper	mg/L	0.0001		0.0005	0.0026	0.0004	0.0012	0.0020
Lead	mg/L	0.00002		<0.00002	<0.00009	<0.00002	0.00011	0.00004
Molybdenum	mg/L	0.0001		0.0002	0.0006	<0.0001	<0.0001	0.0001
Nickel	mg/L	0.0002		0.0007	0.0207	0.0008	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



Michelle Dubien
Data Specialist

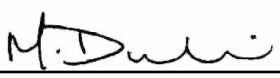
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Parameter	Units	R.L.	Client I.D.	MW22A	MW22B	MW23	MW23A	MW23B
			Sample I.D.	24-010857-21	24-010857-22	24-010857-23	24-010857-24	24-010857-25
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		0.00009	<0.00005	<0.00005	0.00043	0.00012
Vanadium	mg/L	0.0001		0.0003	0.0047	0.0006	0.0003	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	-		16.2	45.7	10.2	5.08	3.25
Cation Sum	meq/L	-		17.1	55.1	10.7	5.12	3.19
% Difference	%	-		2.50	9.35	2.12	0.384	0.942
Ion Ratio	-	-		0.951	0.829	0.958	0.992	1.02
Sodium Adsorption Ratio	-	-		2.22	4.13	0.591	0.134	0.0289
TDS (Ion Sum Calc)	mg/L	1		891	2610	525	256	162
TDS(calc.)/EC(actual)	-	-		0.532	0.533	0.538	0.534	0.549
Conductivity Calc	µmho/cm	-		1620	4300	940	475	306
Conductivity Calc / Conductivity	-	-		0.966	0.880	0.962	0.991	1.04
Langelier Index(25°C)	-	-		1.11	1.66	1.03	0.721	0.327
Saturation pH (25°C)	-	-		6.64	5.81	6.65	7.11	7.42
pH (Client Data)	pH units	-		7.37	6.98	7.71	7.84	7.58
Temperature (Client Data)	°C	-		8.7	9.3	6.3	5.4	5.9

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.

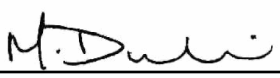
Parameter	Units	R.L.	Client I.D.	MW26	MW26-1	MW26-2	MW27-I	MW27-II
			Sample I.D.	24-010857-26	24-010857-27	24-010857-28	24-010857-29	24-010857-30
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		287	324	374	178	213
TDS (Calc. from Cond.)	mg/L	3		364	409	454	4580	245
Conductivity @25°C	uS/cm	1		700	780	860	8010	473
pH @25°C	pH units	-		7.91	7.94	7.99	7.83	8.05
Colour	TCU	2		4	5	7	<2	<2
Turbidity	NTU	0.1		7060	10.9	41.3	11.8	732
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.7	<0.1
Chloride	mg/L	0.5		41.1	49.6	51.1	2540	10.6
Nitrate (N)	mg/L	0.05		<0.05	<0.05	<0.05	<0.40	0.62
Nitrite (N)	mg/L	0.05		0.05	0.05	0.05	0.41	<0.05
Sulphate	mg/L	1		17	8	2	12	14
BOD5	mg/L	3		3	<3	<3	<3	<3
Total Suspended Solids	mg/L	3		65000	10	12	25	686
Phosphorus (Total)	mg/L	0.01		17.7	0.01	0.02	0.07	0.19
Total Kjeldahl Nitrogen	mg/L	0.1		1.7	0.5	1.1	10.0	0.2
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		<0.05	0.21	0.62	8.23	<0.05
Ammonia (N)-unionized	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2		5.4	7.0	8.2	1.2	2.2
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		235	11	23	118	7



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.

Parameter	Units	R.L.	Client I.D.	MW26	MW26-1	MW26-2	MW27-I	MW27-II
			Sample I.D.	24-010857-26	24-010857-27	24-010857-28	24-010857-29	24-010857-30
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02		328	358	404	739	220
Aluminum	mg/L	0.01		0.06	0.08	0.08	0.14	0.05
Barium	mg/L	0.001		0.164	0.196	0.196	1.70	0.062
Boron	mg/L	0.005		0.045	0.054	0.045	1.01	0.015
Calcium	mg/L	0.02		114	123	142	287	76.7
Iron	mg/L	0.005		0.583	1.23	3.44	0.506	0.016
Magnesium	mg/L	0.02		10.5	12.3	12.0	154	6.79
Manganese	mg/L	0.001		0.033	0.055	0.092	0.009	0.004
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		2.5	2.6	2.3	47.3	1.5
Sodium	mg/L	0.2		16.2	20.0	21.4	907	10.5
Strontium	mg/L	0.001		0.366	0.500	0.562	24.2	0.170
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	<0.0002	<0.0001
Arsenic	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0005	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	<0.000059	<0.000015
Chromium	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001		0.0002	0.0003	0.0016	0.0004	0.0002



Michelle Dubien
Data Specialist

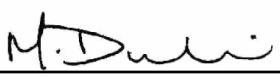
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	MW26	MW26-1	MW26-2	MW27-I	MW27-II
			Sample I.D.	24-010857-26	24-010857-27	24-010857-28	24-010857-29	24-010857-30
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper	mg/L	0.0001		0.0003	0.0007	0.0009	0.0049	0.0006
Lead	mg/L	0.00002		<0.00002	0.00002	0.00002	<0.00018	<0.00002
Molybdenum	mg/L	0.0001		0.0002	<0.0001	0.0001	<0.0004	0.0003
Nickel	mg/L	0.0002		0.0003	0.0004	0.0154	0.0020	0.0006
Selenium	mg/L	0.001		<0.001	<0.001	<0.001	<0.002	<0.001
Silver	mg/L	0.0001		<0.0001	<0.0001	<0.0001	0.0003	<0.0001
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		0.00031	0.00010	<0.00005	<0.00005	0.00281
Vanadium	mg/L	0.0001		0.0002	0.0003	0.0006	<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	-		7.24	8.04	8.96	75.4	4.89
Cation Sum	meq/L	-		7.36	8.18	9.31	68.5	4.89
% Difference	%	-		0.826	0.875	1.88	4.81	0.0519
Ion Ratio	-	-		0.984	0.983	0.963	1.10	1.00
Sodium Adsorption Ratio	-	-		0.389	0.460	0.463	10.7	0.308
TDS (Ion Sum Calc)	mg/L	1		374	411	460	4060	251
TDS(calc.)/EC(actual)	-	-		0.534	0.527	0.535	0.507	0.530
Conductivity Calc	µmho/cm	-		688	755	834	6630	462
Conductivity Calc / Conductivity	-	-		0.982	0.968	0.969	0.827	0.976
Langelier Index(25°C)	-	-		0.972	1.08	1.25	0.986	0.831

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.

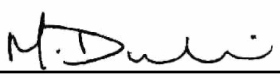
			Client I.D.	MW26	MW26-1	MW26-2	MW27-I	MW27-II
			Sample I.D.	24-010857-26	24-010857-27	24-010857-28	24-010857-29	24-010857-30
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		6.94	6.86	6.74	6.84	7.22
pH (Client Data)	pH units	-		7.25	7.64	7.54	7.73	8.03
Temperature (Client Data)	°C	-		7.8	7.1	7.1	6.9	6.9



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.	MW27-III	MW28-I	MW28-II	MW28-III	DUP-1
	Sample I.D.	24-010857-31	24-010857-32	24-010857-33	24-010857-34	24-010857-35
	Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units** / **R.L.**	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L / 5	198	222	235	248	279
TDS (Calc. from Cond.)	mg/L / 3	249	282	291	330	594
Conductivity @25°C	uS/cm / 1	482	544	561	636	1110
pH @25°C	pH units / -	7.95	7.95	7.98	8.04	7.72
Colour	TCU / 2	<2	<2	<2	3	
Turbidity	NTU / 0.1	6660	10.4	2320	621	
Fluoride	mg/L / 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L / 0.5	24.1	31.0	28.8	32.1	173
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	0.06
Sulphate	mg/L / 1	20	15	16	36	4
BOD5	mg/L / 3	<3	<3	<3	<3	
Total Suspended Solids	mg/L / 3	6480	23	25200	16900	
Phosphorus (Total)	mg/L / 0.01	4.67	0.02	10.5	3.44	0.16
Total Kjeldahl Nitrogen	mg/L / 0.1	2.4	0.2	1.2	0.3	0.6
Ammonia (N)-Total (NH3+NH4)	mg/L / 0.05	0.09	0.05	0.76	<0.05	0.10
Ammonia (N)-unionized	mg/L / 0.01	<0.01	<0.01	<0.01	<0.01	
Dissolved Organic Carbon	mg/L / 0.2	2.4	2.8	3.1	3.7	9.9
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	<0.001	<0.001
COD	mg/L / 5	179	7	211	83	46



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.	MW27-III	MW28-I	MW28-II	MW28-III	DUP-1
	Sample I.D.	24-010857-31	24-010857-32	24-010857-33	24-010857-34	24-010857-35
	Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units** / **R.L.**	-	-	-	-	-
Hardness (as CaCO3)	mg/L 0.02	238	246	266	302	501
Aluminum	mg/L 0.01	0.06	0.05	0.06	0.07	0.11
Barium	mg/L 0.001	0.131	0.117	0.109	0.125	0.050
Boron	mg/L 0.005	0.014	0.021	0.018	0.043	0.023
Calcium	mg/L 0.02	81.9	83.4	93.7	107	189
Iron	mg/L 0.005	0.369	0.415	0.393	0.307	2.94
Magnesium	mg/L 0.02	8.11	9.01	7.62	8.42	6.96
Manganese	mg/L 0.001	0.023	0.020	0.039	0.054	0.143
Phosphorus	mg/L 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L 0.1	1.5	2.0	1.9	2.1	1.7
Sodium	mg/L 0.2	3.4	12.6	11.2	12.2	32.4
Strontium	mg/L 0.001	0.180	0.245	0.224	0.199	0.586
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	0.0002	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	0.0001	0.0002	0.0003

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.	MW27-III	MW28-I	MW28-II	MW28-III	DUP-1
			Sample I.D.	24-010857-31	24-010857-32	24-010857-33	24-010857-34	24-010857-35
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper	mg/L	0.0001		0.0003	0.0002	0.0002	0.0002	0.0005
Lead	mg/L	0.00002		<0.00002	<0.00002	0.00004	<0.00002	0.00003
Molybdenum	mg/L	0.0001		0.0004	0.0002	0.0002	0.0004	<0.0001
Nickel	mg/L	0.0002		0.0006	0.0006	0.0007	0.0009	<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		<0.00005	0.00018	0.00038	0.00032	0.00011
Vanadium	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.0012
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	-		5.04	5.62	5.83	6.62	10.5
Cation Sum	meq/L	-		4.97	5.53	5.92	6.64	11.6
% Difference	%	-		0.686	0.799	0.784	0.174	4.95
Ion Ratio	-	-		1.01	1.02	0.984	0.997	0.906
Sodium Adsorption Ratio	-	-		0.0953	0.350	0.299	0.306	0.630
TDS (Ion Sum Calc)	mg/L	1		258	287	301	348	578
TDS(calc.)/EC(actual)	-	-		0.535	0.527	0.537	0.546	0.522
Conductivity Calc	µmho/cm	-		484	534	561	632	1100
Conductivity Calc / Conductivity	-	-		1.00	0.982	1.00	0.994	0.994
Langelier Index(25°C)	-	-		0.727	0.774	0.880	1.01	0.970

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.	MW27-III	MW28-I	MW28-II	MW28-III	DUP-1
			Sample I.D.	24-010857-31	24-010857-32	24-010857-33	24-010857-34	24-010857-35
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		7.22	7.18	7.10	7.03	6.75
pH (Client Data)	pH units	-		8.14	7.93	7.75	7.79	7.8
Temperature (Client Data)	°C	-		6.9	7.8	7.8	7.2	6.9

Michelle Dubien
Data Specialist

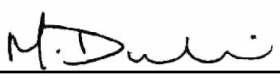
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	MW19
			Sample I.D.	24-010857-36
			Date Collected	2024-04-17
Parameter	Units	R.L.		-
Alkalinity(CaCO3) to pH4.5	mg/L	5		472
TDS (Calc. from Cond.)	mg/L	3		534
Conductivity @25°C	uS/cm	1		1000
pH @25°C	pH units	-		7.91
Fluoride	mg/L	0.1		<0.1
Chloride	mg/L	0.5		34.6
Nitrate (N)	mg/L	0.05		<0.05
Nitrite (N)	mg/L	0.05		0.05
Sulphate	mg/L	1		19
Phosphorus (Total)	mg/L	0.01		0.12
Total Kjeldahl Nitrogen	mg/L	0.1		0.6
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.33
Dissolved Organic Carbon	mg/L	0.2		10.3
Phenolics	mg/L	0.001		<0.001
COD	mg/L	5		29
Hardness (as CaCO3)	mg/L	0.02		506
Aluminum	mg/L	0.01		0.09
Barium	mg/L	0.001		0.216
Boron	mg/L	0.005		0.105
Calcium	mg/L	0.02		170
Iron	mg/L	0.005		0.425

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.	MW19
			Sample I.D.	24-010857-36
			Date Collected	2024-04-17
Parameter	Units	R.L.		-
Magnesium	mg/L	0.02		19.7
Manganese	mg/L	0.001		0.142
Phosphorus	mg/L	0.1		<0.1
Potassium	mg/L	0.1		4.0
Sodium	mg/L	0.2		19.7
Strontium	mg/L	0.001		0.356
Tin	mg/L	0.05		<0.05
Titanium	mg/L	0.005		<0.005
Zinc	mg/L	0.005		<0.005
Antimony	mg/L	0.0001		<0.0001
Arsenic	mg/L	0.0001		0.0003
Beryllium	mg/L	0.0001		<0.0001
Cadmium	mg/L	0.000015		<0.000015
Chromium	mg/L	0.001		<0.001
Cobalt	mg/L	0.0001		0.0010
Copper	mg/L	0.0001		0.0027
Lead	mg/L	0.00002		0.00003
Molybdenum	mg/L	0.0001		0.0004
Nickel	mg/L	0.0002		0.0040
Selenium	mg/L	0.001		<0.001
Silver	mg/L	0.0001		<0.0001



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.	MW19
			Sample I.D.	24-010857-36
			Date Collected	2024-04-17
Parameter	Units	R.L.		-
Thallium	mg/L	0.00005		<0.00005
Uranium	mg/L	0.00005		0.00285
Vanadium	mg/L	0.0001		<0.0001
Chromium (VI)	mg/L	0.01		<0.01
Mercury	mg/L	0.00002		<0.00002
Anion Sum	meq/L	-		10.8
Cation Sum	meq/L	-		11.1
% Difference	%	-		1.38
Ion Ratio	-	-		0.973
Sodium Adsorption Ratio	-	-		0.381
TDS (Ion Sum Calc)	mg/L	1		552
TDS(calc.)/EC(actual)	-	-		0.551
Conductivity Calc	µmho/cm	-		973
Conductivity Calc / Conductivity	-	-		0.972
Langelier Index(25°C)	-	-		1.34
Saturation pH (25°C)	-	-		6.57
pH (Client Data)	pH units	-		7.43
Temperature (Client Data)	°C	-		8.5

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.	MW7-13	MW12	MW14	MW15	MW15A
			Sample I.D.	24-010857-8	24-010857-11	24-010857-13	24-010857-14	24-010857-15
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Acetone	µg/L	30		<30	<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		19.5	<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		0.8	<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		2.0	<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

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.	MW7-13	MW12	MW14	MW15	MW15A
			Sample I.D.	24-010857-8	24-010857-11	24-010857-13	24-010857-14	24-010857-15
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
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		22	<1	<1	<1	<1
Xylene, o-	µg/L	0.5		1.9	<0.5	<0.5	<0.5	<0.5

Michelle Dubien
Data Specialist

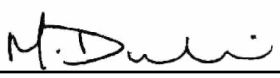
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Parameter	Units	R.L.	Client I.D.	MW15B	MW26	MW26-1	MW26-2	MW27-I
			Sample I.D.	24-010857-16	24-010857-26	24-010857-27	24-010857-28	24-010857-29
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
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	1.6	1.4	<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

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.

Parameter	Units	R.L.	Client I.D.	MW15B	MW26	MW26-1	MW26-2	MW27-I
			Sample I.D.	24-010857-16	24-010857-26	24-010857-27	24-010857-28	24-010857-29
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
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

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.	MW27-II	MW27-III	MW28-I	MW28-II	MW28-III
			Sample I.D.	24-010857-30	24-010857-31	24-010857-32	24-010857-33	24-010857-34
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
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

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.

Parameter	Units	R.L.	Client I.D.	MW27-II	MW27-III	MW28-I	MW28-II	MW28-III
			Sample I.D.	24-010857-30	24-010857-31	24-010857-32	24-010857-33	24-010857-34
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
				-	-	-	-	-
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

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.	MW7-13	MW15	MW15A	MW15B	MW26
			Sample I.D.	24-010857-8	24-010857-14	24-010857-15	24-010857-16	24-010857-26
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	Units	R.L.		-	-	-	-	-
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Identification Comment	-	-		-	-	-	-	-
BHC (alpha)	µg/L	0.4		<0.4				
Aldrin	µg/L	0.01		<0.01				
BHC (beta)	µg/L	0.4		<0.4				
Chlordane (alpha)	µg/L	0.05		<0.05				
Chlordane (gamma)	µg/L	0.05		<0.05				
Chlordane (Alpha + Gamma)	µg/L	0.05		<0.05				
BHC (delta)	µg/L	0.01		<0.01				
p,p'-DDD	µg/L	0.05		<0.05				
p,p'-DDE	µg/L	0.01		<0.01				
o,p'-DDT	µg/L	0.05		<0.05				
p,p'-DDT	µg/L	0.05		<0.05				
Dieldrin	µg/L	0.01		<0.01				
Endosulfan I	µg/L	0.05		<0.05				
Endosulfan (Total)	µg/L	0.05		<0.05				
Endosulfan Sulfate	µg/L	0.05		<0.05				
Endrin	µg/L	0.05		<0.05				
Heptachlor	µg/L	0.1		<0.1				
Heptachlor Epoxide	µg/L	0.02		<0.02				
Hexachlorobenzene	µg/L	0.01		<0.01				

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.	MW7-13	MW15	MW15A	MW15B	MW26
			Sample I.D.	24-010857-8	24-010857-14	24-010857-15	24-010857-16	24-010857-26
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Lindane (Hexachlorocyclohexane, Gamma)	µg/L	0.01		<0.01				
Methoxychlor	µg/L	0.05		<0.05				
Mirex	µg/L	1		<1				

			Client I.D.	MW26-1	MW26-2	MW27-I	MW27-II	MW27-III
			Sample I.D.	24-010857-27	24-010857-28	24-010857-29	24-010857-30	24-010857-31
			Date Collected	2024-04-17	2024-04-17	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-	-	-
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Identification Comment	-	-		-	-	-	-	-

			Client I.D.	MW28-I	MW28-II	MW28-III
			Sample I.D.	24-010857-32	24-010857-33	24-010857-34
			Date Collected	2024-04-17	2024-04-17	2024-04-17
Parameter	**Units**	**R.L.**		-	-	-
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05		<0.05	<0.05	<0.05
Identification Comment	-	-		-	-	-

Elevated RLs due to sample matrix interferences

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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-021107 - 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: 2024-Jul-11
DATE REPORTED: 2024-Jul-22
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

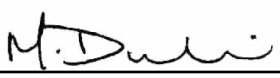
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	11	OTTAWA	PCURIEL	2024-Jul-16	A-IC-01	SM 4110B
BOD5 (Liquid)	11	KINGSTON	DCASSIDY	2024-Jul-17	BOD-001	SM 5210B
COD (Liquid)	11	KINGSTON	EHINCH	2024-Jul-16	COD-001	SM 5220D
Colour (Liquid)	11	OTTAWA	STAILLON	2024-Jul-17	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	11	OTTAWA	SBOUDREAU	2024-Jul-16	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	11	KINGSTON	JMACINNES	2024-Jul-16	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	11	OTTAWA	VKASYAN	2024-Jul-16	C-OC-01	EPA 415.2
Ion Balance (Calc.)	11	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	11	OTTAWA	STAILLON	2024-Jul-18	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	11	OTTAWA	AOZKAYMAK	2024-Jul-16	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	11	OTTAWA	APRUDYVUS	2024-Jul-16	D-ICP-01	SM 3120B
ICP/OES (Liquid)	11	OTTAWA	APRUDYVUS	2024-Jul-18	D-ICP-01	SM 3120B
Mercury (Liquid)	11	OTTAWA	TBENNETT	2024-Jul-16	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	11	KINGSTON	JYEARWOOD	2024-Jul-17	NH3-001	SM 4500NH3
Phenols (Liquid)	11	KINGSTON	JMACINNES	2024-Jul-17	PHEN-01	MECP E3179
TP & TKN (Liquid)	11	KINGSTON	KDIBBITS	2024-Jul-18	TPTKN-001	MECP E3516.2
TSS (Liquid)	11	KINGSTON	MCLOSS	2024-Jul-16	TSS-001	SM 2540D
Turbidity (Liquid)	11	OTTAWA	PLUSSIER	2024-Jul-16	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	5	RICHMOND_HILL	CBURKE	2024-Jul-19	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	SW13-10m	SW14 Original
	Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
	Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units** / **R.L.**	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L / 5	137	162	107	288	139
Conductivity @25°C	uS/cm / 1	281	350	232	643	285
pH @25°C	pH units / -	7.08	7.33	6.83	7.60	7.18
Colour	TCU / 2	100	129	62	80	104
Turbidity	NTU / 0.1	1.1	1.8	7.8	14.3	2.8
Fluoride	mg/L / 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L / 0.5	6.2	10.4	4.8	22.2	5.6
Nitrate (N)	mg/L / 0.05	<0.05	<0.05	<0.05	0.06	<0.05
Nitrite (N)	mg/L / 0.05	<0.05	<0.05	<0.05	0.05	<0.05
Sulphate	mg/L / 1	1	<1	<1	13	<1
BOD5	mg/L / 3	<3	<3	<3	<3	<3
Total Suspended Solids	mg/L / 3	4	3	37	19	27
Phosphorus (Total)	mg/L / 0.01	0.04	0.08	0.04	0.20	0.08
Total Kjeldahl Nitrogen	mg/L / 0.1	0.7	1.0	0.6	3.8	1.1
Ammonia (N)-Total (NH3+NH4)	mg/L / 0.05	<0.05	<0.05	<0.05	0.99	0.32
Ammonia (N)-unionized	mg/L / 0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L / 0.2	19.8	16.9	13.4	18.2	17.8
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	54	56	118	181	60
Aluminum	mg/L / 0.01	0.02	0.02	0.02	0.04	0.02



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	SW13-10m	SW14 Original
	Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
	Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units** / **R.L.**	-	-	-	-	-
Hardness (as CaCO3)	mg/L / 0.02	137	173	107	444	142
Aluminum (Total)	mg/L / 0.01	0.03	0.03	0.05	0.28	0.06
Barium (Total)	mg/L / 0.001	0.023	0.027	0.034	0.118	0.020
Boron (Total)	mg/L / 0.005	0.011	0.012	0.007	0.370	0.008
Calcium (Total)	mg/L / 0.02	48.8	63.0	39.1	157	51.6
Iron (Total)	mg/L / 0.005	0.070	0.631	1.06	13.3	0.341
Magnesium (Total)	mg/L / 0.02	3.58	3.88	2.28	12.8	3.08
Manganese (Total)	mg/L / 0.001	0.026	0.033	0.062	0.498	0.060
Phosphorus (Total)	mg/L / 0.1	<0.1	<0.1	<0.1	0.1	<0.1
Potassium (Total)	mg/L / 0.1	1.0	2.1	1.1	13.1	1.8
Sodium (Total)	mg/L / 0.2	3.3	5.9	3.4	42.7	3.9
Strontium (Total)	mg/L / 0.001	0.124	0.170	0.094	0.604	0.129
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	0.012	<0.005
Zinc (Total)	mg/L / 0.005	<0.005	<0.005	<0.005	0.020	0.006
Antimony (Total)	mg/L / 0.0001	0.0006	0.0005	0.0004	0.0006	0.0005
Arsenic (Total)	mg/L / 0.0001	0.0003	0.0006	0.0002	0.0016	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	<0.000015	0.000055	<0.000015
Chromium (Total)	mg/L / 0.001	<0.001	<0.001	<0.001	<0.001	0.002
Cobalt (Total)	mg/L / 0.0001	0.0002	0.0002	0.0002	0.0031	0.0003

Michelle Dubien
Data Specialist

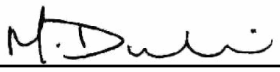
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	SW2	SW3	SW4	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper (Total)	mg/L	0.0001		0.0003	0.0008	0.0007	0.0027	0.0005
Lead (Total)	mg/L	0.00002		0.00004	0.00005	0.00015	0.00094	0.00018
Molybdenum (Total)	mg/L	0.0001		<0.0001	0.0002	<0.0001	0.0002	<0.0001
Nickel (Total)	mg/L	0.0002		0.0006	0.0008	0.0005	0.0058	0.0007
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	0.00020	<0.00005	0.00023	<0.00005
Vanadium (Total)	mg/L	0.0001		0.0001	0.0004	0.0002	0.0008	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	-		2.95	3.55	2.29	6.65	2.94
Cation Sum	meq/L	-		2.91	3.82	2.38	6.50	3.09
% Difference	%	-		0.643	3.60	1.97	1.17	2.53
Ion Ratio	-	-		1.01	0.930	0.961	1.02	0.951
Sodium Adsorption Ratio	-	-		0.124	0.194	0.143	0.424	0.143
TDS (Ion Sum Calc)	mg/L	1		147	184	116	341	150
TDS(calc.)/EC(actual)	-	-		0.522	0.526	0.502	0.531	0.528
Conductivity Calc	µmho/cm	-		281	353	224	616	289
Conductivity Calc / Conductivity	-	-		1.00	1.01	0.964	0.957	1.02
Langelier Index(25°C)	-	-		-0.488	-0.0732	-0.920	0.595	-0.358

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	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		7.57	7.40	7.75	7.00	7.54
pH (Client Data)	pH units	-		7.65	7.46	7.45	7.18	7.46
Temperature (Client Data)	°C	-		20.1	19.4	20.9	19.4	19.4



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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
			Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		151	128	179	185	129
Conductivity @25°C	uS/cm	1		306	297	356	359	327
pH @25°C	pH units	-		7.22	6.99	7.52	7.31	7.09
Colour	TCU	2		65	106	154	180	72
Turbidity	NTU	0.1		2.2	4.4	42.0	12.5	64.3
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		7.1	16.3	2.1	2.1	24.8
Nitrate (N)	mg/L	0.05		0.08	<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		3	<1	1	1	2
BOD5	mg/L	3		<3	<3	4	<3	<3
Total Suspended Solids	mg/L	3		7	19	124	70	65
Phosphorus (Total)	mg/L	0.01		0.06	0.10	0.19	0.15	0.19
Total Kjeldahl Nitrogen	mg/L	0.1		0.8	1.1	2.0	1.8	1.0
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.10	0.08	0.09	0.08	0.07
Ammonia (N)-unionized	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2		10.6	15.0	28.2	30.8	15.4
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	<0.001	<0.001
COD	mg/L	5		34	57	113	106	56
Aluminum	mg/L	0.01		0.02	0.02	0.04	0.04	0.06

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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
			Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02		151	140	168	173	162
Aluminum (Total)	mg/L	0.01		0.07	0.14	0.06	0.11	0.96
Barium (Total)	mg/L	0.001		0.024	0.023	0.027	0.026	0.030
Boron (Total)	mg/L	0.005		0.025	0.024	0.138	0.116	0.020
Calcium (Total)	mg/L	0.02		55.2	51.0	57.4	59.6	59.8
Iron (Total)	mg/L	0.005		0.200	0.889	0.093	0.292	1.40
Magnesium (Total)	mg/L	0.02		3.08	2.98	5.96	5.83	2.98
Manganese (Total)	mg/L	0.001		0.029	0.102	0.021	0.082	0.054
Phosphorus (Total)	mg/L	0.1		<0.1	0.4	0.1	0.1	0.1
Potassium (Total)	mg/L	0.1		3.2	4.4	12.5	12.9	5.1
Sodium (Total)	mg/L	0.2		3.0	3.8	6.3	6.7	4.2
Strontium (Total)	mg/L	0.001		0.148	0.140	0.162	0.163	0.216
Tin (Total)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005		<0.005	0.007	<0.005	0.006	0.053
Zinc (Total)	mg/L	0.005		<0.005	0.010	0.009	0.009	0.011
Antimony (Total)	mg/L	0.0001		0.0005	0.0004	0.0004	0.0006	0.0006
Arsenic (Total)	mg/L	0.0001		0.0003	0.0007	0.0009	0.0014	0.0007
Beryllium (Total)	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.000015		0.000019	<0.000015	0.000016	0.000023	0.000019
Chromium (Total)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Total)	mg/L	0.0001		0.0003	0.0004	0.0003	0.0004	0.0008

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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
			Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper (Total)	mg/L	0.0001		0.0020	0.0008	0.0018	0.0015	0.0025
Lead (Total)	mg/L	0.00002		0.00008	0.00049	0.00022	0.00050	0.00134
Molybdenum (Total)	mg/L	0.0001		<0.0001	0.0001	0.0006	0.0007	0.0002
Nickel (Total)	mg/L	0.0002		0.0009	0.0008	0.0007	0.0008	0.0010
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		0.00021	<0.00005	<0.00005	<0.00005	0.00006
Vanadium (Total)	mg/L	0.0001		0.0007	0.0003	0.0005	0.0008	0.0011
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	-		3.29	3.04	3.67	3.78	3.31
Cation Sum	meq/L	-		3.24	3.13	3.97	4.10	3.63
% Difference	%	-		0.737	1.51	3.89	4.03	4.59
Ion Ratio	-	-		1.01	0.970	0.925	0.923	0.912
Sodium Adsorption Ratio	-	-		0.105	0.139	0.210	0.221	0.145
TDS (Ion Sum Calc)	mg/L	1		166	157	193	200	178
TDS(calc.)/EC(actual)	-	-		0.542	0.530	0.543	0.556	0.544
Conductivity Calc	µmho/cm	-		314	304	363	373	347
Conductivity Calc / Conductivity	-	-		1.03	1.02	1.02	1.04	1.06
Langelier Index(25°C)	-	-		-0.262	-0.598	0.110	-0.0704	-0.436

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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
		Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
		Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**	-	-	-	-	-
Saturation pH (25°C)	-	-	7.48	7.59	7.41	7.38	7.53
pH (Client Data)	pH units	-	7.49	7.33	7.37	7.31	7.49
Temperature (Client Data)	°C	-	19.9	19.4	19.8	20.1	10.4

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.	DUP
			Sample I.D.	24-021107-11
			Date Collected	2024-07-11
Parameter	Units	R.L.		-
Alkalinity(CaCO3) to pH4.5	mg/L	5		145
Conductivity @25°C	uS/cm	1		284
pH @25°C	pH units	-		7.03
Colour	TCU	2		114
Turbidity	NTU	0.1		45.9
Fluoride	mg/L	0.1		<0.1
Chloride	mg/L	0.5		5.6
Nitrate (N)	mg/L	0.05		<0.05
Nitrite (N)	mg/L	0.05		<0.05
Sulphate	mg/L	1		<1
BOD5	mg/L	3		4
Total Suspended Solids	mg/L	3		143
Phosphorus (Total)	mg/L	0.01		0.22
Total Kjeldahl Nitrogen	mg/L	0.1		1.7
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.07
Ammonia (N)-unionized	mg/L	0.01		<0.01
Dissolved Organic Carbon	mg/L	0.2		19.4
Cyanide (WAD)	mg/L	0.005		<0.005
Phenolics	mg/L	0.001		<0.001
COD	mg/L	5		103
Aluminum	mg/L	0.01		0.02

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.	DUP
			Sample I.D.	24-021107-11
			Date Collected	2024-07-11
Parameter	Units	R.L.		-
Hardness (as CaCO3)	mg/L	0.02		159
Aluminum (Total)	mg/L	0.01		0.26
Barium (Total)	mg/L	0.001		0.033
Boron (Total)	mg/L	0.005		0.012
Calcium (Total)	mg/L	0.02		58.2
Iron (Total)	mg/L	0.005		2.04
Magnesium (Total)	mg/L	0.02		3.36
Manganese (Total)	mg/L	0.001		0.290
Phosphorus (Total)	mg/L	0.1		0.4
Potassium (Total)	mg/L	0.1		2.0
Sodium (Total)	mg/L	0.2		4.0
Strontium (Total)	mg/L	0.001		0.145
Tin (Total)	mg/L	0.05		<0.05
Titanium (Total)	mg/L	0.005		0.013
Zinc (Total)	mg/L	0.005		0.022
Antimony (Total)	mg/L	0.0001		0.0005
Arsenic (Total)	mg/L	0.0001		0.0007
Beryllium (Total)	mg/L	0.0001		<0.0001
Cadmium (Total)	mg/L	0.000015		0.000078
Chromium (Total)	mg/L	0.001		<0.001
Cobalt (Total)	mg/L	0.0001		0.0007

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.	DUP
			Sample I.D.	24-021107-11
			Date Collected	2024-07-11
Parameter	Units	R.L.		-
Copper (Total)	mg/L	0.0001		0.0014
Lead (Total)	mg/L	0.00002		0.00185
Molybdenum (Total)	mg/L	0.0001		<0.0001
Nickel (Total)	mg/L	0.0002		0.0009
Selenium (Total)	mg/L	0.001		<0.001
Silver (Total)	mg/L	0.0001		<0.0001
Thallium (Total)	mg/L	0.00005		<0.00005
Uranium (Total)	mg/L	0.00005		0.00007
Vanadium (Total)	mg/L	0.0001		0.0006
Chromium (VI)	mg/L	0.001		<0.001
Mercury	mg/L	0.00002		<0.00002
Anion Sum	meq/L	-		3.07
Cation Sum	meq/L	-		3.54
% Difference	%	-		7.10
Ion Ratio	-	-		0.867
Sodium Adsorption Ratio	-	-		0.139
TDS (Ion Sum Calc)	mg/L	1		163
TDS(calc.)/EC(actual)	-	-		0.574
Conductivity Calc	µmho/cm	-		312
Conductivity Calc / Conductivity	-	-		1.10
Langelier Index(25°C)	-	-		-0.445

Michelle Dubien
Data Specialist

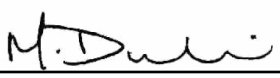
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

	Client I.D.		DUP
	Sample I.D.		24-021107-11
	Date Collected		2024-07-11
Parameter	Units	R.L.	-
Saturation pH (25°C)	-	-	7.48
pH (Client Data)	pH units	-	7.96
Temperature (Client Data)	°C	-	19.4

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	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
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		

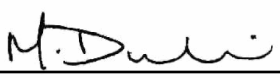


Michelle Dubien
Data Specialist

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.

Parameter	Units	R.L.	Client I.D.	SW2	SW3	SW4	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
				-	-	-	-	-
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		

All samples filtered from unpreserved for Dissolved metals analysis.



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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-021107 - 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: 2024-Jul-11
DATE REPORTED: 2024-Jul-22
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

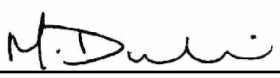
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	11	OTTAWA	PCURIEL	2024-Jul-16	A-IC-01	SM 4110B
BOD5 (Liquid)	11	KINGSTON	DCASSIDY	2024-Jul-17	BOD-001	SM 5210B
COD (Liquid)	11	KINGSTON	EHINCH	2024-Jul-16	COD-001	SM 5220D
Colour (Liquid)	11	OTTAWA	STAILLON	2024-Jul-17	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	11	OTTAWA	SBOUDREAU	2024-Jul-16	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	11	KINGSTON	JMACINNES	2024-Jul-16	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	11	OTTAWA	VKASYAN	2024-Jul-16	C-OC-01	EPA 415.2
Ion Balance (Calc.)	11	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	11	OTTAWA	STAILLON	2024-Jul-18	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	11	OTTAWA	AOZKAYMAK	2024-Jul-16	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	11	OTTAWA	APRUDYVUS	2024-Jul-16	D-ICP-01	SM 3120B
ICP/OES (Liquid)	11	OTTAWA	APRUDYVUS	2024-Jul-18	D-ICP-01	SM 3120B
Mercury (Liquid)	11	OTTAWA	TBENNETT	2024-Jul-16	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	11	KINGSTON	JYEARWOOD	2024-Jul-17	NH3-001	SM 4500NH3
Phenols (Liquid)	11	KINGSTON	JMACINNES	2024-Jul-17	PHEN-01	MECP E3179
TP & TKN (Liquid)	11	KINGSTON	KDIBBITS	2024-Jul-18	TPTKN-001	MECP E3516.2
TSS (Liquid)	11	KINGSTON	MCLOSS	2024-Jul-16	TSS-001	SM 2540D
Turbidity (Liquid)	11	OTTAWA	PLUSSIER	2024-Jul-16	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	5	RICHMOND_HILL	CBURKE	2024-Jul-19	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	SW13-10m	SW14 Original
	Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
	Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units** / **R.L.**	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L / 5	137	162	107	288	139
Conductivity @25°C	uS/cm / 1	281	350	232	643	285
pH @25°C	pH units / -	7.08	7.33	6.83	7.60	7.18
Colour	TCU / 2	100	129	62	80	104
Turbidity	NTU / 0.1	1.1	1.8	7.8	14.3	2.8
Fluoride	mg/L / 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L / 0.5	6.2	10.4	4.8	22.2	5.6
Nitrate (N)	mg/L / 0.05	<0.05	<0.05	<0.05	0.06	<0.05
Nitrite (N)	mg/L / 0.05	<0.05	<0.05	<0.05	0.05	<0.05
Sulphate	mg/L / 1	1	<1	<1	13	<1
BOD5	mg/L / 3	<3	<3	<3	<3	<3
Total Suspended Solids	mg/L / 3	4	3	37	19	27
Phosphorus (Total)	mg/L / 0.01	0.04	0.08	0.04	0.20	0.08
Total Kjeldahl Nitrogen	mg/L / 0.1	0.7	1.0	0.6	3.8	1.1
Ammonia (N)-Total (NH3+NH4)	mg/L / 0.05	<0.05	<0.05	<0.05	0.99	0.32
Ammonia (N)-unionized	mg/L / 0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L / 0.2	19.8	16.9	13.4	18.2	17.8
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	54	56	118	181	60
Aluminum	mg/L / 0.01	0.02	0.02	0.02	0.04	0.02



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	SW13-10m	SW14 Original
	Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
	Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units** / **R.L.**	-	-	-	-	-
Hardness (as CaCO3)	mg/L / 0.02	137	173	107	444	142
Aluminum (Total)	mg/L / 0.01	0.03	0.03	0.05	0.28	0.06
Barium (Total)	mg/L / 0.001	0.023	0.027	0.034	0.118	0.020
Boron (Total)	mg/L / 0.005	0.011	0.012	0.007	0.370	0.008
Calcium (Total)	mg/L / 0.02	48.8	63.0	39.1	157	51.6
Iron (Total)	mg/L / 0.005	0.070	0.631	1.06	13.3	0.341
Magnesium (Total)	mg/L / 0.02	3.58	3.88	2.28	12.8	3.08
Manganese (Total)	mg/L / 0.001	0.026	0.033	0.062	0.498	0.060
Phosphorus (Total)	mg/L / 0.1	<0.1	<0.1	<0.1	0.1	<0.1
Potassium (Total)	mg/L / 0.1	1.0	2.1	1.1	13.1	1.8
Sodium (Total)	mg/L / 0.2	3.3	5.9	3.4	42.7	3.9
Strontium (Total)	mg/L / 0.001	0.124	0.170	0.094	0.604	0.129
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	0.012	<0.005
Zinc (Total)	mg/L / 0.005	<0.005	<0.005	<0.005	0.020	0.006
Antimony (Total)	mg/L / 0.0001	0.0006	0.0005	0.0004	0.0006	0.0005
Arsenic (Total)	mg/L / 0.0001	0.0003	0.0006	0.0002	0.0016	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	<0.000015	0.000055	<0.000015
Chromium (Total)	mg/L / 0.001	<0.001	<0.001	<0.001	<0.001	0.002
Cobalt (Total)	mg/L / 0.0001	0.0002	0.0002	0.0002	0.0031	0.0003

Michelle Dubien
Data Specialist

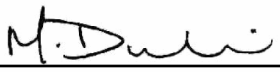
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	SW2	SW3	SW4	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper (Total)	mg/L	0.0001		0.0003	0.0008	0.0007	0.0027	0.0005
Lead (Total)	mg/L	0.00002		0.00004	0.00005	0.00015	0.00094	0.00018
Molybdenum (Total)	mg/L	0.0001		<0.0001	0.0002	<0.0001	0.0002	<0.0001
Nickel (Total)	mg/L	0.0002		0.0006	0.0008	0.0005	0.0058	0.0007
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	0.00020	<0.00005	0.00023	<0.00005
Vanadium (Total)	mg/L	0.0001		0.0001	0.0004	0.0002	0.0008	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	-		2.95	3.55	2.29	6.65	2.94
Cation Sum	meq/L	-		2.91	3.82	2.38	6.50	3.09
% Difference	%	-		0.643	3.60	1.97	1.17	2.53
Ion Ratio	-	-		1.01	0.930	0.961	1.02	0.951
Sodium Adsorption Ratio	-	-		0.124	0.194	0.143	0.424	0.143
TDS (Ion Sum Calc)	mg/L	1		147	184	116	341	150
TDS(calc.)/EC(actual)	-	-		0.522	0.526	0.502	0.531	0.528
Conductivity Calc	µmho/cm	-		281	353	224	616	289
Conductivity Calc / Conductivity	-	-		1.00	1.01	0.964	0.957	1.02
Langelier Index(25°C)	-	-		-0.488	-0.0732	-0.920	0.595	-0.358

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	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		7.57	7.40	7.75	7.00	7.54
pH (Client Data)	pH units	-		7.65	7.46	7.45	7.18	7.46
Temperature (Client Data)	°C	-		20.1	19.4	20.9	19.4	19.4



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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
			Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		151	128	179	185	129
Conductivity @25°C	uS/cm	1		306	297	356	359	327
pH @25°C	pH units	-		7.22	6.99	7.52	7.31	7.09
Colour	TCU	2		65	106	154	180	72
Turbidity	NTU	0.1		2.2	4.4	42.0	12.5	64.3
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		7.1	16.3	2.1	2.1	24.8
Nitrate (N)	mg/L	0.05		0.08	<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		3	<1	1	1	2
BOD5	mg/L	3		<3	<3	4	<3	<3
Total Suspended Solids	mg/L	3		7	19	124	70	65
Phosphorus (Total)	mg/L	0.01		0.06	0.10	0.19	0.15	0.19
Total Kjeldahl Nitrogen	mg/L	0.1		0.8	1.1	2.0	1.8	1.0
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.10	0.08	0.09	0.08	0.07
Ammonia (N)-unionized	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2		10.6	15.0	28.2	30.8	15.4
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	<0.001	<0.001
COD	mg/L	5		34	57	113	106	56
Aluminum	mg/L	0.01		0.02	0.02	0.04	0.04	0.06

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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
			Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02		151	140	168	173	162
Aluminum (Total)	mg/L	0.01		0.07	0.14	0.06	0.11	0.96
Barium (Total)	mg/L	0.001		0.024	0.023	0.027	0.026	0.030
Boron (Total)	mg/L	0.005		0.025	0.024	0.138	0.116	0.020
Calcium (Total)	mg/L	0.02		55.2	51.0	57.4	59.6	59.8
Iron (Total)	mg/L	0.005		0.200	0.889	0.093	0.292	1.40
Magnesium (Total)	mg/L	0.02		3.08	2.98	5.96	5.83	2.98
Manganese (Total)	mg/L	0.001		0.029	0.102	0.021	0.082	0.054
Phosphorus (Total)	mg/L	0.1		<0.1	0.4	0.1	0.1	0.1
Potassium (Total)	mg/L	0.1		3.2	4.4	12.5	12.9	5.1
Sodium (Total)	mg/L	0.2		3.0	3.8	6.3	6.7	4.2
Strontium (Total)	mg/L	0.001		0.148	0.140	0.162	0.163	0.216
Tin (Total)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Titanium (Total)	mg/L	0.005		<0.005	0.007	<0.005	0.006	0.053
Zinc (Total)	mg/L	0.005		<0.005	0.010	0.009	0.009	0.011
Antimony (Total)	mg/L	0.0001		0.0005	0.0004	0.0004	0.0006	0.0006
Arsenic (Total)	mg/L	0.0001		0.0003	0.0007	0.0009	0.0014	0.0007
Beryllium (Total)	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Total)	mg/L	0.000015		0.000019	<0.000015	0.000016	0.000023	0.000019
Chromium (Total)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt (Total)	mg/L	0.0001		0.0003	0.0004	0.0003	0.0004	0.0008

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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
			Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper (Total)	mg/L	0.0001		0.0020	0.0008	0.0018	0.0015	0.0025
Lead (Total)	mg/L	0.00002		0.00008	0.00049	0.00022	0.00050	0.00134
Molybdenum (Total)	mg/L	0.0001		<0.0001	0.0001	0.0006	0.0007	0.0002
Nickel (Total)	mg/L	0.0002		0.0009	0.0008	0.0007	0.0008	0.0010
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		0.00021	<0.00005	<0.00005	<0.00005	0.00006
Vanadium (Total)	mg/L	0.0001		0.0007	0.0003	0.0005	0.0008	0.0011
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	-		3.29	3.04	3.67	3.78	3.31
Cation Sum	meq/L	-		3.24	3.13	3.97	4.10	3.63
% Difference	%	-		0.737	1.51	3.89	4.03	4.59
Ion Ratio	-	-		1.01	0.970	0.925	0.923	0.912
Sodium Adsorption Ratio	-	-		0.105	0.139	0.210	0.221	0.145
TDS (Ion Sum Calc)	mg/L	1		166	157	193	200	178
TDS(calc.)/EC(actual)	-	-		0.542	0.530	0.543	0.556	0.544
Conductivity Calc	µmho/cm	-		314	304	363	373	347
Conductivity Calc / Conductivity	-	-		1.03	1.02	1.02	1.04	1.06
Langelier Index(25°C)	-	-		-0.262	-0.598	0.110	-0.0704	-0.436

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.	SW16	SW13-30m	SW15-30m	WP4-30m	SW17
		Sample I.D.	24-021107-6	24-021107-7	24-021107-8	24-021107-9	24-021107-10
		Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
Parameter	**Units**	**R.L.**	-	-	-	-	-
Saturation pH (25°C)	-	-	7.48	7.59	7.41	7.38	7.53
pH (Client Data)	pH units	-	7.49	7.33	7.37	7.31	7.49
Temperature (Client Data)	°C	-	19.9	19.4	19.8	20.1	10.4

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.	DUP
			Sample I.D.	24-021107-11
			Date Collected	2024-07-11
Parameter	Units	R.L.		-
Alkalinity(CaCO3) to pH4.5	mg/L	5		145
Conductivity @25°C	uS/cm	1		284
pH @25°C	pH units	-		7.03
Colour	TCU	2		114
Turbidity	NTU	0.1		45.9
Fluoride	mg/L	0.1		<0.1
Chloride	mg/L	0.5		5.6
Nitrate (N)	mg/L	0.05		<0.05
Nitrite (N)	mg/L	0.05		<0.05
Sulphate	mg/L	1		<1
BOD5	mg/L	3		4
Total Suspended Solids	mg/L	3		143
Phosphorus (Total)	mg/L	0.01		0.22
Total Kjeldahl Nitrogen	mg/L	0.1		1.7
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.07
Ammonia (N)-unionized	mg/L	0.01		<0.01
Dissolved Organic Carbon	mg/L	0.2		19.4
Cyanide (WAD)	mg/L	0.005		<0.005
Phenolics	mg/L	0.001		<0.001
COD	mg/L	5		103
Aluminum	mg/L	0.01		0.02

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.	DUP
			Sample I.D.	24-021107-11
			Date Collected	2024-07-11
Parameter	Units	R.L.		-
Hardness (as CaCO3)	mg/L	0.02		159
Aluminum (Total)	mg/L	0.01		0.26
Barium (Total)	mg/L	0.001		0.033
Boron (Total)	mg/L	0.005		0.012
Calcium (Total)	mg/L	0.02		58.2
Iron (Total)	mg/L	0.005		2.04
Magnesium (Total)	mg/L	0.02		3.36
Manganese (Total)	mg/L	0.001		0.290
Phosphorus (Total)	mg/L	0.1		0.4
Potassium (Total)	mg/L	0.1		2.0
Sodium (Total)	mg/L	0.2		4.0
Strontium (Total)	mg/L	0.001		0.145
Tin (Total)	mg/L	0.05		<0.05
Titanium (Total)	mg/L	0.005		0.013
Zinc (Total)	mg/L	0.005		0.022
Antimony (Total)	mg/L	0.0001		0.0005
Arsenic (Total)	mg/L	0.0001		0.0007
Beryllium (Total)	mg/L	0.0001		<0.0001
Cadmium (Total)	mg/L	0.000015		0.000078
Chromium (Total)	mg/L	0.001		<0.001
Cobalt (Total)	mg/L	0.0001		0.0007

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.	DUP
			Sample I.D.	24-021107-11
			Date Collected	2024-07-11
Parameter	Units	R.L.		-
Copper (Total)	mg/L	0.0001		0.0014
Lead (Total)	mg/L	0.00002		0.00185
Molybdenum (Total)	mg/L	0.0001		<0.0001
Nickel (Total)	mg/L	0.0002		0.0009
Selenium (Total)	mg/L	0.001		<0.001
Silver (Total)	mg/L	0.0001		<0.0001
Thallium (Total)	mg/L	0.00005		<0.00005
Uranium (Total)	mg/L	0.00005		0.00007
Vanadium (Total)	mg/L	0.0001		0.0006
Chromium (VI)	mg/L	0.001		<0.001
Mercury	mg/L	0.00002		<0.00002
Anion Sum	meq/L	-		3.07
Cation Sum	meq/L	-		3.54
% Difference	%	-		7.10
Ion Ratio	-	-		0.867
Sodium Adsorption Ratio	-	-		0.139
TDS (Ion Sum Calc)	mg/L	1		163
TDS(calc.)/EC(actual)	-	-		0.574
Conductivity Calc	µmho/cm	-		312
Conductivity Calc / Conductivity	-	-		1.10
Langelier Index(25°C)	-	-		-0.445

Michelle Dubien
Data Specialist

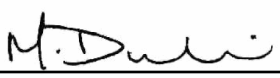
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

	Client I.D.		DUP
	Sample I.D.		24-021107-11
	Date Collected		2024-07-11
Parameter	Units	R.L.	-
Saturation pH (25°C)	-	-	7.48
pH (Client Data)	pH units	-	7.96
Temperature (Client Data)	°C	-	19.4

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	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
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		

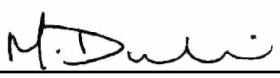


Michelle Dubien
Data Specialist

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.

Parameter	Units	R.L.	Client I.D.	SW2	SW3	SW4	SW13-10m	SW14 Original
			Sample I.D.	24-021107-1	24-021107-2	24-021107-3	24-021107-4	24-021107-5
			Date Collected	2024-07-11	2024-07-11	2024-07-11	2024-07-11	2024-07-11
				-	-	-	-	-
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		

All samples filtered from unpreserved for Dissolved metals analysis.



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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-031227 - 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: 2024-Oct-08
DATE REPORTED: 2024-Oct-22
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)	19	OTTAWA	PCURIEL	2024-Oct-10	A-IC-01	SM 4110B
COD (Liquid)	19	KINGSTON	EHINCH	2024-Oct-11	COD-001	SM 5220D
Cond/pH/Alk Auto (Liquid)	19	OTTAWA	SBOUDREAU	2024-Oct-11	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
DOC/DIC (Liquid)	19	OTTAWA	ASCHNEIDER	2024-Oct-16	C-OC-01	EPA 415.2
Ion Balance (Calc.)	19	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	19	OTTAWA	STAILLON	2024-Oct-16	D-CRVI-01	MECP E3056
ICP/MS (Liquid)	19	OTTAWA	AOZKAYMAK	2024-Oct-10	D-ICPMS-01	EPA 200.8
ICP/OES (Liquid)	19	OTTAWA	APRUDYVUS	2024-Oct-09	D-ICP-01	SM 3120B
Mercury (Liquid)	19	OTTAWA	TBENNETT	2024-Oct-10	D-HG-02	SM 3112B
Ammonia (Liquid)	19	KINGSTON	JYEARWOOD	2024-Oct-16	NH3-001	SM 4500NH3
PCB's (Liquid)	3	KINGSTON	CSUMMERHAYS	2024-Oct-11	PCB-001	EPA 8081
Phenols (Liquid)	19	KINGSTON	EHINCH	2024-Oct-16	PHEN-01	MECP E3179
TP & TKN (Liquid)	19	KINGSTON	KDIBBITS	2024-Oct-16	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	5	RICHMOND_HILL	FLENA	2024-Oct-19	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.		MW10	MW11A	MW12	MW13	OFFICE
	Sample I.D.		24-031227-1	24-031227-2	24-031227-3	24-031227-4	24-031227-5
	Date Collected		2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	1800	265	234	195	207
TDS (Calc. from Cond.)	mg/L	3	2320	637	252	217	235
Conductivity @25°C	uS/cm	1	4130	1180	488	420	455
pH @25°C	pH units	-	7.72	7.60	7.94	7.78	8.06
Fluoride	mg/L	0.1	<0.7	<0.1	<0.1	<0.1	0.1
Chloride	mg/L	0.5	249	213	2.8	7.0	15.3
Nitrate (N)	mg/L	0.05	<0.40	<0.05	0.40	<0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.40	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1	<2	5	9	5	<1
Phosphorus (Total)	mg/L	0.01	0.32	0.07	0.04	0.22	<0.01
Total Kjeldahl Nitrogen	mg/L	0.1	250	0.6	0.3	2.4	0.7
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	231	0.20	0.07	0.81	0.54
Dissolved Organic Carbon	mg/L	0.2	91.4	6.7	2.5	3.0	6.1
Phenolics	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L	5	276	37	16	190	17
Hardness (as CaCO3)	mg/L	0.02	970	474	250	208	215
Aluminum	mg/L	0.01	0.18	0.07	0.03	0.03	0.02
Barium	mg/L	0.001	0.912	0.055	0.069	0.072	0.100
Boron	mg/L	0.005	1.81	0.025	0.013	0.026	0.326
Calcium	mg/L	0.02	292	179	89.5	75.3	54.6
Iron	mg/L	0.005	12.3	2.62	0.012	1.78	3.57

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.	MW10	MW11A	MW12	MW13	OFFICE
			Sample I.D.	24-031227-1	24-031227-2	24-031227-3	24-031227-4	24-031227-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Magnesium	mg/L	0.02		58.2	6.36	6.33	4.86	19.0
Manganese	mg/L	0.001		1.04	0.194	<0.001	0.340	0.050
Phosphorus	mg/L	0.1		0.3	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		184	2.5	1.4	3.3	4.1
Sodium	mg/L	0.2		250	43.0	2.6	5.3	12.7
Strontium	mg/L	0.001		1.18	0.598	0.165	0.158	1.07
Tin	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	mg/L	0.005		0.009	<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		0.0004	<0.0001	0.0001	<0.0001	<0.0001
Arsenic	mg/L	0.0001		0.0010	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		0.004	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001		0.0061	0.0004	0.0002	0.0007	0.0002
Copper	mg/L	0.0001		0.0003	0.0005	0.0013	0.0005	0.0004
Lead	mg/L	0.00002		<0.00004	<0.00002	<0.00002	<0.00002	0.00015
Molybdenum	mg/L	0.0001		0.0002	0.0001	0.0002	0.0002	0.0003
Nickel	mg/L	0.0002		0.0093	<0.0002	<0.0002	0.0002	0.0010
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

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.

Parameter	Units	R.L.	Client I.D.	MW10	MW11A	MW12	MW13	OFFICE
			Sample I.D.	24-031227-1	24-031227-2	24-031227-3	24-031227-4	24-031227-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		<0.00005	0.00017	0.00046	0.00032	<0.00005
Vanadium	mg/L	0.0001		0.0065	0.0012	0.0001	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	-		43.1	11.4	4.97	4.19	4.58
Cation Sum	meq/L	-		44.8	11.6	5.15	4.64	5.20
% Difference	%	-		2.03	0.732	1.74	5.08	6.32
Ion Ratio	-	-		0.960	0.985	0.966	0.903	0.881
Sodium Adsorption Ratio	-	-		3.49	0.859	0.0724	0.161	0.378
TDS (Ion Sum Calc)	mg/L	1		2300	611	254	221	235
TDS(calc.)/EC(actual)	-	-		0.556	0.517	0.520	0.525	0.516
Conductivity Calc	µmho/cm	-		3590	1160	471	414	447
Conductivity Calc / Conductivity	-	-		0.870	0.981	0.965	0.986	0.983
Langelier Index(25°C)	-	-		1.92	0.803	0.829	0.514	0.681
Saturation pH (25°C)	-	-		5.80	6.80	7.11	7.27	7.38
pH (Client Data)	pH units	-		7.02	7.45	7.59	7.68	7.59
Temperature (Client Data)	°C	-		11.9	12.5	10.8	9.3	21.2



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.	MW14	MW15	MW15A	MW15B	MW18
	Sample I.D.	24-031227-6	24-031227-7	24-031227-8	24-031227-9	24-031227-10
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L 5	163	186	442	396	253
TDS (Calc. from Cond.)	mg/L 3	175	193	561	517	309
Conductivity @25°C	uS/cm 1	341	375	1050	970	595
pH @25°C	pH units -	7.99	7.99	7.70	7.78	7.95
Fluoride	mg/L 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L 0.5	0.8	1.7	76.7	74.4	3.1
Nitrate (N)	mg/L 0.05	0.06	<0.05	0.11	<0.05	1.39
Nitrite (N)	mg/L 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L 1	7	1	<1	<1	33
Phosphorus (Total)	mg/L 0.01	2.59	0.07	0.11	0.02	0.37
Total Kjeldahl Nitrogen	mg/L 0.1	2.4	0.3	1.2	0.8	1.3
Ammonia (N)-Total (NH3+NH4)	mg/L 0.05	0.15	0.05	0.82	0.47	0.16
Dissolved Organic Carbon	mg/L 0.2	2.6	3.6	11.8	9.6	14.9
Phenolics	mg/L 0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L 5	105	23	41	24	98
Hardness (as CaCO3)	mg/L 0.02	177	186	499	461	257
Aluminum	mg/L 0.01	0.02	0.02	0.06	0.04	0.05
Barium	mg/L 0.001	0.014	0.008	0.377	0.153	0.078
Boron	mg/L 0.005	0.007	<0.005	0.091	0.117	0.024
Calcium	mg/L 0.02	67.9	71.0	169	139	92.0
Iron	mg/L 0.005	0.009	<0.005	6.48	1.35	0.020

Michelle Dubien
Data Specialist

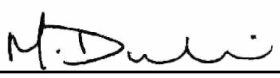
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	MW14	MW15	MW15A	MW15B	MW18
			Sample I.D.	24-031227-6	24-031227-7	24-031227-8	24-031227-9	24-031227-10
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units	R.L.		-	-	-	-	-
Magnesium	mg/L	0.02		1.78	1.95	18.8	27.5	6.51
Manganese	mg/L	0.001		0.025	<0.001	0.150	0.047	0.001
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		0.3	0.2	4.1	4.6	43.2
Sodium	mg/L	0.2		2.9	2.1	34.3	27.5	3.0
Strontium	mg/L	0.001		0.129	0.143	1.13	1.41	0.118
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	0.0002
Arsenic	mg/L	0.0001		<0.0001	0.0001	<0.0001	<0.0001	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		0.0002	0.0002	0.0006	0.0004	0.0004
Copper	mg/L	0.0001		0.0011	0.0015	0.0002	0.0003	0.0114
Lead	mg/L	0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.0001		0.0004	0.0002	<0.0001	<0.0001	0.0017
Nickel	mg/L	0.0002		<0.0002	<0.0002	0.0011	0.0006	0.0009
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

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.

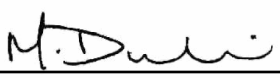
Parameter	Units	R.L.	Client I.D.	MW14	MW15	MW15A	MW15B	MW18
			Sample I.D.	24-031227-6	24-031227-7	24-031227-8	24-031227-9	24-031227-10
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		0.00024	0.00009	<0.00005	<0.00005	0.00053
Vanadium	mg/L	0.0001		0.0004	0.0003	0.0006	0.0002	0.0007
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	-		3.41	3.79	11.0	10.0	5.93
Cation Sum	meq/L	-		3.68	3.81	12.0	10.6	6.37
% Difference	%	-		3.80	0.196	4.35	3.00	3.56
Ion Ratio	-	-		0.927	0.996	0.917	0.942	0.931
Sodium Adsorption Ratio	-	-		0.0935	0.0682	0.669	0.558	0.0826
TDS (Ion Sum Calc)	mg/L	1		178	190	576	512	339
TDS(calc.)/EC(actual)	-	-		0.523	0.507	0.549	0.528	0.570
Conductivity Calc	µmho/cm	-		338	357	1030	946	594
Conductivity Calc / Conductivity	-	-		0.991	0.952	0.986	0.976	0.998
Langelier Index(25°C)	-	-		0.621	0.688	1.10	1.06	0.864
Saturation pH (25°C)	-	-		7.37	7.30	6.60	6.72	7.09
pH (Client Data)	pH units	-		7.78	7.84	7.41	7.67	7.62
Temperature (Client Data)	°C	-		9.7	12.9	8.9	9.1	11.5



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.	MW18A	MW18B	MW19	MW22	MW22A
	Sample I.D.	24-031227-11	24-031227-12	24-031227-13	24-031227-14	24-031227-15
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units** / **R.L.**	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L / 5	440	492	460	335	336
TDS (Calc. from Cond.)	mg/L / 3	604	628	532	421	737
Conductivity @25°C	uS/cm / 1	1120	1170	997	801	1360
pH @25°C	pH units / -	7.75	7.66	7.78	7.76	7.76
Fluoride	mg/L / 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L / 0.5	103	85.1	39.7	55.6	234
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	<1	<1	18	<1	7
Phosphorus (Total)	mg/L / 0.01	0.05	0.06	0.13	0.08	0.11
Total Kjeldahl Nitrogen	mg/L / 0.1	2.7	2.7	0.4	2.9	1.4
Ammonia (N)-Total (NH3+NH4)	mg/L / 0.05	2.22	2.23	0.09	2.40	0.84
Dissolved Organic Carbon	mg/L / 0.2	12.0	14.6	9.0	15.7	9.4
Phenolics	mg/L / 0.001	<0.001	<0.001	<0.001	<0.001	<0.001
COD	mg/L / 5	42	43	25	54	50
Hardness (as CaCO3)	mg/L / 0.02	498	520	519	360	448
Aluminum	mg/L / 0.01	0.04	0.06	0.06	0.03	0.06
Barium	mg/L / 0.001	0.282	0.302	0.223	0.093	0.182
Boron	mg/L / 0.005	0.305	0.192	0.118	0.205	0.048
Calcium	mg/L / 0.02	145	184	172	96.7	158
Iron	mg/L / 0.005	4.44	11.6	0.511	3.67	3.50



Michelle Dubien
Data Specialist

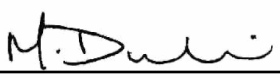
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	MW18A	MW18B	MW19	MW22	MW22A
			Sample I.D.	24-031227-11	24-031227-12	24-031227-13	24-031227-14	24-031227-15
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units	R.L.		-	-	-	-	-
Magnesium	mg/L	0.02		32.8	14.5	21.3	28.7	13.0
Manganese	mg/L	0.001		0.167	0.544	0.155	0.060	0.192
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		8.4	6.0	4.7	8.8	2.7
Sodium	mg/L	0.2		46.0	49.6	21.4	29.4	103
Strontium	mg/L	0.001		1.78	0.522	0.381	2.12	1.01
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		0.0002	0.0002	0.0001	0.0001	<0.0001
Arsenic	mg/L	0.0001		0.0001	0.0002	0.0003	0.0013	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		0.0006	0.0008	0.0016	0.0003	0.0004
Copper	mg/L	0.0001		0.0003	0.0003	0.0029	0.0003	0.0003
Lead	mg/L	0.00002		<0.00002	<0.00002	0.00002	0.00004	<0.00002
Molybdenum	mg/L	0.0001		<0.0001	<0.0001	0.0003	0.0002	<0.0001
Nickel	mg/L	0.0002		0.0017	0.0016	0.0037	0.0003	<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

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.

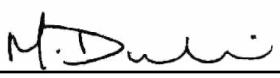
Parameter	Units	R.L.	Client I.D.	MW18A	MW18B	MW19	MW22	MW22A
			Sample I.D.	24-031227-11	24-031227-12	24-031227-13	24-031227-14	24-031227-15
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		<0.00005	0.00026	0.00271	<0.00005	0.00008
Vanadium	mg/L	0.0001		0.0006	0.0012	<0.0001	0.0014	0.0019
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	-		11.7	12.2	10.7	8.26	13.4
Cation Sum	meq/L	-		12.4	13.3	11.5	8.94	13.7
% Difference	%	-		3.11	4.33	3.43	3.95	0.972
Ion Ratio	-	-		0.940	0.917	0.934	0.924	0.981
Sodium Adsorption Ratio	-	-		0.896	0.947	0.409	0.675	2.12
TDS (Ion Sum Calc)	mg/L	1		604	647	555	424	722
TDS(calc.)/EC(actual)	-	-		0.537	0.554	0.556	0.529	0.531
Conductivity Calc	µmho/cm	-		1100	1120	987	786	1320
Conductivity Calc / Conductivity	-	-		0.975	0.964	0.990	0.981	0.975
Langelier Index(25°C)	-	-		1.08	1.14	1.21	0.808	1.00
Saturation pH (25°C)	-	-		6.67	6.52	6.57	6.95	6.76
pH (Client Data)	pH units	-		7.75	7.64	7.34	7.98	8.22
Temperature (Client Data)	°C	-		10.2	10.5	9.5	9.0	10.5



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.

Parameter	Units	R.L.	Client I.D.	MW22B	MW23	MW23A	MW23B
			Sample I.D.	24-031227-16	24-031227-17	24-031227-18	24-031227-19
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		1620	421	242	153
TDS (Calc. from Cond.)	mg/L	3		2240	539	264	155
Conductivity @25°C	uS/cm	1		3990	1010	510	303
pH @25°C	pH units	-		7.70	7.86	8.01	8.10
Fluoride	mg/L	0.1		<0.7	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		368	72.7	10.0	<0.5
Nitrate (N)	mg/L	0.05		<0.40	<0.05	0.09	0.09
Nitrite (N)	mg/L	0.05		<0.40	<0.05	<0.05	<0.05
Sulphate	mg/L	1		14	<1	6	<1
Phosphorus (Total)	mg/L	0.01		2.14	0.03	0.02	0.10
Total Kjeldahl Nitrogen	mg/L	0.1		239	2.0	0.4	0.5
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		226	0.77	0.32	0.34
Dissolved Organic Carbon	mg/L	0.2		86.7	12.2	2.9	2.8
Phenolics	mg/L	0.001		0.006	<0.001	<0.001	<0.001
COD	mg/L	5		330	46	11	16
Hardness (as CaCO3)	mg/L	0.02		937	475	257	156
Aluminum	mg/L	0.01		0.17	0.05	0.03	0.02
Barium	mg/L	0.001		0.197	0.182	0.072	0.007
Boron	mg/L	0.005		2.32	0.109	0.022	0.007
Calcium	mg/L	0.02		290	163	92.8	60.2
Iron	mg/L	0.005		36.6	5.82	0.153	0.070



Michelle Dubien
Data Specialist

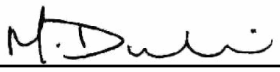
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	MW22B	MW23	MW23A	MW23B
			Sample I.D.	24-031227-16	24-031227-17	24-031227-18	24-031227-19
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units	R.L.		-	-	-	-
Magnesium	mg/L	0.02		51.9	16.4	5.97	1.38
Manganese	mg/L	0.001		6.23	0.145	0.022	0.098
Phosphorus	mg/L	0.1		2.4	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		166	3.6	1.3	0.4
Sodium	mg/L	0.2		283	32.8	6.9	1.0
Strontium	mg/L	0.001		1.07	0.910	0.202	0.114
Tin	mg/L	0.05		<0.05	<0.05	<0.05	<0.05
Titanium	mg/L	0.005		0.022	<0.005	<0.005	<0.005
Zinc	mg/L	0.005		0.062	<0.005	<0.005	<0.005
Antimony	mg/L	0.0001		0.0005	<0.0001	<0.0001	0.0002
Arsenic	mg/L	0.0001		0.0027	<0.0001	<0.0001	0.0001
Beryllium	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	mg/L	0.000015		0.000056	<0.000015	<0.000015	<0.000015
Chromium	mg/L	0.001		0.013	<0.001	<0.001	<0.001
Cobalt	mg/L	0.0001		0.0119	0.0007	0.0004	0.0004
Copper	mg/L	0.0001		0.0023	0.0003	0.0011	0.0006
Lead	mg/L	0.00002		0.00134	<0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.0001		0.0004	<0.0001	<0.0001	0.0002
Nickel	mg/L	0.0002		0.0242	0.0008	0.0003	<0.0002
Selenium	mg/L	0.001		<0.001	<0.001	<0.001	<0.001
Silver	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001

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.	MW22B	MW23	MW23A	MW23B
			Sample I.D.	24-031227-16	24-031227-17	24-031227-18	24-031227-19
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units	R.L.		-	-	-	-
Thallium	mg/L	0.00005		<0.00005	<0.00005	<0.00005	<0.00005
Uranium	mg/L	0.00005		0.00010	<0.00005	0.00041	0.00012
Vanadium	mg/L	0.0001		0.0058	0.0006	0.0002	0.0004
Chromium (VI)	mg/L	0.01		<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.00002		<0.00002	<0.00002	<0.00002	<0.00002
Anion Sum	meq/L	-		43.0	10.5	5.24	3.08
Cation Sum	meq/L	-		37.5	11.3	5.47	3.18
% Difference	%	-		6.85	4.01	2.16	1.69
Ion Ratio	-	-		1.15	0.923	0.958	0.967
Sodium Adsorption Ratio	-	-		4.02	0.655	0.188	0.0358
TDS (Ion Sum Calc)	mg/L	1		2190	548	268	156
TDS(calc.)/EC(actual)	-	-		0.548	0.543	0.526	0.515
Conductivity Calc	µmho/cm	-		3140	985	499	296
Conductivity Calc / Conductivity	-	-		0.786	0.976	0.979	0.978
Langelier Index(25°C)	-	-		1.85	1.22	0.918	0.663
Saturation pH (25°C)	-	-		5.85	6.64	7.09	7.44
pH (Client Data)	pH units	-		7.15	7.87	7.98	8.25
Temperature (Client Data)	°C	-		8.5	8.7	8.5	11.3



Michelle Dubien
Data Specialist

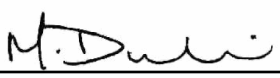
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

	Client I.D.	MW12	MW14	MW15	MW15A	MW15B
	Sample I.D.	24-031227-3	24-031227-6	24-031227-7	24-031227-8	24-031227-9
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
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

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.

Parameter	Units	R.L.	Client I.D.	MW12	MW14	MW15	MW15A	MW15B
			Sample I.D.	24-031227-3	24-031227-6	24-031227-7	24-031227-8	24-031227-9
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
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

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.	MW15	MW15A	MW15B
			Sample I.D.	24-031227-7	24-031227-8	24-031227-9
			Date Collected	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05		<0.05	<0.05	<0.05
Identification Comment	-	-		-	-	-

Elevated RLs due to sample matrix interferences

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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-031306 - 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: 2024-Oct-08
DATE REPORTED: 2024-Oct-22
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)	20	OTTAWA	LMACGREGOR	2024-Oct-12	A-IC-01	SM 4110B
BOD5 (Liquid)	20	KINGSTON	JWOLFE2	2024-Oct-11	BOD-001	SM 5210B
COD (Liquid)	20	KINGSTON	EHINCH	2024-Oct-11	COD-001	SM 5220D
Colour (Liquid)	20	OTTAWA	STAILLON	2024-Oct-10	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	20	OTTAWA	SBOUDREAU	2024-Oct-11	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	20	KINGSTON	EHINCH	2024-Oct-09	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	20	OTTAWA	TPRICE	2024-Oct-17	C-OC-01	EPA 415.2
Ion Balance (Calc.)	20	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	20	OTTAWA	STAILLON	2024-Oct-11	D-CRVI-01	MECP E3056
ICP/MS (Liquid)	20	OTTAWA	AOZKAYMAK	2024-Oct-10	D-ICPMS-01	EPA 200.8
ICP/OES (Liquid)	20	OTTAWA	APRUDYVUS	2024-Oct-09	D-ICP-01	SM 3120B
Mercury (Liquid)	20	OTTAWA	TBENNETT	2024-Oct-11	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	20	KINGSTON	JYEARWOOD	2024-Oct-16	NH3-001	SM 4500NH3
PCB's (Liquid)	9	KINGSTON	CSUMMERHAYS	2024-Oct-11	PCB-001	EPA 8081
Phenols (Liquid)	20	KINGSTON	EHINCH	2024-Oct-16	PHEN-01	MECP E3179
TP & TKN (Liquid)	20	KINGSTON	KDIBBITS	2024-Oct-10	TPTKN-001	MECP E3516.2
TSS (Liquid)	20	KINGSTON	MCLOSS	2024-Oct-09	TSS-001	SM 2540D
Turbidity (Liquid)	20	OTTAWA	PLUSSIER	2024-Oct-09	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	16	RICHMOND_HILL	FLENA	2024-Oct-20	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.	WP1-10	WP2-10	WP3-10	WP-4-10	WP5-10
	Sample I.D.	24-031306-1	24-031306-2	24-031306-3	24-031306-4	24-031306-5
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L 5	280	421	371	547	266
TDS (Calc. from Cond.)	mg/L 3	300	451	409	604	286
Conductivity @25°C	uS/cm 1	579	855	780	1120	552
pH @25°C	pH units -	7.72	7.79	7.97	7.85	8.11
Colour	TCU 2	77	50	72	85	44
Turbidity	NTU 0.1	518	2050	148	414	1110
Fluoride	mg/L 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L 0.5	11.6	16.0	21.9	26.9	9.8
Nitrate (N)	mg/L 0.05	<0.05	<0.05	<0.05	0.12	0.20
Nitrite (N)	mg/L 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L 1	<1	<1	<1	<1	<1
BOD5	mg/L 3	3	15	4	6	5
Total Suspended Solids	mg/L 3	1120	2360	1080	880	500
Phosphorus (Total)	mg/L 0.01	1.00	2.17	0.90	0.63	0.13
Total Kjeldahl Nitrogen	mg/L 0.1	8.9	27.3	8.4	12.9	2.6
Ammonia (N)-Total (NH3+NH4)	mg/L 0.05	1.13	6.74	3.11	9.90	0.70
Ammonia (N)-unionized	mg/L 0.01	0.01	0.07	<0.01	0.02	<0.01
Dissolved Organic Carbon	mg/L 0.2	20.6	31.3	28.1	33.5	26.2
Cyanide (WAD)	mg/L 0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenolics	mg/L 0.001	0.011	<0.001	<0.001	<0.001	<0.001
COD	mg/L 5	564	1160	265	226	113

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.	WP1-10	WP2-10	WP3-10	WP-4-10	WP5-10
			Sample I.D.	24-031306-1	24-031306-2	24-031306-3	24-031306-4	24-031306-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02		279	392	346	454	236
Aluminum	mg/L	0.01		0.07	0.05	0.06	0.07	0.03
Barium	mg/L	0.001		0.038	0.071	0.046	0.229	0.047
Boron	mg/L	0.005		0.007	0.150	0.109	0.466	0.125
Calcium	mg/L	0.02		101	140	123	146	83.1
Iron	mg/L	0.005		0.486	20.8	0.667	0.745	6.79
Magnesium	mg/L	0.02		6.14	10.3	9.45	21.4	6.89
Manganese	mg/L	0.001		0.426	0.541	0.230	0.213	0.974
Phosphorus	mg/L	0.1		0.3	0.1	0.3	<0.1	<0.1
Potassium	mg/L	0.1		2.6	12.8	12.1	36.1	12.5
Sodium	mg/L	0.2		7.8	35.7	23.7	33.1	23.6
Strontium	mg/L	0.001		0.231	0.393	0.346	0.424	0.248
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		0.243	0.354	0.669	0.423	0.866
Antimony	mg/L	0.0001		<0.0001	0.0002	0.0001	0.0002	0.0001
Arsenic	mg/L	0.0001		0.0002	0.0010	0.0004	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		0.0004	0.0017	0.0007	0.0009	0.0008

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.	WP1-10	WP2-10	WP3-10	WP-4-10	WP5-10
			Sample I.D.	24-031306-1	24-031306-2	24-031306-3	24-031306-4	24-031306-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper	mg/L	0.0001		0.0003	0.0005	0.0005	0.0004	0.0005
Lead	mg/L	0.00002		0.00006	0.00008	0.00007	0.00006	<0.00002
Molybdenum	mg/L	0.0001		<0.0001	0.0003	0.0001	<0.0001	0.0005
Nickel	mg/L	0.0002		<0.0002	0.0015	0.0009	0.0014	0.0010
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		<0.00005	<0.00005	<0.00005	<0.00005	0.00009
Vanadium	mg/L	0.0001		0.0006	0.0002	<0.0001	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	-		5.93	8.87	8.03	11.7	5.61
Cation Sum	meq/L	-		6.02	10.9	8.33	11.5	6.50
% Difference	%	-		0.788	10.1	1.81	0.814	7.32
Ion Ratio	-	-		0.984	0.816	0.964	1.02	0.864
Sodium Adsorption Ratio	-	-		0.202	0.785	0.555	0.676	0.669
TDS (Ion Sum Calc)	mg/L	1		299	489	414	594	304
TDS(calc.)/EC(actual)	-	-		0.516	0.572	0.530	0.528	0.551
Conductivity Calc	µmho/cm	-		549	823	742	1020	539
Conductivity Calc / Conductivity	-	-		0.949	0.963	0.951	0.907	0.977
Langelier Index(25°C)	-	-		0.731	1.10	1.17	1.28	1.01

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.	WP1-10	WP2-10	WP3-10	WP-4-10	WP5-10
			Sample I.D.	24-031306-1	24-031306-2	24-031306-3	24-031306-4	24-031306-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		6.99	6.69	6.80	6.57	7.10
pH (Client Data)	pH units	-		7.72	7.67	7.15	6.93	7.10
Temperature (Client Data)	°C	-		9.9	11.7	12.5	12.6	13.6

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.

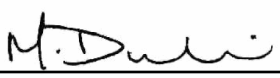
Parameter	Units	R.L.	Client I.D.	WP6-13	WP6-13-F	MW26	MW26-1	MW26-2
			Sample I.D.	24-031306-6	24-031306-7	24-031306-8	24-031306-9	24-031306-10
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		320	319	274	314	369
TDS (Calc. from Cond.)	mg/L	3		367	365	352	399	453
Conductivity @25°C	uS/cm	1		706	702	678	763	858
pH @25°C	pH units	-		8.04	8.16	8.12	8.13	7.97
Colour	TCU	2		9	10	2	4	5
Turbidity	NTU	0.1		1680	11.4	382	11.4	38.2
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		28.3	26.5	36.7	45.2	49.0
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		4	4	15	7	<1
BOD5	mg/L	3		3	<3	<3	<3	<3
Total Suspended Solids	mg/L	3		40400	5	59800	7	8
Phosphorus (Total)	mg/L	0.01		4.53	0.02	6.26	0.04	0.02
Total Kjeldahl Nitrogen	mg/L	0.1		2.2	<0.1	1.1	0.3	1.0
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.26	0.18	0.15	0.12	0.28
Ammonia (N)-unionized	mg/L	0.01		<0.01	0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2		11.7	9.6	4.6	5.9	8.5
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		143	20	147	15	21



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.

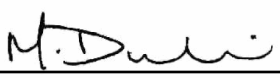
Parameter	Units	R.L.	Client I.D.	WP6-13	WP6-13-F	MW26	MW26-1	MW26-2
			Sample I.D.	24-031306-6	24-031306-7	24-031306-8	24-031306-9	24-031306-10
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02		342	369	326	373	427
Aluminum	mg/L	0.01		0.06	0.04	0.04	0.04	0.05
Barium	mg/L	0.001		0.220	0.209	0.159	0.202	0.205
Boron	mg/L	0.005		0.020	0.024	0.047	0.056	0.049
Calcium	mg/L	0.02		119	129	112	127	149
Iron	mg/L	0.005		0.017	1.94	0.720	1.24	3.32
Magnesium	mg/L	0.02		10.8	11.3	11.1	13.5	13.2
Manganese	mg/L	0.001		0.064	0.076	0.032	0.057	0.095
Phosphorus	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	0.1		2.6	2.5	2.9	3.0	2.8
Sodium	mg/L	0.2		8.3	9.1	17.1	22.4	24.2
Strontium	mg/L	0.001		0.442	0.492	0.385	0.546	0.615
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		0.085	<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		0.0004	<0.0001	<0.0001	<0.0001	<0.0001
Beryllium	mg/L	0.0001		0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	mg/L	0.000015		0.000130	<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		0.0042	0.0004	0.0003	0.0004	0.0017



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.

Parameter	Units	R.L.	Client I.D.	WP6-13	WP6-13-F	MW26	MW26-1	MW26-2
			Sample I.D.	24-031306-6	24-031306-7	24-031306-8	24-031306-9	24-031306-10
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
Copper	mg/L	0.0001		0.0005	<0.0001	<0.0001	0.0001	0.0002
Lead	mg/L	0.00002		0.00014	<0.00002	<0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.0001		<0.0002	<0.0001	0.0002	<0.0001	<0.0001
Nickel	mg/L	0.0002		0.0039	0.0003	0.0002	0.0004	0.0153
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	<0.00005	0.00031	0.00009	0.00005
Vanadium	mg/L	0.0001		0.0052	0.0007	0.0002	0.0003	0.0006
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	-		7.29	7.21	6.82	7.71	8.77
Cation Sum	meq/L	-		7.28	7.94	7.37	8.58	9.84
% Difference	%	-		0.0185	4.86	3.88	5.35	5.77
Ion Ratio	-	-		1.00	0.907	0.925	0.898	0.891
Sodium Adsorption Ratio	-	-		0.195	0.206	0.413	0.505	0.509
TDS (Ion Sum Calc)	mg/L	1		366	376	360	409	463
TDS(calc.)/EC(actual)	-	-		0.518	0.535	0.531	0.536	0.540
Conductivity Calc	µmho/cm	-		674	695	668	759	849
Conductivity Calc / Conductivity	-	-		0.955	0.990	0.985	0.994	0.989
Langelier Index(25°C)	-	-		1.17	1.32	1.15	1.27	1.25



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.	WP6-13	WP6-13-F	MW26	MW26-1	MW26-2
		Sample I.D.	24-031306-6	24-031306-7	24-031306-8	24-031306-9	24-031306-10
		Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**	-	-	-	-	-
Saturation pH (25°C)	-	-	6.87	6.84	6.97	6.86	6.72
pH (Client Data)	pH units	-	7.56		8.01	7.83	7.76
Temperature (Client Data)	°C	-	14.0		10.2	8.9	8.0

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.	MW27-I	MW27-II	MW27-III	MW28-I	MW28-II
	Sample I.D.	24-031306-11	24-031306-12	24-031306-13	24-031306-14	24-031306-15
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L 5	154	208	182	214	228
TDS (Calc. from Cond.)	mg/L 3	7040	243	241	283	290
Conductivity @25°C	uS/cm 1	12100	470	466	546	559
pH @25°C	pH units -	7.83	8.20	8.11	8.18	8.20
Colour	TCU 2	<2	4	<2	<2	<2
Turbidity	NTU 0.1	12.6	94.8	8150	4.8	2400
Fluoride	mg/L 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L 0.5	4180	11.5	22.6	31.2	27.4
Nitrate (N)	mg/L 0.05	<0.05	0.86	<0.05	<0.05	<0.05
Nitrite (N)	mg/L 0.05	13.0	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L 1	1	13	18	13	13
BOD5	mg/L 3	<3	<3	3	<3	<3
Total Suspended Solids	mg/L 3	24	116000	23600	7	379000
Phosphorus (Total)	mg/L 0.01	0.02	3.24	12.4	0.02	13.6
Total Kjeldahl Nitrogen	mg/L 0.1	9.2	1.3	4.5	0.2	1.2
Ammonia (N)-Total (NH3+NH4)	mg/L 0.05	8.47	0.27	0.10	0.07	0.11
Ammonia (N)-unionized	mg/L 0.01	0.03	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L 0.2	1.1	2.6	2.9	2.4	3.0
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	146	94	750	<5	219

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.	MW27-I	MW27-II	MW27-III	MW28-I	MW28-II
	Sample I.D.	24-031306-11	24-031306-12	24-031306-13	24-031306-14	24-031306-15
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units** / **R.L.**	-	-	-	-	-
Hardness (as CaCO3)	mg/L / 0.02	2570	230	238	262	282
Aluminum	mg/L / 0.01	0.10	0.03	0.03	0.02	0.11
Barium	mg/L / 0.001	2.46	0.063	0.153	0.124	0.120
Boron	mg/L / 0.005	1.16	0.013	0.011	0.020	0.018
Calcium	mg/L / 0.02	547	79.8	81.1	88.8	99.1
Iron	mg/L / 0.005	<0.005	0.005	0.241	0.442	0.480
Magnesium	mg/L / 0.02	291	7.33	8.67	9.86	8.40
Manganese	mg/L / 0.001	0.022	0.003	0.023	0.021	0.047
Phosphorus	mg/L / 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L / 0.1	56.1	1.7	2.0	2.4	2.4
Sodium	mg/L / 0.2	1430	11.0	4.0	14.3	13.0
Strontium	mg/L / 0.001	43.8	0.182	0.193	0.266	0.248
Tin	mg/L / 0.05	<0.06	<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	<0.021	<0.005	<0.005	<0.005	<0.005
Antimony	mg/L / 0.0001	0.0003	0.0001	0.0002	0.0001	0.0001
Arsenic	mg/L / 0.0001	<0.0003	0.0002	0.0002	<0.0001	0.0004
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	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L / 0.0001	0.0007	0.0003	0.0002	0.0002	0.0003



Michelle Dubien
Data Specialist

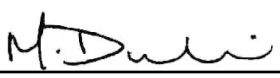
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

			Client I.D.	MW27-I	MW27-II	MW27-III	MW28-I	MW28-II
			Sample I.D.	24-031306-11	24-031306-12	24-031306-13	24-031306-14	24-031306-15
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Copper	mg/L	0.0001		0.0004	0.0004	0.0008	0.0002	0.0002
Lead	mg/L	0.00002		<0.00009	<0.00002	<0.00002	<0.00002	0.00015
Molybdenum	mg/L	0.0001		<0.0002	0.0003	0.0004	0.0002	0.0002
Nickel	mg/L	0.0002		<0.0002	0.0004	<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		0.0018	<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		<0.00005	0.00191	<0.00005	0.00018	0.00043
Vanadium	mg/L	0.0001		<0.0004	0.0003	0.0002	<0.0001	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	-		122	4.81	4.64	5.44	5.60
Cation Sum	meq/L	-		116	5.12	5.00	5.96	6.30
% Difference	%	-		2.39	3.04	3.76	4.48	5.83
Ion Ratio	-	-		1.05	0.941	0.927	0.914	0.890
Sodium Adsorption Ratio	-	-		12.2	0.316	0.112	0.385	0.337
TDS (Ion Sum Calc)	mg/L	1		6650	253	245	289	301
TDS(calc.)/EC(actual)	-	-		0.548	0.539	0.527	0.530	0.538
Conductivity Calc	µmho/cm	-		9570	471	469	548	568
Conductivity Calc / Conductivity	-	-		0.788	1.00	1.01	1.00	1.02
Langelier Index(25°C)	-	-		1.20	0.988	0.846	1.02	1.11

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.	MW27-I	MW27-II	MW27-III	MW28-I	MW28-II
		Sample I.D.	24-031306-11	24-031306-12	24-031306-13	24-031306-14	24-031306-15
		Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**	-	-	-	-	-
Saturation pH (25°C)	-	-	6.63	7.21	7.26	7.16	7.09
pH (Client Data)	pH units	-	7.33	7.98	8.31	7.56	7.92
Temperature (Client Data)	°C	-	9.8	9.2	10.9	8.4	8.2



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.		MW28-III	DUP	DUP-1	DUP-2	DUP-3
	Sample I.D.		24-031306-16	24-031306-17	24-031306-18	24-031306-19	24-031306-20
	Date Collected		2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units	R.L.	-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5	241	405	370	267	193
TDS (Calc. from Cond.)	mg/L	3	326	474	446	620	219
Conductivity @25°C	uS/cm	1	628	895	846	1150	424
pH @25°C	pH units	-	8.12	7.91	8.13	8.27	8.14
Colour	TCU	2	<2	3	6	15	60
Turbidity	NTU	0.1	822	136	33.6	46.1	1.6
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5	31.1	30.4	45.5	200	12.8
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	31	14	<1	4	2
BOD5	mg/L	3	<3	<3	<3	<3	<3
Total Suspended Solids	mg/L	3	118000	670	12	168	<3
Phosphorus (Total)	mg/L	0.01	1.45	0.12	0.02	0.08	0.04
Total Kjeldahl Nitrogen	mg/L	0.1	0.4	0.4	0.5	0.5	0.8
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	0.13	<0.05	0.22	0.14	0.12
Ammonia (N)-unionized	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2	3.3	9.4	8.7	5.8	15.2
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	65	27	24	30	44

Michelle Dubien
Data Specialist

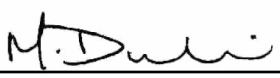
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

	Client I.D.	MW28-III	DUP	DUP-1	DUP-2	DUP-3
	Sample I.D.	24-031306-16	24-031306-17	24-031306-18	24-031306-19	24-031306-20
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	Units R.L.	-	-	-	-	-
Hardness (as CaCO3)	mg/L 0.02	305	522	416	467	218
Aluminum	mg/L 0.01	0.03	0.05	0.04	0.07	0.03
Barium	mg/L 0.001	0.132	0.224	0.199	0.054	0.038
Boron	mg/L 0.005	0.048	0.118	0.048	0.022	0.006
Calcium	mg/L 0.02	107	174	145	176	77.1
Iron	mg/L 0.005	0.427	0.495	3.15	2.55	0.331
Magnesium	mg/L 0.02	9.17	21.5	13.0	6.44	6.23
Manganese	mg/L 0.001	0.052	0.159	0.093	0.192	0.179
Phosphorus	mg/L 0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L 0.1	2.6	4.7	2.7	2.6	2.0
Sodium	mg/L 0.2	13.8	21.5	23.8	43.8	6.8
Strontium	mg/L 0.001	0.216	0.382	0.605	0.615	0.218
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	0.0002	0.0003	<0.0001	0.0001	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	0.0003	0.0016	0.0017	0.0004	0.0002

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.

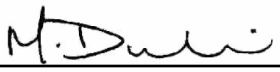
	Client I.D.		MW28-III	DUP	DUP-1	DUP-2	DUP-3
	Sample I.D.		24-031306-16	24-031306-17	24-031306-18	24-031306-19	24-031306-20
	Date Collected		2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**	-	-	-	-	-
Copper	mg/L	0.0001	0.0001	0.0031	<0.0001	0.0004	0.0001
Lead	mg/L	0.00002	<0.00002	0.00006	<0.00002	<0.00002	0.00005
Molybdenum	mg/L	0.0001	0.0004	0.0003	0.0001	0.0001	<0.0001
Nickel	mg/L	0.0002	<0.0002	0.0036	0.0156	<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
Uranium	mg/L	0.00005	0.00034	0.00271	0.00006	0.00017	0.00012
Vanadium	mg/L	0.0001	<0.0001	<0.0001	0.0006	0.0012	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	-	6.32	9.24	8.68	11.1	4.27
Cation Sum	meq/L	-	6.79	11.5	9.60	11.5	4.73
% Difference	%	-	3.62	11.0	5.05	1.69	5.17
Ion Ratio	-	-	0.930	0.802	0.904	0.967	0.902
Sodium Adsorption Ratio	-	-	0.343	0.409	0.508	0.882	0.200
TDS (Ion Sum Calc)	mg/L	1	339	509	455	597	224
TDS(calc.)/EC(actual)	-	-	0.540	0.569	0.538	0.518	0.527
Conductivity Calc	µmho/cm	-	625	935	832	1130	428
Conductivity Calc / Conductivity	-	-	0.996	1.04	0.984	0.983	1.01
Langelier Index(25°C)	-	-	1.08	1.29	1.40	1.47	0.881



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.	MW28-III	DUP	DUP-1	DUP-2	DUP-3
		Sample I.D.	24-031306-16	24-031306-17	24-031306-18	24-031306-19	24-031306-20
		Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**	-	-	-	-	-
Saturation pH (25°C)	-	-	7.04	6.62	6.73	6.80	7.26
pH (Client Data)	pH units	-	7.67	7.39	7.76	7.45	7.82
Temperature (Client Data)	°C	-	10.2	9.5	8.0	12.5	12.9



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.	WP1-10	WP2-10	WP3-10	WP-4-10	WP5-10
			Sample I.D.	24-031306-1	24-031306-2	24-031306-3	24-031306-4	24-031306-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
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

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.	WP1-10	WP2-10	WP3-10	WP-4-10	WP5-10
			Sample I.D.	24-031306-1	24-031306-2	24-031306-3	24-031306-4	24-031306-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
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	14	<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

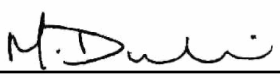
The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

	Client I.D.	WP6-13	WP6-13-F	MW26	MW26-1	MW26-2
	Sample I.D.	24-031306-6	24-031306-7	24-031306-8	24-031306-9	24-031306-10
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
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	1.8	1.8
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

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.

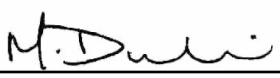
	Client I.D.	WP6-13	WP6-13-F	MW26	MW26-1	MW26-2
	Sample I.D.	24-031306-6	24-031306-7	24-031306-8	24-031306-9	24-031306-10
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units** / **R.L.**	-	-	-	-	-
Dichloropropene,1,3-trans-	µg/L / 0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	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

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.

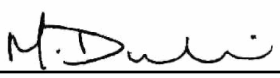
Parameter	Units	R.L.	Client I.D.	MW27-I	MW27-III	MW28-I	MW28-II	MW28-III
			Sample I.D.	24-031306-11	24-031306-13	24-031306-14	24-031306-15	24-031306-16
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
				-	-	-	-	-
Acetone	µg/L	30		<30	<30	<30	<30	<30
Benzene	µg/L	0.5		<0.5	<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

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.	MW27-I	MW27-III	MW28-I	MW28-II	MW28-III
			Sample I.D.	24-031306-11	24-031306-13	24-031306-14	24-031306-15	24-031306-16
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
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

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.	DUP-1
			Sample I.D.	24-031306-18
			Date Collected	2024-10-07
Parameter	Units	R.L.		-
Acetone	µg/L	30		<30
Benzene	µg/L	0.5		<0.5
Bromodichloromethane	µg/L	2		<2
Bromoform	µg/L	5		<5
Bromomethane	µg/L	0.5		<0.5
Carbon Tetrachloride	µg/L	0.2		<0.2
Chlorobenzene	µg/L	0.5		<0.5
Chloroform	µg/L	1		<1
Chloromethane (Methyl Chloride)	µg/L	2		<2
Dibromochloromethane	µg/L	2		<2
Ethylene Dibromide	µg/L	0.2		<0.2
Dichlorobenzene,1,2-	µg/L	0.5		<0.5
Dichlorobenzene,1,3-	µg/L	0.5		<0.5
Dichlorobenzene,1,4-	µg/L	0.5		<0.5
Dichloroethane,1,1-	µg/L	0.5		<0.5
Dichloroethane,1,2-	µg/L	0.5		<0.5
Dichloroethylene,1,1-	µg/L	0.5		<0.5
Dichloroethylene,1,2-cis-	µg/L	0.5		1.9
Dichloroethylene,1,2-trans-	µg/L	0.5		<0.5
Dichloropropane,1,2-	µg/L	0.5		<0.5
Dichloropropene,1,3-cis-	µg/L	0.5		<0.5

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.	DUP-1
			Sample I.D.	24-031306-18
			Date Collected	2024-10-07
Parameter	Units	R.L.		-
Dichloropropene,1,3-trans-	µg/L	0.5		<0.5
Ethylbenzene	µg/L	0.5		<0.5
Dichloromethane (Methylene Chloride)	µg/L	5		<5
Methyl Ethyl Ketone	µg/L	2		<2
Methyl Isobutyl Ketone	µg/L	20		<20
Methyl tert-Butyl Ether (MTBE)	µg/L	2		<2
Styrene	µg/L	0.5		<0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.5		<0.5
Tetrachloroethane,1,1,2,2-	µg/L	0.5		<0.5
Tetrachloroethylene	µg/L	0.5		<0.5
Toluene	µg/L	0.5		<0.5
Trichlorobenzene,1,2,4-	µg/L	0.5		<0.5
Trichloroethane,1,1,1-	µg/L	0.5		<0.5
Trichloroethane,1,1,2-	µg/L	0.5		<0.5
Trichloroethylene	µg/L	0.5		<0.5
Trichlorofluoromethane (Freon 11)	µg/L	5		<5
Vinyl Chloride	µg/L	0.2		<0.2
Xylene, m,p-	µg/L	1		<1
Xylene, o-	µg/L	0.5		<0.5

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.	MW26	MW26-1	MW26-2	MW27-I	MW27-II
		Sample I.D.	24-031306-8	24-031306-9	24-031306-10	24-031306-11	24-031306-12
		Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**	-	-	-	-	-
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Identification Comment	-	-	-	-	-	-	-

		Client I.D.	MW27-III	MW28-I	MW28-II	MW28-III
		Sample I.D.	24-031306-13	24-031306-14	24-031306-15	24-031306-16
		Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**	-	-	-	-
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05
Identification Comment	-	-	-	-	-	-

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.

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 24-031210 - 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: Bonnie Ferguson

DATE RECEIVED: 2024-Oct-08
DATE REPORTED: 2024-Oct-22
SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: Fenelon Falls Landfill
P.O. NUMBER:

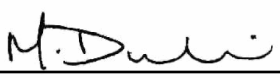
Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	6	OTTAWA	LMACGREGOR	2024-Oct-11	A-IC-01	SM 4110B
BOD5 (Liquid)	6	KINGSTON	JWOLFE2	2024-Oct-10	BOD-001	SM 5210B
COD (Liquid)	6	KINGSTON	EHINCH	2024-Oct-11	COD-001	SM 5220D
Colour (Liquid)	6	OTTAWA	STAILLON	2024-Oct-10	A-COL-01	SM 2120C
Cond/pH/Alk Auto (Liquid)	6	OTTAWA	SBOUDREAU	2024-Oct-09	COND-02/PH-02/ALK-02	SM 2510B/4500H/2320B
Cyanide WAD (Liquid)	6	KINGSTON	EHINCH	2024-Oct-09	CN-001	SM 4500-CN-E
DOC/DIC (Liquid)	6	OTTAWA	TPRICE	2024-Oct-17	C-OC-01	EPA 415.2
Ion Balance (Calc.)	6	OTTAWA	ASCHNEIDER		CP-028	MECP E3196
Chromium VI (Liquid)	6	OTTAWA	STAILLON	2024-Oct-16	D-CRVI-01	MECP E3056
ICP/MS Total (Liquid)	6	OTTAWA	AOZKAYMAK	2024-Oct-09	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	6	OTTAWA	NHOGAN	2024-Oct-10	D-ICP-01	SM 3120B
ICP/OES (Liquid)	6	OTTAWA	NHOGAN	2024-Oct-10	D-ICP-01	SM 3120B
Mercury (Liquid)	6	OTTAWA	TBENNETT	2024-Oct-10	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	6	KINGSTON	JYEARWOOD	2024-Oct-15	NH3-001	SM 4500NH3
PCB's (Liquid)	1	KINGSTON	CSUMMERHAYS	2024-Oct-11	PCB-001	EPA 8081
Phenols (Liquid)	6	KINGSTON	EHINCH	2024-Oct-15	PHEN-01	MECP E3179
TP & TKN (Liquid)	6	KINGSTON	KDIBBITS	2024-Oct-10	TPTKN-001	MECP E3516.2
TSS (Liquid)	6	KINGSTON	MCLOSS	2024-Oct-09	TSS-001	SM 2540D
Turbidity (Liquid)	6	OTTAWA	PLUSSIER	2024-Oct-09	A-TURB-01	SM 2130B
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2024-Oct-19	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	SW14 Original	SW13 - 30m
			Sample I.D.	24-031210-1	24-031210-2	24-031210-3	24-031210-4	24-031210-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Alkalinity(CaCO3) to pH4.5	mg/L	5		191	203	173	179	211
Conductivity @25°C	uS/cm	1		398	415	358	406	431
pH @25°C	pH units	-		8.07	8.00	7.79	7.70	7.87
Colour	TCU	2		31	60	71	67	78
Turbidity	NTU	0.1		0.7	8.2	26.4	6250	568
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5		10.8	13.0	10.9	10.6	14.9
Nitrate (N)	mg/L	0.05		0.25	<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		7	2	<1	<1	<1
BOD5	mg/L	3		<3	<3	7	17	18
Total Suspended Solids	mg/L	3		<3	104	124	4240	2680
Phosphorus (Total)	mg/L	0.01		0.01	0.03	0.24	8.14	0.59
Total Kjeldahl Nitrogen	mg/L	0.1		1.0	0.8	3.8	16.4	9.6
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.50	0.23	0.20	0.72	0.26
Ammonia (N)-unionized	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Organic Carbon	mg/L	0.2		10.7	17.4	23.3	24.9	30.0
Cyanide (WAD)	mg/L	0.005		<0.005	<0.005	<0.005	<0.170 (3.)	<0.008 (3.)
Phenolics	mg/L	0.001		<0.001	<0.001	<0.001	0.003	<0.001
COD	mg/L	5		24	48	123	7150	394
Aluminum	mg/L	0.01		0.04	0.06	0.04	0.05	0.05



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	SW14 Original	SW13 - 30m
			Sample I.D.	24-031210-1	24-031210-2	24-031210-3	24-031210-4	24-031210-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Hardness (as CaCO3)	mg/L	0.02		199	192	178	1210	229
Aluminum (Total)	mg/L	0.01		0.05	0.04	0.10	18.1	0.26
Barium (Total)	mg/L	0.001		0.033	0.034	0.053	0.773	0.037
Boron (Total)	mg/L	0.005		0.006	0.005	0.005	0.216	0.020
Calcium (Total)	mg/L	0.02		70.4	68.1	63.4	452	83.0
Iron (Total)	mg/L	0.005		0.019	0.314	1.24	105	2.97
Magnesium (Total)	mg/L	0.02		5.71	5.27	4.77	18.8	5.19
Manganese (Total)	mg/L	0.001		0.014	0.163	0.061	3.73	0.114
Phosphorus (Total)	mg/L	0.1		<0.1	<0.1	0.1	10.6	0.5
Potassium (Total)	mg/L	0.1		1.1	1.5	0.9	8.5	4.8
Sodium (Total)	mg/L	0.2		4.7	5.7	5.4	5.5	7.4
Strontium (Total)	mg/L	0.001		0.168	0.179	0.161	1.05	0.196
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	0.007	0.935	0.010
Zinc (Total)	mg/L	0.005		<0.005	<0.005	0.005	1.60	0.029
Antimony (Total)	mg/L	0.0001		0.0004	0.0003	0.0003	0.0012	0.0004
Arsenic (Total)	mg/L	0.0001		0.0002	0.0003	0.0003	0.0203	0.0008
Beryllium (Total)	mg/L	0.0001		<0.0001	<0.0001	<0.0001	0.0010	<0.0001
Cadmium (Total)	mg/L	0.000015		<0.000015	<0.000015	0.000015	0.00458	0.000128
Chromium (Total)	mg/L	0.001		<0.001	<0.001	<0.001	0.032	<0.001
Cobalt (Total)	mg/L	0.0001		0.0003	0.0003	0.0004	0.0213	0.0007

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.

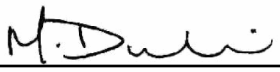
	Client I.D.	SW2	SW3	SW4	SW14 Original	SW13 - 30m
	Sample I.D.	24-031210-1	24-031210-2	24-031210-3	24-031210-4	24-031210-5
	Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units** / **R.L.**	-	-	-	-	-
Copper (Total)	mg/L / 0.0001	<0.0001	0.0001	0.0006	0.114	0.0029
Lead (Total)	mg/L / 0.00002	<0.00002	0.00005	0.00052	0.169	0.00374
Molybdenum (Total)	mg/L / 0.0001	0.0001	<0.0001	<0.0001	0.0054	0.0003
Nickel (Total)	mg/L / 0.0002	<0.0002	<0.0002	0.0003	0.0365	0.0011
Selenium (Total)	mg/L / 0.001	<0.001	<0.001	<0.001	0.008	<0.001
Silver (Total)	mg/L / 0.0001	<0.0001	<0.0001	<0.0001	0.0006	<0.0001
Thallium (Total)	mg/L / 0.00005	<0.00005	<0.00005	<0.00005	0.00077	<0.00005
Uranium (Total)	mg/L / 0.00005	0.00024	0.00012	0.00005	0.00836	0.00007
Vanadium (Total)	mg/L / 0.0001	0.0001	0.0001	0.0004	0.0536	0.0010
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	0.00048	0.00009
Anion Sum	meq/L / -	4.30	4.47	3.78	3.88	4.63
Cation Sum	meq/L / -	4.25	4.16	3.90	4.31	5.20
% Difference	% / -	0.529	3.63	1.53	5.31	5.73
Ion Ratio	- / -	1.01	1.08	0.970	0.899	0.892
Sodium Adsorption Ratio	- / -	0.145	0.179	0.176	0.154	0.211
TDS (Ion Sum Calc)	mg/L / 1	217	219	191	204	245
TDS(calc.)/EC(actual)	- / -	0.544	0.527	0.535	0.502	0.569
Conductivity Calc	µmho/cm / -	408	407	363	392	460
Conductivity Calc / Conductivity	- / -	1.02	0.982	1.02	0.965	1.07
Langelier Index(25°C)	- / -	0.767	0.708	0.409	0.370	0.680



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	SW14 Original	SW13 - 30m
			Sample I.D.	24-031210-1	24-031210-2	24-031210-3	24-031210-4	24-031210-5
			Date Collected	2024-10-07	2024-10-07	2024-10-07	2024-10-07	2024-10-07
Parameter	**Units**	**R.L.**		-	-	-	-	-
Saturation pH (25°C)	-	-		7.30	7.29	7.38	7.33	7.19
pH (Client Data)	pH units	-		7.74	7.82	7.68	7.42	7.06
Temperature (Client Data)	°C	-		14.0	12.9	16.1	15.3	12.1



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.	SW17
			Sample I.D.	24-031210-6
			Date Collected	2024-10-07
Parameter	Units	R.L.		-
Alkalinity(CaCO3) to pH4.5	mg/L	5		204
Conductivity @25°C	uS/cm	1		414
pH @25°C	pH units	-		7.94
Colour	TCU	2		85
Turbidity	NTU	0.1		14.4
Fluoride	mg/L	0.1		<0.1
Chloride	mg/L	0.5		12.4
Nitrate (N)	mg/L	0.05		0.09
Nitrite (N)	mg/L	0.05		<0.05
Sulphate	mg/L	1		<1
BOD5	mg/L	3		<3
Total Suspended Solids	mg/L	3		34
Phosphorus (Total)	mg/L	0.01		0.36
Total Kjeldahl Nitrogen	mg/L	0.1		4.3
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05		0.12
Ammonia (N)-unionized	mg/L	0.01		<0.01
Dissolved Organic Carbon	mg/L	0.2		22.3
Cyanide (WAD)	mg/L	0.005		<0.005
Phenolics	mg/L	0.001		<0.001
COD	mg/L	5		227
Aluminum	mg/L	0.01		0.05

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.	SW17
			Sample I.D.	24-031210-6
			Date Collected	2024-10-07
Parameter	Units	R.L.		-
Hardness (as CaCO3)	mg/L	0.02		216
Aluminum (Total)	mg/L	0.01		0.95
Barium (Total)	mg/L	0.001		0.033
Boron (Total)	mg/L	0.005		0.008
Calcium (Total)	mg/L	0.02		78.0
Iron (Total)	mg/L	0.005		1.89
Magnesium (Total)	mg/L	0.02		5.09
Manganese (Total)	mg/L	0.001		0.201
Phosphorus (Total)	mg/L	0.1		0.4
Potassium (Total)	mg/L	0.1		5.2
Sodium (Total)	mg/L	0.2		4.6
Strontium (Total)	mg/L	0.001		0.181
Tin (Total)	mg/L	0.05		<0.05
Titanium (Total)	mg/L	0.005		0.055
Zinc (Total)	mg/L	0.005		0.021
Antimony (Total)	mg/L	0.0001		0.0004
Arsenic (Total)	mg/L	0.0001		0.0008
Beryllium (Total)	mg/L	0.0001		<0.0001
Cadmium (Total)	mg/L	0.000015		0.000053
Chromium (Total)	mg/L	0.001		0.001
Cobalt (Total)	mg/L	0.0001		0.0009

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.	SW17
			Sample I.D.	24-031210-6
			Date Collected	2024-10-07
Parameter	Units	R.L.		-
Copper (Total)	mg/L	0.0001		0.0042
Lead (Total)	mg/L	0.00002		0.00232
Molybdenum (Total)	mg/L	0.0001		0.0001
Nickel (Total)	mg/L	0.0002		0.0016
Selenium (Total)	mg/L	0.001		<0.001
Silver (Total)	mg/L	0.0001		<0.0001
Thallium (Total)	mg/L	0.00005		<0.00005
Uranium (Total)	mg/L	0.00005		0.00007
Vanadium (Total)	mg/L	0.0001		0.0023
Chromium (VI)	mg/L	0.001		<0.001
Mercury	mg/L	0.00002		<0.00002
Anion Sum	meq/L	-		4.43
Cation Sum	meq/L	-		4.77
% Difference	%	-		3.65
Ion Ratio	-	-		0.930
Sodium Adsorption Ratio	-	-		0.137
TDS (Ion Sum Calc)	mg/L	1		230
TDS(calc.)/EC(actual)	-	-		0.556
Conductivity Calc	µmho/cm	-		433
Conductivity Calc / Conductivity	-	-		1.04
Langelier Index(25°C)	-	-		0.709

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.	SW17
		Sample I.D.	24-031210-6
		Date Collected	2024-10-07
Parameter	Units	R.L.	-
Saturation pH (25°C)	-	-	7.23
pH (Client Data)	pH units	-	7.84
Temperature (Client Data)	°C	-	17.1

		Client I.D.	SW14 Original
		Sample I.D.	24-031210-4
		Date Collected	2024-10-07
Parameter	Units	R.L.	-
Toluene	µg/L	0.5	2.2

		Client I.D.	SW3
		Sample I.D.	24-031210-2
		Date Collected	2024-10-07
Parameter	Units	R.L.	-
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05	<0.05
Identification Comment	-	-	-

Comments:

3. Elevated RL due to sample matrix interferences/dilution

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.

APPENDIX E

Chemistry Summary Tables

Summary of Ground Water Chemistry

Parameters	Units	ODWQS	RUP (BR/L. OB)	RUP (S. OB)	MW2 15-Apr-15	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	MW3 15-Apr-15	MW3 27-Apr-16	MW3 17-Apr-17	MW3 25-Apr-18
Total Alkalinity	mg/L	500	360	381	**502**	456	**582**	**605**	**608**	**636**	**597**	**625**	**719**	**767**	**1490**	**1400**	**1420**	**1260**
Calcium	mg/L	-	-	-	168	149	174	197	196	206	186	171	199	196	301	265	286	254
Chloride	mg/L	250	132	198	88.1	78.4	62.3	51.8	39.1	23.2	40.1	49.4	50.9	82.8	147	181	153	81.3
COD	mg/L	-	-	-	48	46	52	60	60	50	64	72	70	93	205	203	202	189
Specific Conductivity	umhos/cm	-	-	-	1200	1120	1280	1220	1350	1340	1350	1440	1477	1720	3010	3000	2950	2380
DOC	mg/L	5	-	-	**12**	**10**	**15.6**	**16.5**	**18**	**17.5**	**18.3**	**11.7**	**9.9**	**29.6**	**78.9**	**27.3**	**65.9**	**29.1**
Fluoride	mg/L	1.5	0.45	0.45	0.2	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
Iron	mg/L	0.3	-	-	**36.7**	**31.9**	< 0.005	**40.7**		**49.6**	**50.5**	**48.5**	**57.8**	**56.2**	**49.2**	**41**	**31**	**24.4**
Magnesium	mg/L	-	-	-	11.9	9.66	10.8	12.4	14.4	17.4	15.8	19.2	20.2	20.2	48.3	36.4	30.7	31.5
Manganese	mg/L	0.05	-	-	**0.64**	**0.695**	**0.832**	**0.727**	**0.798**	**1.01**	**0.975**	**0.812**	**1.04**	**0.705**	**0.84**	**0.738**	**0.626**	**0.43**
Nitrate	mg/L	10	2.5	2.5	0.2	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
Nitrite	mg/L	1	0.3	0.3	< 0.1	< 0.1	0.7	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.40	< 0.1	< 0.1	**1.6**	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.11	7.45	7.29	7.4	7.48	7.19	7.05	7.25	7.25	7.23	6.94	7.16	7.26	7.57
Phenols	mg/L	-	-	-	< 0.001	0.008	< 0.001	< 0.001	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.023	< 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	-	-	-	19.9	18.3	19.3	25.2	33.3	40	47.1	54.5	61.4	62.2	131	126	143	147
Sodium	mg/L	200	106	121	59.6	63.4	57.8	57.8	30.4	23.9	34.5	35.2	29.6	43.9	111	157	148	99.8
Sulphate	mg/L	500	251	252	14	14	6	7	4	12	3	< 1	2	13	7	< 1	< 1	< 1
TDS	mg/L	500	372	512	**716**	**653**	**714**	**741**	**721**	**743**	**743**	**705**	**909**	**940**	**1810**	**1650**	**1730**	**1523**
Tot Kjel N	mg/L	-	-	-	13.1	12.3	25.1	23.1	31.8	33.7	45.2	48.2	48	56.6	107	116	105	101
Ammonia (NH3-N)	mg/L	-	-	-	11.7	10.2	23.8	20.4	30.2	29.3	44	44.4	43.5	56.1	92.5	113	87	101
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	468	412	479	**543**	**549**	**587**	**530**	**506**	**581**	**542**	**952**	**812**	**841**	**764**
BOD	mg/L	-	-	-	--	--	--								--	--	--	
Cyanide (free)	mg/L	-	-	-	--	--	--								--	--	--	
TSS	mg/L	-	-	-	--	--	--								--	--	--	
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.05	0.1	**0.11**	0.1	**0.11**	0.09	0.09	0.07	**0.11**	**0.11**	0.1	**0.14**	**0.15**
Antimony	mg/L	0.006	0.002	0.002	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0005	0.0002	0.0002	0.0003
Arsenic	mg/L	0.025	0.006	0.006	0.0058	0.005	0.0072	0.0041	0.0052	0.0043	0.0048	0.0055	0.0048	0.0066	0.0031	0.0021	0.0021	0.0009
Barium	mg/L	1	0.32	0.28	0.644	0.511	0.696	0.786	0.89	0.99	0.995	0.979	**1.14**	**1.14**	0.697	0.581	0.674	0.657
Beryllium	mg/L	-	-	-	< 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	< 0.002
Boron	mg/L	5	1.3	1.3	0.219	0.183	0.25	0.336	0.357	0.367	0.481	0.421	0.448	0.557	0.646	0.442	0.404	0.461
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.00002	< 0.00002	< 0.000020	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	<0.000015	< 0.00002	< 0.00002	< 0.000020	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.0002	< 0.0002	0.003	0.001	0.001	0.001	0.001	0.001	< 0.001	<0.01	< 0.0002	< 0.0002	0.005	0.003
Chromium (VI)	mg/L	-	-	-								< 0.001	< 0.001	<0.01				
Cobalt	mg/L	-	-	-	0.011	0.009	0.015	0.005	0.011	0.012	0.016	0.014	0.023	0.0192	0.008	0.009	0.009	0.016
Copper	mg/L	1	0.5	0.5	0.0008	0.0007	0.0004	0.0005	0.0005	0.0004	0.0012	0.0003	0.0002	0.0007	0.001	0.0012	0.0023	0.0004
Lead	mg/L	0.01	0.003	0.003	< 0.00002	0.00002	< 0.00002	0.00003	0.00002	< 0.00004	0.00009	< 0.00004	< 0.00004	0.00004	< 0.00002	0.00004	< 0.00002	0.00011
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	0.0006	0.0005	0.0004	0.0004	0.0008	0.0005	0.0007	0.0005	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	< 0.01	0.0098	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.003	0.004	< 0.001	< 0.001	0.002	0.003	< 0.001	< 0.001	< 0.001	0.002	< 0.001	<0.001	0.003	< 0.001	0.001	0.01
Silver	mg/L	-	-	-	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	-	-	-	0.481	0.416	0.46	0.526	0.553	0.578	0.528	0.462	0.587	0.621	1.06	0.882	0.877	0.846
Thallium	mg/L	-	-	-	0.00013	< 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
Vanadium	mg/L	-	-	-	0.0064	0.003	0.0054	0.0021	0.0024	0.0022	0.0034	0.0039	0.004	0.0047	0.0214	0.0108	0.0155	0.0058
Zinc	mg/L	5	2.5	2.5	< 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	< 0.005

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 11-Apr-19	MW3 22-Apr-20	MW3 19-Apr-21	MW3 20-Apr-22	MW3 19-Apr-23	MW3 17-Apr-24	MW3A 15-Apr-15	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
Total Alkalinity	mg/L	500	360	381	**1200**	**1050**	**1020**	**1030**	**1140**	**1170**	363	411	354	349	399	451	344	332
Calcium	mg/L	-	-	-	255	288	310	300	318	263	133	152	107	103	142	113	122	114
Chloride	mg/L	250	132	198	142	134	134	146	155	150	28.1	29.2	30.2	12.7	46.5	36.7	27.6	18.3
COD	mg/L	-	-	-	144	189	167	138	160	184	39	35	50	23	39	115	48	31
Specific Conductivity	umhos/cm	-	-	-	2700	2420	2430	2530	2466	2680	779	906	807	692	999	1070	865	746
DOC	mg/L	5	-	-	**28.9**	**26.1**	**27.2**	**15.3**	3.8	**75.6**	**15.3**	**11.3**	**14.5**	**8.4**	**16.7**	**15.5**	**12.8**	**11.6**
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 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
Iron	mg/L	0.3	-	-	**23.1**	**28.2**	**23**	**22.4**	**26.2**	**22.3**	5	**13.6**	0.207	0.034	**6.31**	**9.53**	**3.7**	**4.55**
Magnesium	mg/L	-	-	-	31.3	30.8	24.1	23.9	23.6	24.5	5.93	7.5	7.54	5.96	9.96	7.64	5.54	5.97
Manganese	mg/L	0.05	-	-	**0.425**	**0.518**	**0.385**	**0.343**	**0.351**	**0.272**	**0.457**	**0.577**	**0.344**	**0.202**	**0.38**	**0.282**	**0.196**	**0.219**
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	< 0.05	< 0.3	< 0.05	<0.40	0.1	0.2	0.3	0.19	0.18	0.24	0.11	0.23
Nitrite	mg/L	1	0.3	0.3	< 0.05	< 0.05	< 0.05	< 0.3	< 0.05	0.5	< 0.1	< 0.1	0.4	< 0.05	0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.6	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
Phenols	mg/L	-	-	-	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	0.017	0.001	< 0.001	< 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	< 0.1
Potassium	mg/L	-	-	-	137	110	107	95	103	117	11.1	13.6	25.5	28.1	27.7	23.2	14.8	12.8
Sodium	mg/L	200	106	121	138	116	110	116	118	117	6.1	25.2	21.6	5	15.6	15.5	9.7	13.2
Sulphate	mg/L	500	251	252	< 1	< 1	< 1	< 5	< 1	12	11	12	12	5	16	18	33	16
TDS	mg/L	500	372	512	**1575**	**1391**	**1395**	**1301**	**1513**	**1490**	430	**512**	460	383	**523**	**518**	444	379
Tot Kjel N	mg/L	-	-	-	96	78.4	78.3	72.6	74.8	120	9.9	10.4	33.9	10.9	15	30.5	17.7	10.9
Ammonia (NH3-N)	mg/L	-	-	-	99.9	63.2	77.8	60.5	67.7	105	8.96	8.65	30.9	10.3	15.5	25.7	19.4	8.99
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	**766**	**847**	**874**	**848**	**891**	**758**	356	410	299	282	396	314	328	310
BOD	mg/L	-	-	-							--	--	--					
Cyanide (free)	mg/L	-	-	-							--	--	--					
TSS	mg/L	-	-	-							--	--	--					
Aluminum	mg/L	0.1	0.06	0.09	**0.13**	**0.14**	**0.14**	**0.14**	**0.11**	**0.14**	0.04	0.04	0.06	0.05	0.08	0.07	0.08	0.06
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	0.0008	0.0005	0.0006	0.0005	0.0006	0.0008	0.0004	0.0007	0.0007	0.0002	0.0004	0.0003	0.0002	0.0002
Barium	mg/L	1	0.32	0.28	0.628	0.543	0.559	0.494	0.574	0.61	0.053	0.069	0.097	0.075	0.096	0.083	0.056	0.05
Beryllium	mg/L	-	-	-	< 0.002	< 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
Boron	mg/L	5	1.3	1.3	0.438	0.264	0.284	0.196	0.278	0.517	0.091	0.128	0.15	0.151	0.152	0.132	0.11	0.111
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000015	< 0.000029	< 0.000029	< 0.000029	< 0.000029	<0.000015	< 0.00002	< 0.00002	< 0.000020	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	0.003	0.003	0.003	0.003	0.002	<0.01	0.0019	< 0.0002	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	-	-	-				< 0.001	< 0.001	<0.01								< 0.001
Cobalt	mg/L	-	-	-	0.008	0.006	< 0.005	< 0.005	0.006	0.0038	< 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	0.0002	0.0015	0.0004	0.0002	0.0019	0.0032	0.0024	0.0025	0.0012	0.0038	0.0015	0.0041	0.0029
Lead	mg/L	0.01	0.003	0.003	0.00003	< 0.00009	0.00013	< 0.00009	< 0.00009	0.00007	0.00006	0.00002	< 0.00002	0.00004	0.00002	0.00002	0.00007	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	0.0009	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0001
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0053	< 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	0.002	0.003	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	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.911	0.919	0.998	0.935	1	0.878	0.328	0.377	0.292	0.237	0.424	0.289	0.321	0.291
Thallium	mg/L	-	-	-	< 0.00005	< 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
Vanadium	mg/L	-	-	-	0.0063	0.0051	0.0052	0.0061	0.0066	0.0071	0.0039	0.0027	0.0039	0.0005	0.0011	0.0011	0.0008	0.0009
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	0.012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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)	MW3A 19-Apr-23	MW3A 17-Apr-24	MW5 15-Apr-15	MW5 27-Apr-16	MW5 17-Apr-17	MW5 25-Apr-18	MW5 11-Apr-19	MW5 22-Apr-20	MW5 19-Apr-21	MW5 20-Apr-22	MW5 19-Apr-23	MW5 17-Apr-24	MW5A 15-Apr-15	MW5A 27-Apr-16
Total Alkalinity	mg/L	500	360	381	242	252	**562**	**575**	**717**	396	**829**	**914**	**844**	**968**	**886**	**707**	309	282
Calcium	mg/L	-	-	-	90.8	95.5	184	236	79.6	189	273	339	374	314	293	225	141	129
Chloride	mg/L	250	132	198	10.5	10	**458**	**424**	58.3	50	91.7	72	90.5	42.8	41.5	81.2	118	104
COD	mg/L	-	-	-	19	28	21	34	16	59	160	424	225	173	334	314	36	31
Specific Conductivity	umhos/cm	-	-	-	546	553	2320	2370	1510	1070	1840	2040	1930	1980	1703	1620	961	890
DOC	mg/L	5	-	-	**5.2**	**9.9**	3.3	1.8	**6.5**	**19**	**75**	**25.8**	**20.5**	**12.3**	**18.9**	**81.1**	**8.5**	**7.5**
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	<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
Iron	mg/L	0.3	-	-	**1.61**	**1.65**	0.021	0.01	0.006	**0.322**	**8.51**	**92.4**	**103**	**109**	**49.5**	**28.1**	**3.45**	0.04
Magnesium	mg/L	-	-	-	3.44	3.95	8.32	10.7	2.91	9.67	32.8	28.8	24.5	30.3	27.5	18.5	9.34	8.43
Manganese	mg/L	0.05	-	-	**0.139**	**0.135**	0.005	0.003	< 0.001	**4.01**	**6.8**	**7.7**	**8.65**	**3.35**	**3.13**	**1.95**	**0.5**	0.001
Nitrate	mg/L	10	2.5	2.5	0.35	0.27	1.8	2.2	3.1	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	<0.40	< 0.1	0.2
Nitrite	mg/L	1	0.3	0.3	0.06	0.07	< 0.1	< 0.1	0.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.40	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.75	7.6	7.32	7.6	7.81	7.79	7.76	7.07	6.92	7.16	7.36	7.17	7.49	8.01
Phenols	mg/L	-	-	-	< 0.001	<0.001	< 0.001	0.016	< 0.001	< 0.001	0.089	0.106	0.004	0.01	0.072	0.018	< 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	-	-	-	7.9	5.7	2.9	3.2	1.9	1.9	2.2	16.8	10.9	111	59.1	44.8	3.5	3.2
Sodium	mg/L	200	106	121	5.1	5.7	**310**	**304**	**296**	58.7	79.1	93.8	90.9	58.1	47.5	73.7	62.4	48.8
Sulphate	mg/L	500	251	252	24	17	26	36	16	113	4	4	57	9	2	42	16	14
TDS	mg/L	500	372	512	298	287	**1340**	**1370**	**901**	**665**	**1005**	**1133**	**1166**	**1150**	**1081**	**884**	**539**	477
Tot Kjel N	mg/L	-	-	-	8.5	4.1	0.6	0.5	0.5	1.9	1.9	2.5	7.1	16.4	20.6	17.4	0.9	0.5
Ammonia (NH3-N)	mg/L	-	-	-	7.19	3.36	0.07	0.07	0.12	0.19	0.12	0.96	2.88	11.7	20.2	8.3	0.17	0.05
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	241	255	495	**633**	211	**512**	**817**	**966**	**1040**	**910**	**845**	**639**	391	358
BOD	mg/L	-	-	-			--	--	--								--	--
Cyanide (free)	mg/L	-	-	-			--	--	--								--	--
TSS	mg/L	-	-	-			--	--	--								--	--
Aluminum	mg/L	0.1	0.06	0.09	0.02	0.06	0.04	0.05	0.05	0.1	**0.12**	**0.13**	**0.15**	**0.14**	0.09	**0.12**	0.04	0.04
Antimony	mg/L	0.006	0.002	0.002	< 0.0001	<0.0001	< 0.0001	< 0.0001	0.0001	0.0003	0.0003	0.0002	0.0003	0.0002	0.0003	0.0003	< 0.0001	0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0002	0.0002	0.0003	0.0004	0.0004	0.0011	0.0053	0.0144	0.0109	0.0133	0.007	0.0086	0.0007	0.0002
Barium	mg/L	1	0.32	0.28	0.029	0.026	0.387	0.358	0.147	0.166	0.411	**1.07**	0.825	**2.19**	**1.33**	0.725	0.208	0.141
Beryllium	mg/L	-	-	-	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.066	0.064	0.087	0.06	0.045	0.832	0.88	0.398	1.5	1.64	0.49	0.759	0.034	0.006
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000010	<0.000015	< 0.00002	< 0.00002	< 0.000020	< 0.000015	< 0.000015	< 0.000029	< 0.000029	< 0.000015	< 0.000012	<0.000015	< 0.00002	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	<0.01	< 0.0002	< 0.0002	0.016	0.001	0.002	0.003	0.002	0.002	0.003	<0.01	0.0017	< 0.0002
Chromium (VI)	mg/L	-	-	-	< 0.001	<0.01								< 0.001	< 0.001	<0.01		
Cobalt	mg/L	-	-	-	0.007	0.0006	< 0.005	< 0.005	< 0.005	0.026	0.019	0.063	0.05	0.006	0.008	0.004	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0016	0.0018	0.0046	0.0049	0.0058	0.0053	0.0027	0.0016	0.0016	0.0012	0.0003	0.0009	0.0007	0.0013
Lead	mg/L	0.01	0.003	0.003	< 0.00002	<0.00002	0.00002	0.00002	< 0.00002	0.00006	0.00003	< 0.00009	0.00014	0.00006	< 0.00004	0.00011	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	< 0.0001	0.0002	0.0032	0.0017	0.0035	0.0016	0.0009	0.0004	0.0002	0.0001	< 0.0001	0.0001
Nickel	mg/L	-	-	-	< 0.01	0.0007	< 0.01	< 0.01	< 0.01	0.01	0.02	0.02	0.02	< 0.01	< 0.01	0.0083	< 0.01	< 0.01
Selenium	mg/L	0.01	0.003	0.004	< 0.001	<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
Silver	mg/L	-	-	-	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002
Strontium	mg/L	-	-	-	0.223	0.233	0.369	0.462	0.138	0.275	0.466	0.757	0.804	0.898	0.774	0.579	0.309	0.28
Thallium	mg/L	-	-	-	< 0.00005	<0.00005	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.005	< 0.00005	<0.00005	0.00008	< 0.00005
Vanadium	mg/L	-	-	-	0.0005	0.0004	0.0051	0.0026	0.0042	0.0001	0.0061	0.0067	0.0076	0.009	0.0043	0.0026	0.0035	0.0012
Zinc	mg/L	5	2.5	2.5	< 0.005	<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

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	MW5A	MW5A	MW5A	MW5A	MW5A	MW5A	MW6	MW6	MW6	MW6	MW6	MW6	MW6
					17-Apr-17	12-Apr-19	22-Apr-20	19-Apr-21	20-Apr-22	19-Apr-23	17-Apr-24	16-Apr-15	28-Apr-16	17-Apr-17	24-Apr-18	11-Apr-19	23-Apr-20	20-Apr-21
Total Alkalinity	mg/L	500	360	381	300			**808**	**861**	**1070**	**1180**	**2150**	**2270**	**2390**	**2540**	**2320**	**1610**	**1760**
Calcium	mg/L	-	-	-	118			271	255	255	234	414	418	495	502	443	334	363
Chloride	mg/L	250	132	198	54.5			178	201	**276**	**274**	**311**	**308**	**351**	**374**	**375**	208	228
COD	mg/L	-	-	-	27			332	278	393	301	463	577	418	441	443	352	432
Specific Conductivity	umhos/cm	-	-	-	780			2060	2280	2618	3060	4450	4760	5070	5280	5160	3730	3880
DOC	mg/L	5	-	-	**9.1**			**22.5**	**71.7**	**11.1**	**109**	**86.2**	**51**	**92.3**	**98.3**	**71**	**75.7**	**28.3**
Fluoride	mg/L	1.5	0.45	0.45	0.3			< 0.1	< 0.5	< 0.1	<0.7	0.2	< 1	**2.6**	< 1	< 1	< 1	< 0.1
Iron	mg/L	0.3	-	-	**0.487**			**64.4**	**59**	**74.6**	**70.4**	**5.64**	**2.25**	**2.01**	**8.39**	**4.28**	**2.78**	**7.4**
Magnesium	mg/L	-	-	-	7.37			40.6	41.7	48	49.3	55.6	62.2	67.5	77.1	62.8	57.6	60
Manganese	mg/L	0.05	-	-	**0.077**			**1.08**	**0.971**	**1.1**	**0.932**	**1.1**	**1.08**	**1.4**	**1.46**	**1.15**	**1.04**	**1.21**
Nitrate	mg/L	10	2.5	2.5	0.2			0.11	< 0.3	< 0.05	<0.40	< 0.1	< 1	1.2	< 0.5	< 0.5	0.65	< 0.05
Nitrite	mg/L	1	0.3	0.3	0.3			0.07	< 0.3	< 0.05	0.52	< 0.1	< 1	**2.2**	< 0.5	< 0.5	< 0.5	0.06
pH Lab	pH unit	6.5 - 8.5	-	-	7.81			7.05	7.3	7.27	7.3	7.13	7.15	7.14	7.54	7.58	7.34	7.41
Phenols	mg/L	-	-	-	< 0.001			0.092	0.016	0.006	<0.001	< 0.001	0.022	0.114	< 0.001	0.027	< 0.002	0.002
Phosphorus	mg/L	-	-	-	< 0.1			< 0.1	0.1	< 0.1	<0.1	0.9	0.3	0.1	1	0.9	0.2	0.8
Potassium	mg/L	-	-	-	3			21.5	44.8	78.2	109	119	137	155	164	165	129	112
Sodium	mg/L	200	106	121	29.8			183	191	**244**	**222**	**282**	**318**	**323**	**407**	**376**	**254**	**241**
Sulphate	mg/L	500	251	252	14			10	< 5	6	25	2	< 10	< 10	< 10	< 10	< 10	2
TDS	mg/L	500	372	512	410			**1199**	**1251**	**1685**	**1710**	**2670**	**2830**	**3080**	**3317**	**3095**	**2143**	**2266**
Tot Kjel N	mg/L	-	-	-	0.5			7.6	34.8	53.5	92.4	151	219	204	206	205	183	184
Ammonia (NH3-N)	mg/L	-	-	-	0.1			7.7	24.9	45.6	84.5	148	171	182	199	209	152	159
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	325			**844**	**809**	**835**	**788**	**1260**	**1300**	**1510**	**1570**	**1370**	**1070**	**1150**
BOD	mg/L	-	-	-	--	Damaged	Damaged					--	--	--				
Cyanide (free)	mg/L	-	-	-	--							--	--	--				
TSS	mg/L	-	-	-	--							--	--	--				
Aluminum	mg/L	0.1	0.06	0.09	0.06			**0.13**	**0.19**	0.1	**0.34**	0.08	0.08	**0.16**	**0.44**	**0.16**	**0.13**	**0.25**
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	0.0006	0.0004	0.0003	0.0006
Arsenic	mg/L	0.025	0.006	0.006	0.0004			0.0036	0.0041	0.0046	0.0086	0.0027	0.0037	0.006	0.0017	0.0019	0.001	0.0011
Barium	mg/L	1	0.32	0.28	0.124			0.819	**1.14**	**1.58**	**1.83**	0.173	0.146	0.224	0.266	0.222	0.139	0.17
Beryllium	mg/L	-	-	-	< 0.002			< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.02
Boron	mg/L	5	1.3	1.3	0.031			1.64	2.39	2.97	2.5	1.2	1.23	1.42	1.48	1.57	2.04	2.02
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000020			< 0.000029	< 0.000029	< 0.000029	0.000028	< 0.00002	< 0.00002	< 0.000020	< 0.000059	< 0.000015	< 0.000029	< 0.000059
Chromium (total)	mg/L	0.05	0.014	0.014	0.001			0.008	0.008	0.007	<0.01	< 0.0002	< 0.0002	< 0.001	0.004	0.005	0.002	< 0.01
Chromium (VI)	mg/L	-	-	-					< 0.001	< 0.001	<0.01							
Cobalt	mg/L	-	-	-	< 0.005			0.009	0.013	0.031	0.0471	0.007	0.009	0.009	0.012	0.007	0.005	< 0.05
Copper	mg/L	1	0.5	0.5	0.0015			0.0023	0.0018	0.0003	0.0036	0.002	0.0025	0.0035	0.0009	0.0004	0.0004	0.0004
Lead	mg/L	0.01	0.003	0.003	< 0.00002			0.00014	0.00083	< 0.00009	0.00074	0.00004	0.00005	< 0.00002	0.0004	0.00004	< 0.00009	< 0.0002
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	0.0002	0.0004	0.0004	0.0007	0.0005	0.0002	< 0.0004
Nickel	mg/L	-	-	-	< 0.01			0.02	0.03	0.03	0.0497	0.01	0.02	0.02	0.02	0.02	< 0.01	< 0.1
Selenium	mg/L	0.01	0.003	0.004	0.002			< 0.001	0.003	0.003	<0.001	0.004	0.002	< 0.001	**0.023**	0.006	0.002	< 0.002
Silver	mg/L	-	-	-	< 0.00002			< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.0002	< 0.0001	< 0.0002
Strontium	mg/L	-	-	-	0.221			0.99	0.825	0.948	0.893	1.52	1.52	1.62	1.87	1.65	1.27	1.4
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	< 0.00005
Vanadium	mg/L	-	-	-	0.0018			0.0078	0.0109	0.0115	0.0115	0.0155	0.0113	0.0211	0.0009	0.0005	0.0004	< 0.0007
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	< 0.05

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)	MW6 21-Apr-22	MW6 19-Apr-23	MW6 17-Apr-24	MW6A 16-Apr-15	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
Total Alkalinity	mg/L	500	360	381	**1350**	**1330**	**1690**	**2070**	**2190**	**2230**	**2190**	**2040**	**1430**	**1500**	**1320**	**1260**	391	**2840**
Calcium	mg/L	-	-	-	362	360	333	395	395	455	404	376	311	361	308	274	149	206
Chloride	mg/L	250	132	198	179	180	182	**306**	**266**	26.9	**279**	**282**	156	158	126	109	4.7	**594**
COD	mg/L	-	-	-	305	326	426	587	339	406	520	395	837	468	259	195	53	5800
Specific Conductivity	umhos/cm	-	-	-	3640	3145	3510	4360	4460	4520	4310	4510	3180	3310	2990	2284	750	7030
DOC	mg/L	5	-	-	**18.5**	**62.8**	**81.4**	**84.8**	**49**	**87.7**	**24.4**	**26.7**	**59.2**	**69.7**	**16.4**	**9.9**	**13.8**	**130**
Fluoride	mg/L	1.5	0.45	0.45	< 1	< 0.1	<0.7	0.2	< 1	0.4	< 1	< 1	< 0.1	< 1	< 1	< 0.1	<0.1	**6.5**
Iron	mg/L	0.3	-	-	**8.07**	**9.6**	**9.95**	**12.2**	**6.03**	**12.3**	0.228	**21.9**	**18.9**	**24.6**	**29.3**	**26.6**	**35.8**	**13.3**
Magnesium	mg/L	-	-	-	56.4	56.3	51.7	54.5	61	65.2	56.3	52.6	49.4	52.1	37.4	26.3	4.55	79.4
Manganese	mg/L	0.05	-	-	**1.3**	**1.44**	**1.42**	**1.25**	**1.28**	**1.7**	**1.49**	**1.56**	**1.46**	**1.75**	**1.65**	**1.32**	**0.779**	**0.15**
Nitrate	mg/L	10	2.5	2.5	< 0.5	0.14	<0.40	< 0.1	< 1	< 0.1	< 0.5	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	<0.05	2.5
Nitrite	mg/L	1	0.3	0.3	< 0.5	< 0.05	0.5	< 0.1	< 1	0.2	< 0.5	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	0.05	**4.5**
pH Lab	pH unit	6.5 - 8.5	-	-	7.42	7.53	7.37	7.18	7.17	7.17	7.58	7.58	7.29	7.21	7.43	7.51	7.32	7.2
Phenols	mg/L	-	-	-	< 0.001	< 0.001	<0.001	< 0.001	0.034	< 0.001	< 0.001	< 0.002	< 0.002	0.002	< 0.001	< 0.001	<0.001	0.032
Phosphorus	mg/L	-	-	-	0.8	0.8	0.8	0.9	0.4	0.2	< 0.1	<0.1	0.1	< 0.1	0.3	0.2	0.3	0.6
Potassium	mg/L	-	-	-	110	100	95.9	117	129	133	124	136	94	89.7	67.2	44	3.4	294
Sodium	mg/L	200	106	121	**215**	**205**	200	**278**	**286**	**279**	**286**	**298**	181	190	127	86.1	3.8	**513**
Sulphate	mg/L	500	251	252	< 10	< 1	14	7	< 10	< 1	< 10	< 10	6	< 10	< 10	3	1	32
TDS	mg/L	500	372	512	**1735**	**1870**	**1970**	**2610**	**2670**	**2500**	**2682**	**2650**	**1811**	**1916**	**1457**	**1425**	392	**4150**
Tot Kjel N	mg/L	-	-	-	169	146	154	182	200	172	186	178	152	157	94.7	84.8	4.4	554
Ammonia (NH3-N)	mg/L	-	-	-	109	126	150	150	157	150	167	197	120	126	94.5	78.7	3.65	527
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	**1140**	**1130**	**1040**	**1210**	**1240**	**1410**	**1240**	**1160**	**981**	**1120**	**924**	**792**	391	**841**
BOD	mg/L	-	-	-				--	--	--								--
Cyanide (free)	mg/L	-	-	-				--	--	--			156					--
TSS	mg/L	-	-	-				--	--	--								--
Aluminum	mg/L	0.1	0.06	0.09	**0.16**	**0.11**	**0.14**	0.09	0.08	**0.15**	**0.13**	**0.15**	**0.13**	**0.31**	**0.15**	0.09	**0.14**	0.1
Antimony	mg/L	0.006	0.002	0.002	0.0004	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
Arsenic	mg/L	0.025	0.006	0.006	0.0012	0.0009	0.0012	0.0031	0.0023	0.0058	< 0.0005	0.0023	0.0011	0.0014	0.0007	0.0006	0.0011	0.0139
Barium	mg/L	1	0.32	0.28	0.168	0.166	0.165	0.198	0.169	0.235	0.183	0.24	0.167	0.19	0.175	0.147	0.098	0.658
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.02	< 0.002	< 0.002	<0.0001	< 0.002
Boron	mg/L	5	1.3	1.3	1.96	1.83	1.66	1.45	1.52	1.65	1.53	1.74	1.8	1.79	1.24	0.77	0.089	4.35
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000029	< 0.000029	<0.000015	< 0.00002	< 0.00002	< 0.000020	< 0.000059	< 0.000015	< 0.000029	< 0.000029	< 0.000029	< 0.000029	0.00002	< 0.000020
Chromium (total)	mg/L	0.05	0.014	0.014	0.002	0.002	<0.01	< 0.0002	< 0.0002	0.002	0.003	0.003	0.002	< 0.01	0.001	< 0.001	<0.01	< 0.001
Chromium (VI)	mg/L	-	-	-	< 0.001	< 0.001	<0.01								< 0.001	< 0.001	<0.01	
Cobalt	mg/L	-	-	-	< 0.005	0.012	0.0052	0.007	0.008	0.008	0.014	0.009	< 0.005	< 0.05	< 0.005	0.008	0.0009	0.022
Copper	mg/L	1	0.5	0.5	0.0079	0.0003	0.0013	0.0021	0.0023	0.0035	0.0011	0.0006	0.0011	0.002	0.0005	0.0004	0.0019	0.0059
Lead	mg/L	0.01	0.003	0.003	0.00029	< 0.00009	0.00006	0.00006	0.00003	< 0.00002	< 0.0002	0.00004	< 0.00009	0.00033	0.00014	< 0.00009	0.00076	< 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	< 0.0002	0.0002	0.0002	0.0002	0.0007	0.0006	0.0004	0.0061	0.0008	< 0.0002	< 0.0002	0.0002	0.001
Nickel	mg/L	-	-	-	0.01	< 0.01	0.0108	0.01	0.01	0.01	0.02	0.01	< 0.01	< 0.1	< 0.01	< 0.01	0.0032	0.02
Selenium	mg/L	0.01	0.003	0.004	0.004	0.003	<0.001	0.003	0.002	< 0.001	0.007	0.006	0.002	0.002	0.003	0.002	<0.001	< 0.001
Silver	mg/L	-	-	-	< 0.0001	< 0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.00003
Strontium	mg/L	-	-	-	1.39	1.46	1.39	1.54	1.57	1.65	1.51	1.63	1.29	1.46	1.16	0.895	0.27	1.2
Thallium	mg/L	-	-	-	< 0.005	< 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
Vanadium	mg/L	-	-	-	0.0007	0.0006	0.0006	0.016	0.0098	0.0137	0.0003	0.0006	0.0004	0.0009	0.0004	0.0005	0.0009	0.028
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	0.005	0.056	0.005	< 0.005	< 0.05	<0.005	< 0.005	0.016	< 0.005

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 25-Apr-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	MW10 15-Apr-15	MW10 07-Oct-15	MW10 27-Apr-16	MW10 03-Oct-16	MW10 17-Apr-17	MW10 24-Oct-17	MW10 25-Apr-18
Total Alkalinity	mg/L	500	360	381	**2710**	**2570**	**2290**	**2410**	**2240**	**2510**	**2160**	**1990**	**1590**	**1710**	**1750**	**1810**	**1930**	**1960**
Calcium	mg/L	-	-	-	198	178	175	166	169	165	157	267	274	251	296	275	314	271
Chloride	mg/L	250	132	198	**519**	**651**	**687**	**678**	**629**	**629**	**672**	**274**	196	209	203	214	235	26.1
COD	mg/L	-	-	-	4120	1140	1070	890	757	641	634	288	227	235	216	237	294	313
Specific Conductivity	umhos/cm	-	-	-	6610	6950	6650	6790	6850	6089	6670	4430	3410	3690	3740	3920	4170	4180
DOC	mg/L	5	-	-	**105**	**120**	**94**	**23.8**	**68.6**	**25.3**	**175**	**97.1**	**27.3**	**73**	**27.1**	**85.4**	**27.5**	**93.7**
Fluoride	mg/L	1.5	0.45	0.45	< 1	< 3	< 1	< 0.1	< 3	< 1	<0.7	0.3	0.5	0.1	0.3	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	**22.2**	**15.8**	**0.833**	**22.8**	**23.6**	**0.577**	**0.53**	**28.7**	**12.7**	**11.9**	**15.6**	**17**	**18.8**	0.274
Magnesium	mg/L	-	-	-	79.6	78.9	79.8	80.6	76.3	78	74.5	58.3	40	45.6	40.4	47.5	57.9	53.3
Manganese	mg/L	0.05	-	-	**0.139**	**0.108**	**0.117**	**0.12**	**0.117**	**0.118**	**0.114**	**0.782**	**0.665**	**0.671**	**0.752**	**0.779**	**1.02**	**0.818**
Nitrate	mg/L	10	2.5	2.5	< 0.5	< 1	0.72	< 0.05	< 1	< 0.5	<0.40	< 0.1	0.5	< 0.1	0.4	0.1	< 0.05	< 0.05
Nitrite	mg/L	1	0.3	0.3	< 0.5	< 1	< 0.5	0.08	< 1	< 0.5	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.67	7.58	7.49	7.14	7.54	7.6	7.43	7.05	7.4	7.27	7.13	7.34	6.97	7.51
Phenols	mg/L	-	-	-	0.014	0.015	0.009	0.01	0.008	< 0.01	0.015	< 0.001	< 0.001	0.018	0.028	0.028	0.023	0.006
Phosphorus	mg/L	-	-	-	1	0.7	< 0.1	0.8	0.8	< 0.1	<0.1	0.5	0.3	0.4	0.4	0.4	0.4	< 0.1
Potassium	mg/L	-	-	-	291	306	283	285	275	269	256	177	180	172	171	192	189	171
Sodium	mg/L	200	106	121	**565**	**541**	**510**	**542**	**495**	**497**	**484**	**248**	182	195	192	**219**	**241**	**235**
Sulphate	mg/L	500	251	252	13	28	19	7	< 30	< 10	35	2	< 1	1	< 1	< 1	3	< 1
TDS	mg/L	500	372	512	**3890**	**3865**	**3659**	**3818**	**2987**	**3694**	**3800**	**2500**	**2060**	**2150**	**2180**	**2270**	**2462**	**2211**
Tot Kjel N	mg/L	-	-	-	669	471	497	526	455	534	495	224	203	203	178	205	209	216
Ammonia (NH3-N)	mg/L	-	-	-	448	408	413	477	423	427	545	192	170	182	160	181	188	216
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	**822**	**769**	**765**	**746**	**736**	**686**	**706**	**908**	**848**	**814**	**906**	**883**	**1020**	**897**
BOD	mg/L	-	-	-								--	--	--	--	--	--	
Cyanide (free)	mg/L	-	-	-			687					--	--	--	--	--	--	
TSS	mg/L	-	-	-								--	--	0.582	0.583	--	--	
Aluminum	mg/L	0.1	0.06	0.09	**0.28**	0.1	0.09	0.1	0.09	0.08	0.08	**0.13**	**0.12**	**0.12**	**0.15**	**0.17**	**0.18**	0.1
Antimony	mg/L	0.006	0.002	0.002	0.001	0.0008	0.001	0.001	0.0013	0.0008	0.0012	0.0005	0.0004	0.0004	0.0004	0.0004	0.0003	0.0005
Arsenic	mg/L	0.025	0.006	0.006	0.0027	0.004	0.002	0.003	0.003	0.0029	0.0032	0.003	0.0025	0.0029	0.0014	0.0032	0.002	0.0011
Barium	mg/L	1	0.32	0.28	0.64	0.562	0.466	0.51	0.519	0.273	0.263	0.558	0.55	0.557	0.678	0.747	0.852	0.587
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.02	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	4.3	4.34	4.16	4.09	3.75	3.77	3.94	2.34	0.923	1.45	1.09	1.85	2.17	2.07
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000059	< 0.000015	< 0.000059	< 0.000059	< 0.000059	< 0.000059	0.000095	< 0.00002	0.00002	< 0.00002	0.00002	< 0.000020	< 0.000014	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	0.011	0.011	0.008	0.01	0.01	0.006	<0.01	< 0.0002	0.0345	< 0.0002	< 0.0002	0.002	0.003	0.003
Chromium (VI)	mg/L	-	-	-					< 0.001	< 0.001	<0.01							
Cobalt	mg/L	-	-	-	0.02	0.015	0.015	< 0.05	0.016	0.019	0.0096	0.01	0.005	0.015	0.005	0.005	0.005	0.01
Copper	mg/L	1	0.5	0.5	0.0006	0.0005	< 0.0003	0.0014	0.0008	< 0.0003	0.0073	0.0012	0.0012	0.0013	0.0012	0.0022	0.0008	0.0003
Lead	mg/L	0.01	0.003	0.003	0.00078	0.00037	< 0.0002	0.00031	0.00041	0.00019	0.00144	< 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	-	-	-	0.0008	0.001	0.0008	0.0007	0.0007	0.0006	0.0005	< 0.0001	0.0002	0.0002	0.0001	0.0002	0.0002	0.0002
Nickel	mg/L	-	-	-	0.03	0.02	0.02	< 0.1	0.02	0.04	0.0242	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.01
Selenium	mg/L	0.01	0.003	0.004	**0.024**	0.009	0.004	0.004	0.008	0.005	<0.001	0.002	0.003	<0.001	<0.001	< 0.001	< 0.001	**0.02**
Silver	mg/L	-	-	-	< 0.0002	<0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	-	-	-	1.13	1.1	1.02	0.99	0.948	0.914	0.919	1.39	1.11	1.08	1.07	1	1.24	1.09
Thallium	mg/L	-	-	-	< 0.00005	< 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
Vanadium	mg/L	-	-	-	0.0054	0.0059	0.0011	0.0053	0.005	0.005	0.0079	0.0196	0.0156	0.0137	0.0117	0.0187	0.0096	0.0055
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005	< 0.005	< 0.05	0.016	< 0.005	0.008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006

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)	MW10 15-Oct-18	MW10 11-Apr-19	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	MW11A 16-Apr-15
Total Alkalinity	mg/L	500	360	381	**1760**	**1770**	**1600**	**1390**	**1730**	**1420**	**1660**	**1690**		**1470**	**1390**	**1580**	**1800**	305
Calcium	mg/L	-	-	-	287	312	267	263	315	263	322	321		300	236	269	292	128
Chloride	mg/L	250	132	198	246	**251**	243	**272**	**299**	232	**257**	**271**		226	248	226	249	126
COD	mg/L	-	-	-	269	280	270	266	290	244	248	256		223	224	241	276	31
Specific Conductivity	umhos/cm	-	-	-	3780	4130	3950	3820	4210	3650	3800	4060		3393	3630	3840	4130	957
DOC	mg/L	5	-	-	**88.5**	**27.7**	**93.1**	**76.1**	**19.3**	**32**	**76.7**	**69**		**10.8**	**25.7**	**102**	**91.4**	**11.3**
Fluoride	mg/L	1.5	0.45	0.45	< 1	< 1	< 1	< 1	< 1	< 0.1	< 1	< 1		< 0.5	<0.1	<0.7	<0.7	0.2
Iron	mg/L	0.3	-	-	**6.01**	**16**	**18.1**	0.262	**16.3**	**15.8**	**13.3**	**9.86**		**9.13**	**7.83**	**13**	**12.3**	**2.41**
Magnesium	mg/L	-	-	-	47.3	47.4	46.4	45	53.8	43.3	39.6	46.1		43.3	37.7	48.1	58.2	3.29
Manganese	mg/L	0.05	-	-	**0.885**	**0.872**	**0.722**	**0.765**	**1.08**	**0.77**	**0.831**	**0.851**		**0.886**	**0.726**	**0.888**	**1.04**	**0.26**
Nitrate	mg/L	10	2.5	2.5	0.58	< 0.5	< 0.5	0.8	0.73	< 0.05	< 0.5	< 0.5		< 0.3	<0.05	<0.40	<0.40	< 0.1
Nitrite	mg/L	1	0.3	0.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.06	< 0.5	< 0.5		< 0.3	<0.05	0.51	<0.40	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.41	7.52	7.33	7.3	7.1	7.13	7.46	7.48		7.5	7.27	7.31	7.72	7.49
Phenols	mg/L	-	-	-	0.018	< 0.002	< 0.002	< 0.002	0.005	0.005	< 0.002	< 0.001		< 0.001	<0.001	<0.001	<0.001	< 0.001
Phosphorus	mg/L	-	-	-	0.1	0.4	< 0.1	< 0.1	0.4	0.2	0.3	0.3		0.3	0.3	0.3	0.3	< 0.1
Potassium	mg/L	-	-	-	174	193	188	183	187	172	204	185		181	145	168	184	1.1
Sodium	mg/L	200	106	121	**209**	**221**	**217**	**219**	**246**	**210**	**209**	**226**		**209**	171	**211**	**250**	80.3
Sulphate	mg/L	500	251	252	< 10	< 10	< 10	< 10	< 10	< 1	< 10	< 10		< 5	<2	13	<2	12
TDS	mg/L	500	372	512	**2284**	**2408**	**2192**	**2055**	**2159**	**2016**	**2282**	**2066**		**2044**	**2040**	**2160**	**2320**	**536**
Tot Kjel N	mg/L	-	-	-	205	195	197	218	216	220	173	198		171	187	245	250	0.6
Ammonia (NH3-N)	mg/L	-	-	-	201	234	206	185	207	189	187	175		152	175	191	231	0.11
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	**912**	**975**	**858**	**842**	**1010**	**835**	**968**	**992**		**927**	**745**	**870**	**970**	333
BOD	mg/L	-	-	-									Dry					--
Cyanide (free)	mg/L	-	-	-				272	299									--
TSS	mg/L	-	-	-														--
Aluminum	mg/L	0.1	0.06	0.09	0.1	**0.14**	**0.14**	**0.11**	**0.18**	**0.26**	**0.17**	**0.17**		**0.15**	**0.16**	**0.15**	**0.18**	0.05
Antimony	mg/L	0.006	0.002	0.002	0.0003	0.0004	0.0004	0.0003	0.0007	0.0004	0.0003	0.0004		0.0003	0.0003	0.0003	0.0004	< 0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.001	0.0013	0.0007	0.0007	0.0008	0.0007	0.0006	0.0009		0.0007	0.0007	0.0009	0.001	0.0003
Barium	mg/L	1	0.32	0.28	0.786	0.94	0.58	0.682	0.915	0.71	0.985	0.96		0.91	0.718	0.851	0.912	0.039
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.02	< 0.002	< 0.002		< 0.002	<0.0001	<0.0001	<0.0001	< 0.002
Boron	mg/L	5	1.3	1.3	1.31	1.46	1.23	1.56	1.86	1.43	0.948	1.35		1.43	0.891	1.8	1.81	0.016
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000015	< 0.000015	< 0.000059	< 0.000029	< 0.000059	< 0.000029	< 0.000059	< 0.000029		< 0.000029	<0.000030	<0.000015	<0.000015	0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	0.002	0.003	0.002	< 0.001	0.002	< 0.01	0.003	0.004		0.003	0.003	<0.01	<0.01	0.0018
Chromium (VI)	mg/L	-	-	-								< 0.001		< 0.001	<0.01	<0.01	<0.01	
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	0.007	0.005	0.007	< 0.05	0.008	0.005		0.011	0.0053	0.0056	0.0061	< 0.005
Copper	mg/L	1	0.5	0.5	0.0002	0.003	0.0019	0.0003	0.003	0.0008	0.0005	0.0004		0.0002	0.002	0.0014	0.0003	0.0029
Lead	mg/L	0.01	0.003	0.003	< 0.00002	0.00006	< 0.0002	< 0.00009	0.00018	< 0.00009	< 0.0002	< 0.00009		< 0.00009	0.00009	<0.00004	<0.00004	0.00013
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	-	-	-	0.0003	0.0002	< 0.0004	0.0002	< 0.0004	< 0.0002	< 0.0004	< 0.0002		< 0.0002	<0.0002	0.0002	0.0002	< 0.0001
Nickel	mg/L	-	-	-	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.1	< 0.01	0.01		< 0.01	0.0073	0.0093	0.0093	< 0.01
Selenium	mg/L	0.01	0.003	0.004	0.002	0.005	0.004	0.003	0.003	0.002	0.003	0.005		0.003	<0.001	<0.001	<0.001	< 0.001
Silver	mg/L	-	-	-	0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001		< 0.0001	<0.0001	<0.0001	<0.0001	< 0.00002
Strontium	mg/L	-	-	-	1.15	1.22	1.1	1	1.21	1	1.12	1.01		0.972	0.85	0.976	1.18	0.296
Thallium	mg/L	-	-	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00021	< 0.00005	0.0001	0.007		< 0.00005	<0.00005	<0.00005	<0.00005	< 0.00005
Vanadium	mg/L	-	-	-	0.0043	0.0062	0.0057	0.0054	0.0056	0.0055	0.0067	0.0073		0.0061	0.0063	0.0058	0.0065	0.0042
Zinc	mg/L	5	2.5	2.5	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.005		< 0.005	<0.005	<0.005	<0.005	0.033

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 07-Oct-15	MW11A 28-Apr-16	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
Total Alkalinity	mg/L	500	360	381	239	326	242	267	221	282	296	229	218	209	259	204	303	302
Calcium	mg/L	-	-	-	113	145	113	133	182	123	148	114	111	113	158	110	158	156
Chloride	mg/L	250	132	198	66.5	149	86.7	135	181	83.6	107	57	45.3	96.9	148	26.5	128	94.7
COD	mg/L	-	-	-	63	45	13	42	73	29	43	51	31	34	22	33	28	31
Specific Conductivity	umhos/cm	-	-	-	619	1070	736	964	1090	802	899	655	597	717	1010	503	957	874
DOC	mg/L	5	-	-	**8.7**	**5.1**	**7.9**	4.7	**7.3**	**7.2**	**9.4**	**14.7**	**10.3**	**6.3**	4.4	**13.9**	**7.8**	**5.4**
Fluoride	mg/L	1.5	0.45	0.45	0.1	< 0.1	< 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	-	-	**2.05**	**2.61**	**0.898**	0.128	**3.33**	**1.23**	**2.53**	**1.9**	**0.941**	0.062	**1.66**	**2.44**	**2.79**	2
Magnesium	mg/L	-	-	-	3.63	5.12	3.57	4.15	7.22	3.62	5.22	3.26	3.4	3.45	4.55	3.28	4.68	4.89
Manganese	mg/L	0.05	-	-	**0.232**	**0.298**	**0.119**	**0.347**	**0.373**	**0.194**	**0.238**	**0.194**	**0.1**	**0.105**	**0.148**	**0.229**	**0.241**	**0.104**
Nitrate	mg/L	10	2.5	2.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.07	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	0.3	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	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.55	7.54	7.63	7.84	7.42	7.77	7.6	7.81	7.7	7.67	7.46	7.57	7.62	7.42
Phenols	mg/L	-	-	-	< 0.001	0.026	0.021	0.003	0.009	< 0.001	0.005	< 0.002	< 0.002	< 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	-	-	-	1.2	1.6	1.6	1	2.5	1.4	2.1	1	1.5	0.9	1.8	1	1.6	1.4
Sodium	mg/L	200	106	121	21.4	46.8	51.6	48.2	37.4	39.7	36.6	20.1	22.6	26.5	60.7	11.3	60.3	57.8
Sulphate	mg/L	500	251	252	4	7	7	9	10	4	7	7	4	5	8	2	5	4
TDS	mg/L	500	372	512	356	**554**	410	493	**556**	426	486	342	320	371	**539**	277	**543**	500
Tot Kjel N	mg/L	-	-	-	0.7	0.8	0.7	0.6	1.6	0.6	0.6	0.8	0.5	0.5	0.5	0.6	0.5	2.7
Ammonia (NH3-N)	mg/L	-	-	-	0.14	0.24	0.15	0.15	0.17	0.14	0.17	0.14	0.12	0.07	0.06	0.11	0.12	2.49
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	298	384	298	351	485	322	391	298	291	297	415	288	414	410
BOD	mg/L	-	-	-	--	--	--	--	--									
Cyanide (free)	mg/L	-	-	-	--	--	--	--	--									
TSS	mg/L	-	-	-	--	--	--	--	--									
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.05	0.05	**0.58**	0.09	0.09	0.08	0.08	0.08	0.06	0.06	0.07	0.1	0.09
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	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0006	0.0008	0.0003	0.0008	0.0012	0.0001	0.0001	0.0002	0.0001	< 0.0001	0.0002	0.0002	0.0001	0.0001
Barium	mg/L	1	0.32	0.28	0.028	0.039	0.031	0.053	0.057	0.033	0.048	0.025	0.027	0.022	0.042	0.024	0.047	0.039
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	0.013	< 0.005	0.017	0.026	0.019	0.014	0.016	0.013	0.018	0.013	0.022	0.012	0.025	0.026
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.00002	< 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	0.014	0.014	0.0023	< 0.0002	< 0.0002	0.003	< 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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0002	0.0011	0.0008	0.0048	0.0002	0.0003	0.0003	< 0.0001	0.0009	0.0005	0.0019	0.0006	0.0005	0.0004
Lead	mg/L	0.01	0.003	0.003	0.00002	0.00005	0.00004	0.00097	< 0.00002	0.00003	0.00002	0.00002	0.00002	< 0.00002	0.00007	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	0.0001	0.0002	0.0001	0.0002	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	< 0.001	< 0.001	0.003	< 0.001	0.005	0.002	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.002	0.002
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	-	-	-	0.238	0.332	0.246	0.327	0.366	0.262	0.325	0.248	0.258	0.237	0.375	0.228	0.409	0.362
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	-	-	-	0.0026	0.0017	0.0022	0.006	0.0013	0.0014	0.0016	0.0023	0.0013	0.001	0.0015	0.0028	0.0018	0.0015
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

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 26-Oct-22	MW11A 26-Oct-22	MW11A 19-Apr-23	MW11A 12-Oct-23	MW11A 17-Apr-24	MW11A (DUP) 17-Apr-24	MW11A 07-Oct-24	MW11A (DUP) 07-Oct-24	MW12 15-Apr-15	MW12 07-Oct-15	MW12 28-Apr-16	MW12 03-Oct-16	MW12 17-Apr-17	MW12 23-Oct-17
Total Alkalinity	mg/L	500	360	381	278	273	259	242	284	279	265	267	239	262	233	242	224	281
Calcium	mg/L	-	-	-	224	224	141	106	185	189	179	176	102	107	88	101	90.7	114
Chloride	mg/L	250	132	198	237	242	119	124	176	173	213	200	4.7	3.6	4.2	3.9	5.7	1.6
COD	mg/L	-	-	-	23	23	30	30	46	46	37	30	6	< 5	< 5	< 5	9	19
Specific Conductivity	umhos/cm	-	-	-	1450	1440	915	831	1110	1110	1180	1150	496	480	479	497	463	541
DOC	mg/L	5	-	-	1.8	1.8	**6.1**	**7.7**	**10.4**	**9.9**	**6.7**	**5.8**	2.2	2.7	1.8	3.4	2.3	3.3
Fluoride	mg/L	1.5	0.45	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	0.3	< 0.1
Iron	mg/L	0.3	-	-	**4.6**	**4.61**	**3.07**	**1.35**	**2.94**	**2.94**	**2.62**	**2.55**	0.059	0.018	0.008	0.008	0.008	0.015
Magnesium	mg/L	-	-	-	7.01	7.17	4.35	3.84	6.86	6.96	6.36	6.44	5.23	5.39	5.58	7.29	5.22	8.25
Manganese	mg/L	0.05	-	-	**0.382**	**0.392**	**0.207**	**0.086**	**0.139**	**0.143**	**0.194**	**0.192**	0.002	**0.073**	< 0.001	0.002	0.001	0.007
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	0.3	0.5	0.5	0.6	0.2
Nitrite	mg/L	1	0.3	0.3	< 0.05	< 0.05	< 0.05	<0.05	0.07	0.06	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.37	7.41	7.64	7.08	7.55	7.72	7.6	8.27	7.67	7.67	7.89	7.84	8.01	7.7
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	0.016	< 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	-	-	-	2.7	2.7	2.1	1.5	1.8	1.7	2.5	2.6	1.4	1.4	1.3	1.2	1.2	1.4
Sodium	mg/L	200	106	121	41.2	40.5	52.2	36.5	32	32.4	43	43.8	2.8	2.3	2.7	2.9	2.6	3
Sulphate	mg/L	500	251	252	6	6	4	5	4	4	5	4	12	7	9	12	13	6
TDS	mg/L	500	372	512	**690**	**691**	484	438	**598**	**594**	**637**	**597**	273	285	253	276	257	303
Tot Kjel N	mg/L	-	-	-	0.8	0.8	1.2	1.6	1.8	0.6	0.6	0.5	0.3	0.4	1.4	2.8	0.2	0.7
Ammonia (NH3-N)	mg/L	-	-	-	0.19	0.17	0.85	1.52	0.14	0.1	0.2	0.14	0.08	< 0.01	0.13	0.16	0.02	0.05
Ammonia - Unionized	mg/L	-	-	-								<0.01						
Hardness (CaCO3)	mg/L	500	362	460	**589**	**589**	371	281	491	**501**	474	467	275	289	243	282	248	319
BOD	mg/L	-	-	-								<3	--	--	--	--	--	--
Cyanide (free)	mg/L	-	-	-								<0.005	--	--	--	--	--	--
TSS	mg/L	-	-	-								168	--	--	--	--	--	--
Aluminum	mg/L	0.1	0.06	0.09	0.07	0.07	0.05	0.08	**0.11**	**0.11**	0.07	0.07	0.03	0.03	0.03	0.03	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	<0.0001	< 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	0.0003
Barium	mg/L	1	0.32	0.28	0.066	0.067	0.046	0.031	0.049	0.05	0.055	0.054	0.069	0.07	0.061	0.082	0.065	0.106
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	0.015	0.014	0.022	0.014	0.028	0.023	0.025	0.022	0.017	0.012	< 0.005	0.012	0.017	0.018
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000012	< 0.000012	< 0.000010	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	<0.01	<0.01	0.0018	0.0022	< 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	0.0002	0.0003	0.0003	0.0004	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0002	0.0003	0.0003	0.0007	0.0005	0.0005	0.0005	0.0004	0.0017	0.0015	0.0012	0.0271	0.0016	0.0007
Lead	mg/L	0.01	0.003	0.003	< 0.00004	< 0.00004	< 0.00002	0.00003	0.00002	0.00003	<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	-	-	-	< 0.0001	< 0.0001	< 0.0001	0.0002	<0.0001	<0.0001	0.0001	0.0001	< 0.0001	0.0002	0.0001	0.0001	0.0002	0.0001
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.003	0.004	0.005	0.006	0.003	<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	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002
Strontium	mg/L	-	-	-	0.609	0.599	0.395	0.38	0.578	0.586	0.598	0.615	0.193	0.204	0.166	0.175	0.147	0.189
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	-	-	-	0.0011	0.0011	0.0018	0.0016	0.0012	0.0012	0.0012	0.0012	0.0027	0.0008	0.0007	0.001	0.0012	0.0004
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

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 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 20-Apr-22	MW12 26-Oct-22	MW12 19-Apr-23	MW12 11-Oct-23	MW12 17-Apr-24
Total Alkalinity	mg/L	500	360	381	230	235	214	217	234	227	206	239	229	226	341	230	256	227
Calcium	mg/L	-	-	-	91.1	89.4	89.4	95.5	94.8	101	97.8	93.8	83.6	84.2	117	92.9	73.8	83.9
Chloride	mg/L	250	132	198	3.4	3.7	5.9	5.2	6.3	3.9	7.4	3.8	4.3	4	1.6	4	2.6	5.2
COD	mg/L	-	-	-	< 5	< 5	< 5	9	< 5	< 5	5	< 5	6	8	12	6	9	14
Specific Conductivity	umhos/cm	-	-	-	434	466	477	457	496	483	464	454	467	463	654	479	472	461
DOC	mg/L	5	-	-	2.7	3.2	2.9	2.9	3.3	2.2	3.5	2.9	2.3	2.2	3.7	2.5	4.4	3.1
Fluoride	mg/L	1.5	0.45	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	0.018	< 0.005	0.036	0.015	< 0.005	< 0.005	0.006	< 0.005	< 0.005	0.091	< 0.005	0.014	0.005
Magnesium	mg/L	-	-	-	5.36	5.09	5.38	6.16	6.05	6.19	5.13	6.13	5.34	5.35	7.73	5.61	5.39	5.54
Manganese	mg/L	0.05	-	-	< 0.001	0.001	< 0.001	0.003	0.004	< 0.001	0.001	0.001	< 0.001	< 0.001	0.009	< 0.001	<0.001	<0.001
Nitrate	mg/L	10	2.5	2.5	0.41	0.3	0.39	0.38	0.44	0.33	0.34	0.22	0.44	0.42	0.18	0.38	0.38	0.42
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	7.83	8.03	7.9	7.92	7.7	7.85	7.84	7.74	7.71	7.67	7.82	7.54	7.85
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	< 0.1	< 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	1.3	1.2	1.2	1.1	1.2	1.2	1.1	1.1	1.6	1.4	1	1.2
Sodium	mg/L	200	106	121	2.8	1.9	3.3	2.4	2.3	2.8	3.3	3.6	2.8	2.9	4	2.7	2.1	2.8
Sulphate	mg/L	500	251	252	7	9	12	8	7	10	11	7	9	8	5	11	9	10
TDS	mg/L	500	372	512	249	251	246	248	259	261	250	259	246	241	342	256	244	238
Tot Kjel N	mg/L	-	-	-	0.3	0.3	0.5	1	0.2	0.2	0.3	0.2	1	0.2	0.3	0.5	0.3	0.7
Ammonia (NH3-N)	mg/L	-	-	-	0.1	0.12	0.04	0.04	0.04	0.01	0.06	0.04	0.94	0.11	< 0.01	0.49	0.07	0.38
Ammonia - Unionized	mg/L	-	-	-			0.000663	0.033154	0.000452	8.73E-05	0.000738	0.000481	0.008994	0.000983	<0.0001			
Hardness (CaCO3)	mg/L	500	362	460	250	244	246	264	262	279	266	260	231	232	325	255	207	233
BOD	mg/L	-	-	-														
Cyanide (free)	mg/L	-	-	-														
TSS	mg/L	-	-	-														
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.06	0.05	0.06	0.05	0.03	0.06	0.06	0.05	0.06	0.03	0.02	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	< 0.0001	< 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	0.066	0.068	0.068	0.079	0.069	0.075	0.07	0.075	0.063	0.064	0.089	0.068	0.057	0.064
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	<0.0001	<0.0001
Boron	mg/L	5	1.3	1.3	0.014	0.009	0.015	0.012	0.013	0.014	0.015	0.018	0.012	0.012	0.015	0.013	0.012	0.016
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.00006	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	<0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 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	<0.01
Chromium (VI)	mg/L	-	-	-									< 0.001	< 0.001	< 0.001	< 0.001	<0.01	<0.01
Cobalt	mg/L	-	-	-	0.012	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	0.0002
Copper	mg/L	1	0.5	0.5	0.0012	0.0014	0.0012	0.0021	0.0021	0.0015	0.0027	0.0013	0.0011	0.001	0.0015	0.0012	0.0012	0.001
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00003	0.00002	0.00006	< 0.00002	< 0.00002	0.00003	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	0.0002	0.0002	0.0001	0.0002	0.0002	0.0001	0.0001	0.0002	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	<0.0002	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	< 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	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001
Strontium	mg/L	-	-	-	0.156	0.149	0.162	0.171	0.167	0.171	0.173	0.172	0.148	0.148	0.227	0.165	0.146	0.151
Thallium	mg/L	-	-	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.005	< 0.005	< 0.005	< 0.00005	<0.00005	<0.00005
Vanadium	mg/L	-	-	-	< 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
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

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	MW13	MW13	MW13	MW13	MW13	MW13	MW13	MW13	MW13	MW13	MW13	MW13	MW13
					07-Oct-24	16-Apr-15	07-Oct-15	27-Apr-16	04-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	19-Apr-21
Total Alkalinity	mg/L	500	360	381	234	183	246	187	200	184	196	165	194	162	193	174	168	161
Calcium	mg/L	-	-	-	89.5	70.8	90.1	74.9	76.8	71	75	67.2	69.3	67.3	78.9	70.3	67.5	69.6
Chloride	mg/L	250	132	198	2.8	7.6	14.6	7.5	3.9	4.8	4	3.4	2.8	4.6	3	4.9	1.6	4.4
COD	mg/L	-	-	-	16	6	6	< 5	14	10	8	< 5	5	< 5	15	8	< 5	6
Specific Conductivity	umhos/cm	-	-	-	488	385	495	415	416	397	409	326	390	360	404	381	351	360
DOC	mg/L	5	-	-	2.5	3.9	3.2	2	3.5	1.9	2.5	2.3	2.9	2.5	2.8	2.6	1.9	2.7
Fluoride	mg/L	1.5	0.45	0.45	<0.1	0.2	0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	0.012	**0.806**	**0.853**	**0.696**	0.214	**1.02**	**0.415**	**0.612**	**0.813**	**0.494**	**0.365**	**0.594**	0.245	**0.93**
Magnesium	mg/L	-	-	-	6.33	3.83	4.78	4.19	4.28	3.98	4.21	3.83	3.7	3.74	4.25	4.27	3.69	3.99
Manganese	mg/L	0.05	-	-	<0.001	**0.104**	**0.124**	**0.078**	**0.079**	**0.091**	**0.095**	**0.083**	**0.1**	**0.06**	**0.062**	**0.07**	**0.054**	**0.084**
Nitrate	mg/L	10	2.5	2.5	0.4	0.2	< 0.1	0.1	0.1	0.1	0.08	0.14	< 0.05	0.16	0.12	0.14	0.09	< 0.05
Nitrite	mg/L	1	0.3	0.3	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.94	7.85	7.67	7.98	7.95	8.04	7.81	7.91	7.81	8.02	7.89	7.86	7.79	7.85
Phenols	mg/L	-	-	-	<0.001	< 0.001	< 0.001	0.018	0.005	< 0.001	0.002	< 0.001	< 0.002	< 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	< 0.1
Potassium	mg/L	-	-	-	1.4	2.8	4.5	2.8	4.4	2.7	3.8	2.5	3.4	2.3	3.9	2.7	3.3	2.7
Sodium	mg/L	200	106	121	2.6	7.6	14.5	9.8	12.5	8.7	8.2	8.3	7.6	6.8	7.2	5.4	4.5	4.2
Sulphate	mg/L	500	251	252	9	7	7	15	6	16	8	9	6	10	4	8	3	7
TDS	mg/L	500	372	512	252	213	287	229	231	221	223	195	211	194	218	201	185	190
Tot Kjel N	mg/L	-	-	-	0.3	1.2	1.8	0.7	1.4	0.8	1.2	0.6	1.1	0.8	0.8	0.7	0.9	0.8
Ammonia (NH3-N)	mg/L	-	-	-	0.07	0.94	1.62	0.66	1.2	0.71	1.1	0.46	0.87	0.41	0.69	0.59	0.73	0.71
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	250	193	245	204	210	194	205	184	188	184	215	193	184	190
BOD	mg/L	-	-	-		--	--	--	--	--	--							
Cyanide (free)	mg/L	-	-	-		--	--	--	--	--	--							
TSS	mg/L	-	-	-		--	--	--	--	--	--							
Aluminum	mg/L	0.1	0.06	0.09	0.03	0.02	0.03	0.02	0.04	0.05	0.05	0.04	0.05	0.07	0.06	0.05	0.01	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	0.0003	0.0002	< 0.0001	0.0002	0.0002	< 0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001
Barium	mg/L	1	0.32	0.28	0.069	0.057	0.086	0.057	0.075	0.056	0.072	0.05	0.065	0.049	0.073	0.055	0.057	0.054
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	0.013	0.014	0.03	< 0.005	0.029	0.013	0.029	0.012	0.028	0.011	0.025	0.015	0.026	0.014
Cadmium	mg/L	0.005	0.0013	0.0013	<0.000015	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	<0.01	0.001	0.0023	< 0.0002	0.0104	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	-	-	-	<0.01													
Cobalt	mg/L	-	-	-	0.0002	< 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	0.0013	0.0015	0.0006	0.0006	0.0005	0.001	0.0003	0.0011	0.0006	0.0011	0.001	0.0006	0.0018	0.0021
Lead	mg/L	0.01	0.003	0.003	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	0.0001	0.00011	< 0.00002	0.00007	0.00007
Mercury	mg/L	0.001	0.0003	0.0003	<0.00002	< 0.00002	< 0.00002	0.00005	< 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	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001
Nickel	mg/L	-	-	-	<0.0002	< 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	0.002	< 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	0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.165	0.15	0.195	0.159	0.161	0.131	0.148	0.131	0.138	0.132	0.165	0.141	0.135	0.139
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	0.0015	0.0009	0.001	0.0006	0.001	0.0002	< 0.0001	0.0001	0.0002	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	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006

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 27-Oct-21	MW13 20-Apr-22	MW13 26-Oct-22	MW13 19-Apr-23	MW13 11-Oct-23	MW13 17-Apr-24	MW13 07-Oct-24	MW14 15-Apr-15	MW14 07-Oct-15	MW14 28-Apr-16	MW14 03-Oct-16	MW14 17-Apr-17	MW14 23-Oct-17	MW14 25-Apr-18
Total Alkalinity	mg/L	500	360	381	188	178	188	189	202	186	195	228	177	187	169	178	189	177
Calcium	mg/L	-	-	-	70.2	71.1	68	62.9	55	68.6	75.3	97.9	73.4	81.5	72.2	81.1	81	75.9
Chloride	mg/L	250	132	198	3.5	3.9	4.5	5.4	3.5	6	7	8.8	1.3	9.1	0.8	11.1	5.1	3.7
COD	mg/L	-	-	-	7	10	6	< 5	5	21	190	27	6	72	< 5	30	43	64
Specific Conductivity	umhos/cm	-	-	-	359	383	402	387	370	388	420	466	322	403	346	405	393	341
DOC	mg/L	5	-	-	2.7	2.2	2.3	1.2	3.8	3.2	3	3.4	1.6	3.2	3.2	4	4.1	4.2
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	< 0.1	0.1	0.1	< 0.1	0.4	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	**1.05**	**0.926**	**0.926**	**0.34**	**0.351**	**0.792**	**1.78**	0.017	0.01	< 0.005	0.043	< 0.005	< 0.005	0.118
Magnesium	mg/L	-	-	-	4	4.16	4.24	4.23	3.61	4.34	4.86	2.02	1.78	1.82	2.12	1.82	1.98	1.62
Manganese	mg/L	0.05	-	-	**0.107**	**0.073**	**0.066**	0.025	0.04	**0.065**	**0.34**	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.002	0.002
Nitrate	mg/L	10	2.5	2.5	0.13	0.1	0.08	0.15	0.15	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.07
Nitrite	mg/L	1	0.3	0.3	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	0.06	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.89	7.51	7.75	8.02	7.07	7.7	7.78	7.73	7.7	7.95	7.98	8.07	7.89	7.91
Phenols	mg/L	-	-	-	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	0.008	< 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	-	-	-	3.6	2.4	3	2.1	2.3	2.1	3.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2
Sodium	mg/L	200	106	121	5.3	5.4	4.9	4.2	3.6	4.2	5.3	6	3.1	4.3	2.9	3.6	5.4	3.9
Sulphate	mg/L	500	251	252	5	8	5	6	4	9	5	5	7	9	7	11	7	7
TDS	mg/L	500	372	512	206	204	205	198	190	200	217	257	193	218	187	217	214	199
Tot Kjel N	mg/L	-	-	-	0.9	1.1	1.3	0.5	0.4	1.1	2.4	1.3	0.4	1	0.7	0.6	0.9	2
Ammonia (NH3-N)	mg/L	-	-	-	0.73	1.02	0.73	0.35	0.3	0.53	0.81	0.1	< 0.01	0.07	0.11	0.02	0.01	0.1
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	192	195	187	175	152	189	208	253	191	211	189	210	211	196
BOD	mg/L	-	-	-								--	--	--	--	--	--	
Cyanide (free)	mg/L	-	-	-								--	--	--	--	--	--	
TSS	mg/L	-	-	-								--	--	--	--	--	--	
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.04	0.02	0.02	0.03	0.05	0.03	0.03	0.02	0.02	0.09	0.05	0.05	***0.19***
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	0.0002
Arsenic	mg/L	0.025	0.006	0.006	0.0002	0.0001	0.0002	< 0.0001	0.0001	<0.0001	0.0002	< 0.0001	0.0001	0.0001	< 0.0001	0.0002	0.0002	< 0.0001
Barium	mg/L	1	0.32	0.28	0.061	0.05	0.053	0.045	0.046	0.049	0.072	0.017	0.014	0.014	0.016	0.016	0.02	0.018
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.002	<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	0.027	0.012	0.023	0.008	0.018	0.014	0.026	0.005	0.008	< 0.005	< 0.005	0.005	0.009	< 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	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	< 0.001	0.002	<0.001	<0.01	<0.01	0.0012	0.0014	< 0.0002	< 0.0002	< 0.001	< 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	< 0.005	0.0002	0.0002	0.0007	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0011	0.0004	0.0007	0.0006	0.0005	0.0009	0.0005	0.0011	0.0012	0.0009	0.0008	0.0017	0.0005	0.001
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 0.00002	0.00003	< 0.00002	0.00002	0.00003	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00006	< 0.00002	< 0.00002	0.00013
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	0.0002	0.0002	0.0002	< 0.0001	0.0003	< 0.0001	0.0003	< 0.0001	0.0002	< 0.0001
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	0.0006	0.0002	< 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	0.002	< 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	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	-	-	-	0.145	0.138	0.14	0.142	0.124	0.137	0.158	0.189	0.132	0.147	0.127	0.131	0.153	0.129
Thallium	mg/L	-	-	-	< 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	< 0.00005
Vanadium	mg/L	-	-	-	0.0001	0.0001	0.0001	< 0.0001	0.0001	<0.0001	0.0002	0.0023	0.0008	0.0007	0.001	0.0012	0.0006	0.0004
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

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 15-Oct-18	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 11-Oct-23	MW14 17-Apr-24	MW14 07-Oct-24	MW15 15-Apr-15
Total Alkalinity	mg/L	500	360	381	181	202	160	161	181	197	211	236	206	206	203	230	163	194
Calcium	mg/L	-	-	-	79.3	90.8	72.5	81.4	86.8	100	98.6	109	93.8	95.7	60.6	96.3	67.9	76.5
Chloride	mg/L	250	132	198	12.6	8.2	2.3	19.6	17.7	15.8	22	16.2	24.7	21.8	7.9	17.5	0.8	2.1
COD	mg/L	-	-	-	< 5	67	33	25	60	13	13	16	45	58	19	217	105	10
Specific Conductivity	umhos/cm	-	-	-	399	438	327	406	437	474	460	525	497	488	396	505	341	373
DOC	mg/L	5	-	-	2.7	3.8	2	4.4	2.1	4.4	2.9	4.1	2	4.1	3.2	**5.2**	2.6	**8.3**
Fluoride	mg/L	1.5	0.45	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	-	-	0.011	0.06	0.007	0.005	< 0.005	0.022	0.121	0.029	0.024	< 0.005	0.008	0.012	0.009	< 0.005
Magnesium	mg/L	-	-	-	2.12	2.03	2.22	1.88	2.4	2.31	2.34	2.46	2.46	2.13	1.68	2.1	1.78	2.19
Manganese	mg/L	0.05	-	-	< 0.001	0.002	< 0.001	< 0.001	< 0.001	0.001	0.017	0.001	0.003	< 0.001	<0.001	0.036	0.025	< 0.001
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	0.07	0.06	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	<0.05	0.06	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	<0.05	<0.05	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.9	7.99	7.95	7.86	7.92	7.85	7.92	7.57	7.74	7.73	7.13	7.75	7.99	7.89
Phenols	mg/L	-	-	-	< 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	< 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	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.4	0.3	0.2	0.2	0.3	0.1
Sodium	mg/L	200	106	121	3.1	3.5	2.3	4.5	4.3	5.1	6.4	4.8	4.8	5.4	3.3	5.3	2.9	1.8
Sulphate	mg/L	500	251	252	6	6	4	11	7	9	5	7	6	8	7	8	7	2
TDS	mg/L	500	372	512	212	232	180	215	227	251	262	282	256	258	204	261	175	201
Tot Kjel N	mg/L	-	-	-	0.5	0.9	0.5	0.5	0.7	0.5	0.7	0.5	0.6	0.6	0.4	3.8	2.4	0.3
Ammonia (NH3-N)	mg/L	-	-	-	0.04	0.16	0.02	0.01	0.04	0.03	0.05	0.05	0.03	0.04	<0.05	0.06	0.15	< 0.01
Ammonia - Unionized	mg/L	-	-	-		0.001651	0.000431	7.07E-05	0.000576	0.000369	0.000721	0.000324	0.000287					
Hardness (CaCO3)	mg/L	500	362	460	207	235	190	211	227	259	256	283	245	248	158	249	177	200
BOD	mg/L	-	-	-														--
Cyanide (free)	mg/L	-	-	-														--
TSS	mg/L	-	-	-														--
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.08	0.06	0.06	0.02	0.07	**0.11**	0.07	0.04	0.02	0.04	0.06	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	0.0002	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	0.017	0.017	0.015	0.015	0.019	0.018	0.023	0.019	0.019	0.017	0.014	0.02	0.014	0.008
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	< 0.002
Boron	mg/L	5	1.3	1.3	0.005	0.007	0.006	0.005	0.008	0.01	0.007	< 0.005	< 0.005	< 0.005	<0.005	<0.005	0.007	0.005
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	0.000016	<0.000015	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 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	0.0009
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	0.0002	0.0002	< 0.005
Copper	mg/L	1	0.5	0.5	0.0008	0.0012	0.0017	0.0009	0.002	0.0025	0.0018	0.0007	0.0009	0.0007	0.0008	0.0009	0.0011	0.0016
Lead	mg/L	0.01	0.003	0.003	< 0.00002	0.00006	0.00004	< 0.00002	0.00006	0.00008	0.00013	0.00003	0.00004	< 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	-	-	-	0.0003	< 0.0001	0.0003	< 0.0001	0.0003	0.0001	0.0002	< 0.0001	0.0002	< 0.0001	0.0004	<0.0001	0.0004	< 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	0.0005	0.0009	<0.0002	< 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	<0.0001	< 0.00002
Strontium	mg/L	-	-	-	0.135	0.164	0.13	0.142	0.172	0.184	0.186	0.191	0.179	0.181	0.132	0.183	0.129	0.168
Thallium	mg/L	-	-	-	< 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	< 0.00005
Vanadium	mg/L	-	-	-	0.0003	0.0003	0.0003	0.0002	0.0004	0.0003	0.0006	0.0004	0.0004	0.0002	0.0004	0.0003	0.0004	0.0015
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

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 07-Oct-15	MW15 28-Apr-16	MW15 03-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	MW15 19-Apr-21	MW15 27-Oct-21	MW15 20-Apr-22
Total Alkalinity	mg/L	500	360	381	250	171	194	168	163	187	222	168	213	158	172	155	183	175
Calcium	mg/L	-	-	-	101	67.9	89.6	66.1	70.4	74.2	78	73.9	92.8	62.6	78.1	71.5	76.3	73.9
Chloride	mg/L	250	132	198	1.7	3.7	2.4	3.3	1.9	1.1	1.6	2.9	2.1	3.2	2	2.4	2.3	1.7
COD	mg/L	-	-	-	10	5	13	9	23	5	7	5	8	12	< 5	10	15	9
Specific Conductivity	umhos/cm	-	-	-	433	341	384	332	319	334	366	347	423	325	357	332	341	346
DOC	mg/L	5	-	-	3.1	2.6	4.3	2.8	3.2	2.4	3.3	3.2	3.4	3	2.7	3.6	3.2	3.3
Fluoride	mg/L	1.5	0.45	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	**0.419**	< 0.005	< 0.005	< 0.005	0.006	0.009	0.008	0.006	< 0.005	< 0.005	0.01	0.01
Magnesium	mg/L	-	-	-	2.91	1.97	2.48	1.87	1.96	2.18	2.1	2.13	2.58	1.77	2.12	1.97	2.08	2.09
Manganese	mg/L	0.05	-	-	0.05	< 0.001	**0.326**	< 0.001	0.002	< 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	< 0.1	0.2	0.1	0.2	0.17	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	0.11	< 0.05	< 0.05
Nitrite	mg/L	1	0.3	0.3	< 0.1	< 0.1	< 0.1	0.2	< 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	8.04	7.93	8.11	7.95	7.95	7.89	8.07	7.92	7.89	7.84	7.93	7.92	7.48
Phenols	mg/L	-	-	-	< 0.001	0.001	0.005	0.001	0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	-	-	-	0.2	0.2	0.2	0.1	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.4	0.2
Sodium	mg/L	200	106	121	1.9	3.3	2	3.3	2.4	3.5	1.9	1.8	2.1	8.2	1.9	3.1	1.9	2.2
Sulphate	mg/L	500	251	252	2	1	2	1	3	< 1	2	2	2	< 1	1	< 1	1	2
TDS	mg/L	500	372	512	260	182	216	178	178	194	218	184	230	171	189	172	194	187
Tot Kjel N	mg/L	-	-	-	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.3	0.2	0.4	0.2
Ammonia (NH3-N)	mg/L	-	-	-	< 0.01	0.08	0.06	< 0.01	< 0.01	0.03	< 0.01	0.03	0.01	0.01	0.02	0.03	0.04	0.17
Ammonia - Unionized	mg/L	-	-	-								0.000828	0.00011	0.000108	0.000238	0.000439	0.000572	0.000891
Hardness (CaCO3)	mg/L	500	362	460	264	178	234	173	184	194	204	194	243	164	204	187	199	193
BOD	mg/L	-	-	-	--	--	--	--	--									
Cyanide (free)	mg/L	-	-	-	--	--	--	--	--									
TSS	mg/L	-	-	-	--	--	--	--	--									
Aluminum	mg/L	0.1	0.06	0.09	0.03	0.02	**0.38**	0.05	0.05	0.06	0.02	0.05	0.06	0.03	0.02	0.05	0.05	0.04
Antimony	mg/L	0.006	0.002	0.002	< 0.0001	< 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
Arsenic	mg/L	0.025	0.006	0.006	0.0002	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
Barium	mg/L	1	0.32	0.28	0.01	0.007	0.015	0.007	0.008	0.008	0.009	0.007	0.01	0.007	0.008	0.007	0.009	0.008
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	0.006	< 0.005	< 0.005	0.008	0.005	0.005	< 0.005	0.006	< 0.005	0.007	< 0.005	0.01	< 0.005	< 0.005
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.00002	< 0.00002	0.00003	< 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	0.014	0.014	0.0017	< 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	-	-	-														< 0.001
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	0.0014	0.0016	0.0039	0.0017	0.0011	0.0013	0.0014	0.0015	0.0016	0.0013	0.003	0.0034	0.0016	0.0015
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 0.00002	0.00161	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	0.00006	0.00006	< 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	< 0.00002
Molybdenum	mg/L	-	-	-	0.0002	0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002	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	< 0.01	< 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	< 0.001	< 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	-	-	-	0.213	0.139	0.173	0.123	0.129	0.14	0.143	0.144	0.181	0.126	0.148	0.14	0.155	0.139
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	-	-	-	0.0008	0.0006	0.0016	0.0011	0.0003	0.0002	0.0003	0.0002	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003
Zinc	mg/L	5	2.5	2.5	< 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

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 26-Oct-22	MW15 19-Apr-23	MW15 11-Oct-23	MW15 17-Apr-24	MW15 07-Oct-24	MW15A 15-Apr-15	MW15A 07-Oct-15	MW15A 28-Apr-16	MW15A 03-Oct-16	MW15A 17-Apr-17	MW15A 23-Oct-17	MW15A 25-Apr-18	MW15A 15-Oct-18	MW15A 11-Apr-19
Total Alkalinity	mg/L	500	360	381	199	182	204	180	186	403	414	400	397	403	395	394	388	365
Calcium	mg/L	-	-	-	80.7	70.9	63.8	67.2	71	155	159	150	160	156	163	157	152	158
Chloride	mg/L	250	132	198	1.9	1.9	2.1	2.9	1.7	70	67.7	68.1	66.7	67.5	55.7	59.3	71	72.6
COD	mg/L	-	-	-	10	6	15	15	23	22	71	31	21	24	44	22	20	20
Specific Conductivity	umhos/cm	-	-	-	401	357	375	344	375	952	895	940	956	958	937	900	925	956
DOC	mg/L	5	-	-	3.4	3.2	**9.2**	3.6	3.6	4.6	**5.8**	**6.7**	**8.4**	**8.1**	**9.2**	**8.3**	**8.6**	**8.4**
Fluoride	mg/L	1.5	0.45	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	-	-	< 0.005	< 0.005	0.005	<0.005	<0.005	**5.56**	**5.79**	**5.27**	**5.52**	**5.55**	**5.52**	**5.25**	**5.37**	**5.46**
Magnesium	mg/L	-	-	-	2.39	2.01	1.95	1.9	1.95	16.1	17	16.8	17.5	16.8	17.7	17	15.6	16.6
Manganese	mg/L	0.05	-	-	0.001	< 0.001	<0.001	<0.001	<0.001	**0.131**	**0.131**	**0.13**	**0.137**	**0.129**	**0.133**	**0.14**	**0.136**	**0.133**
Nitrate	mg/L	10	2.5	2.5	0.06	< 0.05	<0.05	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 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	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.79	7.84	7.1	7.76	7.99	7.58	7.66	7.64	7.65	7.84	7.48	7.75	7.7	7.82
Phenols	mg/L	-	-	-	< 0.001	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	0.004	0.007	< 0.001	0.003	< 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	-	-	-	0.3	0.2	<0.1	0.1	0.2	2.8	2.9	2.9	2.9	3	3.1	3.3	2.9	3.3
Sodium	mg/L	200	106	121	2	3.5	1.6	2.7	2.1	29.8	31.2	28.7	32.6	29.2	30.8	31.5	28.2	30
Sulphate	mg/L	500	251	252	2	< 1	2	2	1	7	8	6	7	7	6	5	7	7
TDS	mg/L	500	372	512	208	188	193	177	193	**529**	**540**	**519**	**531**	**529**	**520**	**516**	**515**	**513**
Tot Kjel N	mg/L	-	-	-	0.3	0.6	0.2	0.2	0.3	0.8	1.4	0.9	3.5	0.8	1	0.8	0.9	0.9
Ammonia (NH3-N)	mg/L	-	-	-	0.02	0.5	<0.05	<0.05	0.05	0.29	0.55	0.46	0.51	0.49	0.63	0.49	0.5	0.43
Ammonia - Unionized	mg/L	-	-	-	0.000213													
Hardness (CaCO3)	mg/L	500	362	460	211	185	168	176	186	455	467	445	471	459	480	462	444	463
BOD	mg/L	-	-	-						--	--	--	--	--	--			
Cyanide (free)	mg/L	-	-	-						--	--	--	--	--	--			
TSS	mg/L	-	-	-						--	--	--	--	--	--			
Aluminum	mg/L	0.1	0.06	0.09	0.02	0.01	0.04	0.04	0.02	0.04	0.04	0.04	0.05	0.09	0.09	0.08	0.08	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	0.0002	< 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	0.0003	0.0003	< 0.0001	0.0003	0.0002	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.32	0.28	0.008	0.007	0.007	0.007	0.008	0.293	0.296	0.269	0.311	0.305	0.332	0.316	0.313	0.319
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	<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	< 0.005	0.006	<0.005	0.007	<0.005	0.074	0.074	0.046	0.076	0.084	0.084	0.075	0.069	0.078
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000010	< 0.000010	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0012	0.004	< 0.0002	< 0.0002	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	-	-	-	< 0.001	< 0.001	<0.01	<0.01	<0.01									
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	0.0002	0.0002	0.0002	< 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	0.0018	0.0011	0.0015	0.0015	0.0015	0.0009	0.0002	0.0006	0.0003	0.0006	0.0001	0.0001	0.0003	0.0004
Lead	mg/L	0.01	0.003	0.003	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
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	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0012	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	mg/L	-	-	-	< 0.01	< 0.01	<0.0002	0.0006	<0.0002	< 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	0.002	< 0.001	0.002	< 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	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.164	0.141	0.137	0.135	0.143	1.05	1.07	1.02	1.03	0.94	1.02	0.997	0.956	1.04
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	-	-	-	0.0004	0.0003	0.0003	0.0002	0.0003	0.0032	0.0018	0.0014	0.0017	0.0026	0.0009	0.0004	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

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 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	MW15A 19-Apr-23	MW15A 11-Oct-23	MW15A 17-Apr-24	MW15A 07-Oct-24	MW15B 15-Apr-15	MW15B 07-Oct-15	MW15B 28-Apr-16
Total Alkalinity	mg/L	500	360	381	375	369	362	355	405	382	402	412	444	441	442	389	394	388
Calcium	mg/L	-	-	-	163	155	160	159	154	155	145	157	129	159	169	136	136	137
Chloride	mg/L	250	132	198	69	77.5	71.7	69.4	67.5	67.1	65.2	64.1	70.4	68.1	76.7	71.8	70.2	69.5
COD	mg/L	-	-	-	79	26	17	24	15	31	20	22	28	31	41	16	15	20
Specific Conductivity	umhos/cm	-	-	-	959	955	940	931	918	952	979	953	999	1030	1050	912	865	921
DOC	mg/L	5	-	-	**8.5**	8	6	**8.2**	**7.9**	**6.1**	**5.1**	**7.3**	4.8	**13.8**	**11.8**	**7.4**	**5.2**	**6.2**
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	0.2	0.1	< 0.1
Iron	mg/L	0.3	-	-	**6.2**	**5.25**	**6.07**	**5.84**	**5.71**	**5.56**	**5.54**	**5.97**	**4.65**	**6.27**	**6.48**	**1.27**	**1.2**	**1.58**
Magnesium	mg/L	-	-	-	16.8	17.9	16.8	16.8	16.4	16.5	17	16.9	15.4	17.5	18.8	24.8	26.7	23.6
Manganese	mg/L	0.05	-	-	**0.139**	**0.127**	**0.136**	**0.133**	**0.15**	**0.142**	**0.128**	**0.145**	**0.135**	**0.142**	**0.15**	0.043	0.039	**0.051**
Nitrate	mg/L	10	2.5	2.5	0.06	0.08	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	0.11	< 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	-	-	7.69	7.64	7.46	7.68	7.81	7.6	7.51	7.71	7.31	7.7	7.7	7.58	7.71	7.71
Phenols	mg/L	-	-	-	< 0.002	< 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	< 0.1
Potassium	mg/L	-	-	-	3.5	3.3	3.3	3.5	3.5	3.4	3.6	3.6	3.1	3.6	4.1	3.9	4.1	3.6
Sodium	mg/L	200	106	121	31.1	30.8	30	32.2	32.3	30.4	30.9	30	28.2	30.6	34.3	24.5	26.2	24.1
Sulphate	mg/L	500	251	252	7	7	7	7	6	5	3	2	1	2	<1	3	1	4
TDS	mg/L	500	372	512	**523**	**513**	**513**	**502**	**529**	**507**	**512**	**529**	**533**	**549**	**561**	499	**503**	497
Tot Kjel N	mg/L	-	-	-	1.3	0.8	1	0.8	0.9	0.9	1.1	1.7	1	1	1.2	0.8	0.7	0.7
Ammonia (NH3-N)	mg/L	-	-	-	0.61	0.5	0.59	0.59	0.62	0.59	0.65	1.36	0.64	0.73	0.82	0.36	0.42	0.4
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	477	461	470	467	452	455	433	461	386	469	499	441	449	440
BOD	mg/L	-	-	-												--	--	--
Cyanide (free)	mg/L	-	-	-												--	--	--
TSS	mg/L	-	-	-												--	--	--
Aluminum	mg/L	0.1	0.06	0.09	0.09	0.09	0.05	0.09	0.09	0.08	0.04	0.05	0.09	0.08	0.06	0.03	0.04	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	0.0002	< 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	<0.0001	0.0002	0.0002	0.0003
Barium	mg/L	1	0.32	0.28	0.352	0.32	0.329	0.333	0.327	0.32	0.304	0.336	0.292	0.354	0.377	0.134	0.133	0.131
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	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.083	0.082	0.083	0.08	0.079	0.072	0.08	0.077	0.076	0.081	0.091	0.104	0.11	0.068
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	0.00005	< 0.00002	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.001	0.0029	< 0.0002
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0005	0.0005	0.0006	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0006	< 0.0001	0.0016	0.0015	0.0006	0.0003	0.0004	0.0004	0.0006	0.0003	0.0002	0.0011	0.0002	0.0005
Lead	mg/L	0.01	0.003	0.003	0.0001	0.00002	0.00008	0.00006	0.00003	< 0.00002	0.00003	< 0.00002	<0.00004	<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	<0.0001	0.0004	<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	0.0009	0.002	0.0011	< 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	-	-	-	1.05	1.01	1.01	1.03	1.02	0.976	0.995	1.02	0.915	1.06	1.13	1.33	1.42	1.24
Thallium	mg/L	-	-	-	< 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	< 0.00005
Vanadium	mg/L	-	-	-	0.0006	0.0005	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006	0.0029	0.001	0.001
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

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 03-Oct-16	MW15B 17-Apr-17	MW15B 23-Oct-17	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
Total Alkalinity	mg/L	500	360	381	381	388	381	407	378	355	367	357	352	348	391	367	375	394
Calcium	mg/L	-	-	-	135	140	142	143	128	144	141	142	140	147	140	143	134	143
Chloride	mg/L	250	132	198	69.1	68.3	57.5	59.6	71	73.1	67.9	80	73.6	71.4	71.2	68.3	68.5	63.6
COD	mg/L	-	-	-	16	21	35	21	18	20	18	22	19	18	12	23	23	14
Specific Conductivity	umhos/cm	-	-	-	920	935	910	895	884	932	927	934	917	919	897	928	939	920
DOC	mg/L	5	-	-	**7.7**	**8.4**	**7.6**	**8.1**	**7.8**	**6.9**	**8.3**	**7.2**	**5.4**	**7.8**	**7.2**	**5.7**	4.7	**6.9**
Fluoride	mg/L	1.5	0.45	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	-	-	**1.09**	**1.63**	**1.32**	**0.803**	**1.24**	**1.53**	**1.54**	**1.57**	**1.79**	**1.66**	**1.4**	**2.02**	**1.88**	**1.76**
Magnesium	mg/L	-	-	-	27	23.8	27.1	24	24.5	24.2	26.8	24.8	26.8	24.9	25.5	23.9	27.3	23.4
Manganese	mg/L	0.05	-	-	0.043	**0.052**	0.045	**0.059**	0.04	0.048	0.046	**0.052**	0.049	**0.054**	0.048	**0.055**	**0.078**	**0.056**
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	0.06	< 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	-	-	7.64	7.83	7.56	7.82	7.76	7.89	7.76	7.67	7.55	7.64	7.84	7.66	7.6	7.76
Phenols	mg/L	-	-	-	0.007	< 0.001	0.005	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	0.001	< 0.002	< 0.001	< 0.001	< 0.001
Phosphorus	mg/L	-	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	-	-	-	4	3.8	4.1	4	3.8	4	4.6	3.8	4.2	4.1	4.2	3.8	7.4	4
Sodium	mg/L	200	106	121	27.9	24.8	26.1	27.2	25.4	25.5	28.9	26.5	26.5	27	27.2	26.2	32.9	26
Sulphate	mg/L	500	251	252	< 1	5	3	4	< 1	4	1	5	< 1	4	3	4	1	2
TDS	mg/L	500	372	512	494	500	490	**507**	481	490	493	497	484	488	**508**	490	499	500
Tot Kjel N	mg/L	-	-	-	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.7	4.1	0.8	0.7
Ammonia (NH3-N)	mg/L	-	-	-	0.44	0.41	0.38	0.39	0.4	0.3	0.45	0.37	0.48	0.41	0.4	0.79	0.5	0.5
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	450	448	466	456	421	459	463	457	460	470	455	456	447	452
BOD	mg/L	-	-	-	--	--	--											
Cyanide (free)	mg/L	-	-	-	--	--	--											
TSS	mg/L	-	-	-	--	--	--											
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.08	0.07	0.08	0.07	0.07	0.09	0.08	0.04	0.08	0.08	0.08	0.03	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	0.0003	0.0003	< 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	0.145	0.155	0.153	0.152	0.145	0.153	0.172	0.156	0.157	0.159	0.15	0.153	0.141	0.158
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	0.113	0.097	0.118	0.093	0.103	0.099	0.123	0.099	0.119	0.102	0.107	0.094	0.148	0.097
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	< 0.000010	< 0.000010
Chromium (total)	mg/L	0.05	0.014	0.014	< 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
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	< 0.005	0.008	< 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	0.0002	< 0.0001	0.0001	0.0004	0.0002	0.0002	0.0006	< 0.0001	0.001	0.0013	0.0005	0.0002	0.0008	0.0001
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00007	< 0.00002	0.00005	0.00006	< 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	< 0.0001	< 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	< 0.01
Selenium	mg/L	0.01	0.003	0.004	< 0.001	0.002	< 0.001	0.003	< 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	-	-	-	1.35	1.16	1.3	1.21	1.3	1.29	1.49	1.24	1.4	1.31	1.33	1.24	1.32	1.24
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	< 0.00005
Vanadium	mg/L	-	-	-	0.0016	0.0019	0.0005	0.0001	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

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 11-Oct-23	MW15B 17-Apr-24	MW15B 07-Oct-24	MW16 15-Apr-15	MW16 07-Oct-15	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
Total Alkalinity	mg/L	500	360	381	405	410	396	224	243	240	213	218	197	216	207	212	Dry	217
Calcium	mg/L	-	-	-	109	139	139	86.7	95	90.5	88.8	87.1	79.5	76	76.3	87.3		90.6
Chloride	mg/L	250	132	198	72.3	66.3	74.4	4.6	3.2	5.6	2.8	6	1.6	3.1	2.2	6.2		8.1
COD	mg/L	-	-	-	19	29	24	< 5	7	7	< 5	6	19	5	< 5	< 5		11
Specific Conductivity	umhos/cm	-	-	-	929	957	970	442	448	497	435	444	384	415	415	456		467
DOC	mg/L	5	-	-	**7.8**	**11.7**	**9.6**	2.5	2	1.6	3.2	2	1.9	2.9	1.8	2.6		3.2
Fluoride	mg/L	1.5	0.45	0.45	<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	-	-	**1.01**	**1.66**	**1.35**	< 0.005	0.006	< 0.005	0.006	0.011	0.006	< 0.005	< 0.005	0.005		0.018
Magnesium	mg/L	-	-	-	23.3	24	27.5	4.97	5.16	5.56	4.89	5.11	4.41	5.64	3.98	4.91		5.77
Manganese	mg/L	0.05	-	-	0.044	**0.052**	0.047	< 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	0.7	0.7	0.5	0.7	0.38	0.55	0.33	0.53		0.88
Nitrite	mg/L	1	0.3	0.3	<0.05	0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.38	7.82	7.78	7.91	7.82	8.02	7.94	8.09	7.93	8	8.08	8.07		7.88
Phenols	mg/L	-	-	-	<0.001	<0.001	<0.001	< 0.001	< 0.001	0.004	0.007	< 0.001	0.003	< 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
Potassium	mg/L	-	-	-	3.5	3.8	4.6	0.8	0.8	1	0.7	0.9	0.7	1.4	0.7	0.8		0.9
Sodium	mg/L	200	106	121	23.4	25.3	27.5	3.6	4.2	4.3	3.6	4.1	3.5	5.4	3	3		4.8
Sulphate	mg/L	500	251	252	<1	2	<1	11	9	13	6	11	4	5	4	11		10
TDS	mg/L	500	372	512	493	**509**	**517**	250	267	268	237	249	212	226	214	240		250
Tot Kjel N	mg/L	-	-	-	0.7	0.9	0.8	0.4	0.3	0.2	0.2	0.2	0.2	0.2	< 0.1	0.2		0.2
Ammonia (NH3-N)	mg/L	-	-	-	0.42	0.65	0.47	0.03	0.03	0.02	0.04	< 0.01	< 0.01	0.02	< 0.01	<0.01		0.02
Ammonia - Unionized	mg/L	-	-	-												<0.0002		0.000213
Hardness (CaCO3)	mg/L	500	362	460	368	446	461	237	259	249	242	239	217	213	207	238		250
BOD	mg/L	-	-	-				--	--	--	--	--	--					
Cyanide (free)	mg/L	-	-	-				--	--	--	--	--	--					
TSS	mg/L	-	-	-				--	--	--	--	--	--					
Aluminum	mg/L	0.1	0.06	0.09	0.08	0.09	0.04	0.02	0.03	0.03	0.03	0.05	0.05	0.06	0.03	0.05		0.06
Antimony	mg/L	0.006	0.002	0.002	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
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	0.124	0.156	0.153	0.052	0.05	0.054	0.049	0.056	0.048	0.054	0.044	0.054		0.056
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	0.107	0.098	0.117	0.013	0.014	< 0.005	0.008	0.015	0.009	0.064	0.006	0.019		0.017
Cadmium	mg/L	0.005	0.0013	0.0013	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015	< 0.000015		< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	<0.001	<0.01	<0.01	0.0013	0.0021	< 0.0002	< 0.0002	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	-	-	-	0.0004	0.0004	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.013	< 0.005		< 0.005
Copper	mg/L	1	0.5	0.5	0.0005	0.0013	0.0003	0.0013	0.0017	0.0013	0.0009	0.0013	0.0005	0.0022	0.001	0.0024		0.0015
Lead	mg/L	0.01	0.003	0.003	<0.00002	0.00005	<0.00002	< 0.00002	< 0.00002	0.00006	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
Molybdenum	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	< 0.0001	< 0.0001	0.0001	0.0001	0.0001	0.0001	0.0004	0.0001	0.0002		0.0001
Nickel	mg/L	-	-	-	0.0006	0.0007	0.0006	< 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	0.002	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001
Silver	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001		< 0.0001
Strontium	mg/L	-	-	-	1.21	1.24	1.41	0.165	0.182	0.172	0.16	0.147	0.132	0.14	0.133	0.157		0.166
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	0.0017	0.0007	0.0007	0.0009	0.0014	0.0003	0.0002	0.0002	0.0002		0.0003
Zinc	mg/L	5	2.5	2.5	<0.005	<0.005	<0.005	0.017	0.013	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005

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)	MW16 19-Oct-20	MW16 19-Apr-21	MW16 27-Oct-21	MW16 20-Apr-22	MW16 26-Oct-22	MW16 19-Apr-23	MW16 11-Oct-23	MW16 18-Apr-24	MW16 07-Oct-24	MW17 16-Apr-15	MW17 07-Oct-15	MW17 28-Apr-16	MW17 03-Oct-16	MW17 17-Apr-17
Total Alkalinity	mg/L	500	360	381	188	192	Dry	204	217	234	240			244	275	252	249	233
Calcium	mg/L	-	-	-	83.3	82.3		84.5	79.3	90.6	70.5			103	116	103	127	101
Chloride	mg/L	250	132	198	2.8	3.4		2.6	3.3	3.7	2.9			29.1	41.3	35.9	82.3	50.3
COD	mg/L	-	-	-	6	6		9	9	6	<5			18	22	23	10	16
Specific Conductivity	umhos/cm	-	-	-	399	410		423	454	471	449			622	664	664	835	672
DOC	mg/L	5	-	-	1.9	3.2		2.3	2.1	2.8	3.7			4.5	**5.2**	4.7	**5.6**	4.6
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	<0.1			0.2	0.1	0.1	< 0.1	0.3
Iron	mg/L	0.3	-	-	< 0.005	< 0.005		0.005	< 0.005	0.006	0.007			0.011	< 0.005	< 0.005	0.006	0.011
Magnesium	mg/L	-	-	-	4.42	4.77		5.12	4.94	5.68	4.67			12.9	14.9	13.5	16.8	12.7
Manganese	mg/L	0.05	-	-	< 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	0.32	0.39		0.4	0.37	0.48	0.37			2.7	3.2	3.4	3.7	3.6
Nitrite	mg/L	1	0.3	0.3	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05	<0.05			< 0.1	< 0.1	< 0.1	< 0.1	0.2
pH Lab	pH unit	6.5 - 8.5	-	-	7.84	7.9		7.69	7.8	7.9	7.29			7.85	7.79	7.98	7.91	8.03
Phenols	mg/L	-	-	-	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001	<0.001			< 0.001	< 0.001	0.002	0.004	< 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
Potassium	mg/L	-	-	-	0.8	0.9		0.9	1	1.2	0.7			2.5	2.8	2.9	3.1	2.8
Sodium	mg/L	200	106	121	2.5	3.3		3.6	3	4.7	3.6			12.5	14.8	13.4	25.6	24.6
Sulphate	mg/L	500	251	252	5	6		5	6	6	4			31	26	25	32	21
TDS	mg/L	500	372	512	211	216		225	228	252	232			349	394	361	453	369
Tot Kjel N	mg/L	-	-	-	0.2	0.2		0.2	0.4	0.2	<0.1			0.8	0.8	0.7	0.6	0.5
Ammonia (NH3-N)	mg/L	-	-	-	0.02	0.01		0.18	0.17	0.08	<0.05			0.03	0.01	0.04	0.05	0.02
Ammonia - Unionized	mg/L	-	-	-	0.000235	0.000135		0.001501	0.001822									
Hardness (CaCO3)	mg/L	500	362	460	226	225		232	218	250	195			310	351	313	386	305
BOD	mg/L	-	-	-								Dry	Dry	--	--	--	--	--
Cyanide (free)	mg/L	-	-	-										--	--	--	--	--
TSS	mg/L	-	-	-										--	--	--	--	--
Aluminum	mg/L	0.1	0.06	0.09	0.02	0.06		0.06	0.02	0.02	0.06			0.03	0.03	0.03	0.04	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	0.0002	< 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	0.0002	0.0002	< 0.0001	0.0003
Barium	mg/L	1	0.32	0.28	0.045	0.05		0.056	0.047	0.064	0.045			0.107	0.123	0.108	0.146	0.116
Beryllium	mg/L	-	-	-	< 0.002	< 0.002		< 0.002	< 0.002	< 0.002	<0.0001			< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.011	0.014		0.015	0.01	0.02	0.013			0.063	0.073	0.042	0.087	0.063
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000015	< 0.000015		< 0.000015	< 0.000010	< 0.000010	<0.000015			< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001		< 0.001	0.001	< 0.001	<0.001			0.0011	0.002	< 0.0002	< 0.0002	< 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	0.0002			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0022	0.0018		0.001	0.0011	0.0012	0.001			0.0033	0.0028	0.0029	0.0023	0.0036
Lead	mg/L	0.01	0.003	0.003	0.00006	0.00003		< 0.00002	0.00011	< 0.00002	<0.00002			< 0.00002	< 0.00002	0.00004	< 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
Molybdenum	mg/L	-	-	-	0.0001	0.0005		0.0017	0.0001	0.0002	0.0001			0.0004	0.0007	0.0008	0.0006	0.0011
Nickel	mg/L	-	-	-	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	<0.0002			< 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
Silver	mg/L	-	-	-	< 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	-	-	-	0.143	0.148		0.149	0.148	0.164	0.145			0.235	0.26	0.234	0.281	0.204
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
Vanadium	mg/L	-	-	-	0.0003	< 0.0001		0.0003	0.0002	0.0003	0.0002			0.0018	0.0008	0.0006	0.0009	0.0012
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	<0.005			0.013	0.019	< 0.005	< 0.005	< 0.005

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 23-Oct-17	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
Total Alkalinity	mg/L	500	360	381	269	293	322	328		348		319	377	310		318		
Calcium	mg/L	-	-	-	108	108	122	128		134		136	146	124		122		
Chloride	mg/L	250	132	198	25.3	26.4	46.3	37		31.4		26.6	31.9	19.2		19.8		
COD	mg/L	-	-	-	35	15	15	25		18		19	11	19		14		
Specific Conductivity	umhos/cm	-	-	-	710	678	792	814		805		749	788	689		704		
DOC	mg/L	5	-	-	4.9	**6.2**	**7.8**	**8.8**		**7.9**		**9.2**	**8.5**	**5.8**		**6.5**		
Fluoride	mg/L	1.5	0.45	0.45	< 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	0.006	< 0.005	0.017		0.008		0.019	0.023	0.008		< 0.005		
Magnesium	mg/L	-	-	-	14.5	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	0.001		0.003		0.009	0.009	0.008		0.02		
Nitrate	mg/L	10	2.5	2.5	2.88	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		< 0.05		
pH Lab	pH unit	6.5 - 8.5	-	-	7.78	7.97	7.84	7.95		7.77		7.73	7.86	7.69		7.83		
Phenols	mg/L	-	-	-	0.007	< 0.001	< 0.002	< 0.002		< 0.002		< 0.001	< 0.002	< 0.001		< 0.001		
Phosphorus	mg/L	-	-	-	< 0.1	< 0.1	< 0.1	0.14		< 0.1		< 0.1	< 0.1	< 0.1		< 0.1		
Potassium	mg/L	-	-	-	2.7	3.4	3	3.6		3.4		3.5	3.7	3.5		3.9		
Sodium	mg/L	200	106	121	33.6	32.2	22.8	17.5		17.3		12.5	12.7	10.6		10		
Sulphate	mg/L	500	251	252	38	27	38	25		20		17	20	20		23		
TDS	mg/L	500	372	512	384	386	441	425		434		404	460	381		386		
Tot Kjel N	mg/L	-	-	-	0.4	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	< 0.01		0.02		0.02	0.02	1.27		0.08		
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	330	327	370	392		413		413	444	375		370		
BOD	mg/L	-	-	-	--				Dry		Dry				Dry		Dry	Dry
Cyanide (free)	mg/L	-	-	-	--													
TSS	mg/L	-	-	-	--													
Aluminum	mg/L	0.1	0.06	0.09	0.07	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		< 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		
Barium	mg/L	1	0.32	0.28	0.131	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		< 0.002		
Boron	mg/L	5	1.3	1.3	0.099	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	< 0.000014	< 0.000015	< 0.000015	< 0.000015		< 0.000015		< 0.000015	< 0.000015	< 0.000015		< 0.000010		
Chromium (total)	mg/L	0.05	0.014	0.014	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	0.008	0.006	0.012		< 0.005		< 0.005	< 0.005	< 0.005		< 0.005		
Copper	mg/L	1	0.5	0.5	0.0018	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	< 0.00002	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		< 0.00002		
Molybdenum	mg/L	-	-	-	0.0007	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		< 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		
Silver	mg/L	-	-	-	< 0.00002	< 0.0001	< 0.0001	< 0.0001		< 0.0001		< 0.0001	< 0.0001	< 0.0001		< 0.0001		
Strontium	mg/L	-	-	-	0.227	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	< 0.00005	< 0.005		< 0.00005		
Vanadium	mg/L	-	-	-	0.0003	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	0.007	< 0.005	< 0.005		< 0.005		< 0.005	< 0.005	< 0.005		< 0.005		

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	MW18	MW18	MW18	MW18	MW18	MW18	MW18	MW18	MW18	MW18	MW18	MW18	MW18
					07-Oct-24	16-Apr-15	07-Oct-15	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
Total Alkalinity	mg/L	500	360	381		238	260	236	217	229	217	299	247	226	245	244	232	226
Calcium	mg/L	-	-	-		98.6	105	96.3	87.8	92.4	90.4	91.1	86.4	85.6	98.8	103	94.2	94.9
Chloride	mg/L	250	132	198		9	6	9.8	3.9	7.1	3.6	4.2	2.5	3.2	2.5	6.9	3.1	5.5
COD	mg/L	-	-	-		18	29	46	35	19	61	67	35	26	47	24	77	18
Specific Conductivity	umhos/cm	-	-	-		613	635	592	530	549	538	545	567	518	553	611	556	562
DOC	mg/L	5	-	-		**9.8**	**16.9**	4.6	**10.7**	**5.5**	**15**	**10.5**	**15.7**	**11**	**12.2**	**9.4**	**14.8**	**10.1**
Fluoride	mg/L	1.5	0.45	0.45		< 0.1	0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	-	-		0.02	< 0.005	< 0.005	0.111	0.006	0.015	0.01	0.027	< 0.005	0.009	0.025	0.048	0.012
Magnesium	mg/L	-	-	-		6.58	7.39	6.68	6.12	6.09	6.36	6.43	5.73	5.69	6.34	7.19	6.23	6.05
Manganese	mg/L	0.05	-	-		0.01	< 0.001	< 0.001	0.021	0.001	0.004	0.001	0.002	< 0.001	< 0.001	< 0.001	0.003	< 0.001
Nitrate	mg/L	10	2.5	2.5		9.4	3.2	5	1.7	2.9	0.8	1.71	0.57	0.36	0.53	4.88	0.86	3.47
Nitrite	mg/L	1	0.3	0.3		< 0.1	< 0.1	< 0.1	0.2	0.2	< 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	7.76	7.92	7.89	7.99	7.71	8.22	7.85	8.11	7.96	7.83	7.82	7.88
Phenols	mg/L	-	-	-		< 0.001	< 0.001	0.004	0.01	< 0.001	0.003	< 0.001	0.003	< 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	0.15	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	-	-	-		42.8	47.8	39	32.9	40.8	34.8	40.9	41.8	18.5	41.1	32.4	41.7	35.2
Sodium	mg/L	200	106	121		4.8	5.2	6.7	3	5.5	2.6	3.9	3.4	10.5	4	8.1	3	5
Sulphate	mg/L	500	251	252		36	65	26	33	18	36	21	38	25	26	31	29	22
TDS	mg/L	500	372	512		383	407	348	306	321	304	347	326	284	326	336	316	304
Tot Kjel N	mg/L	-	-	-		1.3	1.7	1.3	2.1	0.7	1.2	0.9	1.2	0.7	1	0.9	1.5	0.9
Ammonia (NH3-N)	mg/L	-	-	-		0.02	0.03	0.03	0.63	0.02	0.01	0.01	< 0.01	< 0.01	0.04	0.03	0.04	0.03
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460		274	294	268	245	256	252	254	240	237	273	287	261	262
BOD	mg/L	-	-	-	Dry	--	--	--	--	--	--							
Cyanide (free)	mg/L	-	-	-		--	--	--	--	--	--							
TSS	mg/L	-	-	-		--	--	--	--	--	--							
Aluminum	mg/L	0.1	0.06	0.09		0.03	0.03	0.03	0.07	0.06	0.05	0.06	0.05	0.05	0.06	0.06	0.07	0.06
Antimony	mg/L	0.006	0.002	0.002		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
Arsenic	mg/L	0.025	0.006	0.006		0.0003	0.0004	0.0003	0.0002	0.0004	0.0003	0.0003	0.0004	0.0002	0.0003	0.0002	0.0004	0.0003
Barium	mg/L	1	0.32	0.28		0.088	0.091	0.08	0.06	0.086	0.068	0.08	0.079	0.043	0.085	0.074	0.08	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	< 0.002
Boron	mg/L	5	1.3	1.3		0.025	0.025	< 0.005	0.018	0.024	0.023	0.02	0.023	0.015	0.023	0.024	0.021	0.022
Cadmium	mg/L	0.005	0.0013	0.0013		< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014		0.0009	0.0021	< 0.0002	< 0.0002	< 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	< 0.005	< 0.005	0.006	0.011	0.006	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5		0.0076	0.0119	0.0067	0.0067	0.0069	0.0071	0.0079	0.0132	0.0084	0.0122	0.0076	0.015	0.0102
Lead	mg/L	0.01	0.003	0.003		< 0.00002	< 0.00002	0.00003	0.00003	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	0.00005	< 0.00002	0.0001	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
Molybdenum	mg/L	-	-	-		0.0012	0.0018	0.0014	0.002	0.0016	0.0016	0.0017	0.0019	0.0011	0.0017	0.0009	0.0015	0.0011
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
Selenium	mg/L	0.01	0.003	0.004		< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 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	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-		0.127	0.13	0.122	0.096	0.105	0.099	0.109	0.109	0.11	0.128	0.13	0.113	0.115
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	-	-	-		0.0023	0.0012	0.001	0.0013	0.0017	0.0009	0.0006	0.0008	0.0004	0.0006	0.0006	0.0009	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	< 0.005

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 27-Oct-21	MW18 20-Apr-22	MW18 26-Oct-22	MW18 19-Apr-23	MW18 11-Oct-23	MW18 17-Apr-24	MW18 07-Oct-24	MW18A 16-Apr-15	MW18A 07-Oct-15	MW18A 28-Apr-16	MW18A 04-Oct-16	MW18A 17-Apr-17	MW18A 24-Oct-17	MW18A 24-Apr-18
Total Alkalinity	mg/L	500	360	381	265	272	264	267	283	255	253	383	395	381	379	381	378	377
Calcium	mg/L	-	-	-	101	108	99.8	97.4	80.3	87.9	92	123	114	122	126	125	126	127
Chloride	mg/L	250	132	198	5.4	5.2	3.2	3.8	2.8	5.3	3.1	88.9	87.6	86.9	91	85.7	73.5	75.3
COD	mg/L	-	-	-	10	25	43	29	39	47	98	21	19	24	38	24	30	19
Specific Conductivity	umhos/cm	-	-	-	575	631	599	592	608	562	595	966	927	967	985	971	975	949
DOC	mg/L	5	-	-	**8.8**	**7.8**	**11.2**	**5.9**	**17.6**	**10.2**	**14.9**	8	4.5	**5.5**	**7.3**	**7.4**	**7.3**	8
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	0.2	0.2	0.1	0.2	0.1	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	0.024	0.007	0.163	0.017	0.012	0.007	0.02	**2.17**	0.079	**2.52**	**1.59**	**2.42**	**2.18**	**1.92**
Magnesium	mg/L	-	-	-	6.49	6.39	7.2	6.36	6.24	5.27	6.51	27.7	30.4	29	30.9	29.8	30.9	31.1
Manganese	mg/L	0.05	-	-	0.001	< 0.001	0.024	0.006	0.001	<0.001	0.001	**0.111**	**0.063**	**0.123**	**0.111**	**0.111**	**0.113**	**0.111**
Nitrate	mg/L	10	2.5	2.5	2.74	3.85	1.85	2.4	1.21	2.74	1.39	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.89	7.65	7.77	7.83	7.3	7.87	7.95	7.64	7.71	7.7	7.77	7.9	7.57	7.8
Phenols	mg/L	-	-	-	< 0.002	< 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
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	-	-	-	33.7	30.6	34.8	36.9	35.4	28.2	43.2	6.7	7	7	7.4	7.3	7.3	7.7
Sodium	mg/L	200	106	121	4.1	5.5	8.6	5.7	3.2	4	3	36.4	38.7	36.3	38.9	37.2	38.1	41.5
Sulphate	mg/L	500	251	252	28	26	28	20	36	15	33	3	3	3	2	3	3	2
TDS	mg/L	500	372	512	338	346	340	331	316	291	309	**520**	**519**	**518**	**527**	**521**	**507**	**515**
Tot Kjel N	mg/L	-	-	-	0.9	1.1	1.1	1	1.1	1.4	1.3	1.7	1.6	1.8	1.7	1.5	1.6	1.7
Ammonia (NH3-N)	mg/L	-	-	-	0.06	0.79	0.19	0.36	<0.05	0.41	0.16	1.34	1.3	1.37	1.28	1.32	1.3	1.5
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	279	296	279	270	226	241	257	422	409	424	442	435	442	445
BOD	mg/L	-	-	-								--	--	--	--	--	--	
Cyanide (free)	mg/L	-	-	-								--	--	--	--	--	--	
TSS	mg/L	-	-	-								--	--	--	--	--	--	
Aluminum	mg/L	0.1	0.06	0.09	0.06	0.05	0.02	0.03	0.06	0.06	0.05	0.03	0.04	0.03	0.07	0.07	0.06	0.09
Antimony	mg/L	0.006	0.002	0.002	0.0001	< 0.0001	0.0001	< 0.0001	0.0002	<0.0001	0.0002	0.0002	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0003	0.0002	0.0003	0.0002	0.0004	0.0003	0.0003	0.0005	0.0005	0.0006	0.0002	0.0004	0.0004	< 0.0001
Barium	mg/L	1	0.32	0.28	0.072	0.076	0.075	0.083	0.071	0.062	0.078	0.215	0.177	0.199	0.215	0.213	0.226	0.217
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.002	<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	0.022	0.021	0.024	0.024	0.021	0.02	0.024	0.212	0.213	0.185	0.217	0.221	0.227	0.222
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	< 0.001	0.001	<0.001	<0.01	<0.01	0.0007	0.0107	< 0.0002	**0.269**	0.001	< 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	< 0.005	0.0004	0.0002	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0075	0.0063	0.0099	0.0076	0.0122	0.0066	0.0114	0.0015	0.0003	0.0006	0.0003	0.001	0.0001	< 0.0001
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	0.00007	< 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	0.001	0.0011	0.001	0.0016	0.0012	0.0017	< 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	0.001	0.0006	0.0009	< 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	0.002	< 0.001	0.006
Silver	mg/L	-	-	-	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	< 0.00002	0.00004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	-	-	-	0.13	0.134	0.139	0.122	0.105	0.11	0.118	1.59	1.7	1.62	1.66	1.55	1.61	1.67
Thallium	mg/L	-	-	-	< 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	< 0.00005
Vanadium	mg/L	-	-	-	0.0007	0.0006	0.0007	0.0006	0.0007	0.0006	0.0007	0.0024	0.0039	0.0011	< 0.0001	0.0017	0.0006	0.0003
Zinc	mg/L	5	2.5	2.5	< 0.005	0.006	< 0.005	< 0.005	<0.005	<0.005	<0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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 15-Oct-18	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	MW18B 16-Apr-15
Total Alkalinity	mg/L	500	360	381	376	354	365	349	352	354	413	391	419	426	458	436	440	353
Calcium	mg/L	-	-	-	119	123	131	121	127	131	131	133	129	141	119	134	145	144
Chloride	mg/L	250	132	198	90.1	86.5	78.4	88.9	80.5	81.5	80.6	81.9	82.6	81.4	92.6	91.6	103	74.4
COD	mg/L	-	-	-	18	19	17	23	18	20	18	29	26	23	27	33	42	25
Specific Conductivity	umhos/cm	-	-	-	963	964	953	950	942	951	960	1000	1040	1026	1090	1090	1120	910
DOC	mg/L	5	-	-	**7.9**	8	**8.4**	**7.3**	**5.8**	**6.6**	**7.8**	**5.9**	5	**6.2**	**9.5**	**12.7**	**12**	**7.4**
Fluoride	mg/L	1.5	0.45	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	-	-	**2.1**	**2.06**	**2.28**	**2.04**	**2.4**	**2.53**	**2.94**	**2.9**	**3.33**	**4.18**	**3.85**	**3.8**	**4.44**	**7.61**
Magnesium	mg/L	-	-	-	27.9	29.9	30.9	31.1	29.1	30.7	29.9	31.6	31.5	29.9	26	31.4	32.8	10.5
Manganese	mg/L	0.05	-	-	**0.104**	**0.102**	**0.109**	**0.103**	**0.117**	**0.114**	**0.126**	**0.122**	**0.128**	**0.162**	**0.15**	**0.141**	**0.167**	**0.376**
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	< 0.1
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	<0.05	<0.05	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.75	7.94	7.83	7.74	7.6	7.73	7.85	7.66	7.63	7.67	7.34	7.74	7.75	7.51
Phenols	mg/L	-	-	-	< 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	< 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	-	-	-	6.7	7.6	7.9	7.3	7.2	7.6	7.6	7.6	8.5	7.7	6.5	7.7	8.4	3.6
Sodium	mg/L	200	106	121	36.1	39.3	40.2	39.3	37	40	39.6	38.7	38.9	39.7	36.4	40.7	46	36.2
Sulphate	mg/L	500	251	252	2	3	3	3	2	< 1	< 1	< 1	< 1	< 1	<1	1	<1	17
TDS	mg/L	500	372	512	**511**	**505**	**514**	**501**	496	**505**	**541**	**530**	**547**	**562**	**584**	**587**	**604**	**508**
Tot Kjel N	mg/L	-	-	-	1.6	1.6	1.5	1.7	1.6	1.4	1.6	2.2	2.1	2.3	2.7	2	2.7	1.8
Ammonia (NH3-N)	mg/L	-	-	-	1.22	1.2	1.28	1.2	1.29	1.29	1.36	1.71	1.44	2.02	1.58	1.52	2.22	1.37
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	412	430	454	430	437	454	450	462	451	475	404	464	498	404
BOD	mg/L	-	-	-														--
Cyanide (free)	mg/L	-	-	-														--
TSS	mg/L	-	-	-														--
Aluminum	mg/L	0.1	0.06	0.09	0.07	0.08	0.09	0.07	0.04	0.08	0.09	0.07	0.04	0.04	0.07	0.08	0.04	0.04
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	0.0002	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	0.0004
Barium	mg/L	1	0.32	0.28	0.213	0.216	0.24	0.213	0.223	0.229	0.237	0.224	0.228	0.267	0.238	0.247	0.282	0.207
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	< 0.002
Boron	mg/L	5	1.3	1.3	0.197	0.227	0.241	0.227	0.218	0.228	0.232	0.233	0.249	0.252	0.236	0.273	0.305	0.087
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	< 0.000012	<0.000015	<0.000015	<0.000015	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 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	0.0003
Chromium (VI)	mg/L	-	-	-								< 0.001	< 0.001	< 0.001	<0.01	<0.01	<0.01	
Cobalt	mg/L	-	-	-	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0005	0.0004	0.0006	< 0.005
Copper	mg/L	1	0.5	0.5	0.0003	0.0004	0.0006	< 0.0001	0.001	0.001	0.0006	0.0003	0.0005	0.0002	0.0007	0.0007	0.0003	0.0008
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 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
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	0.0015	0.0015	0.0017	< 0.01
Selenium	mg/L	0.01	0.003	0.004	< 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
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
Strontium	mg/L	-	-	-	1.55	1.73	1.77	1.66	1.59	1.72	1.68	1.74	1.68	1.65	1.37	1.75	1.78	0.373
Thallium	mg/L	-	-	-	< 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	< 0.00005
Vanadium	mg/L	-	-	-	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	0.0006	0.0033
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	< 0.005

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 07-Oct-15	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
Total Alkalinity	mg/L	500	360	381	372	357	355	352	342	360	348	359	343	330	331	341	411	404
Calcium	mg/L	-	-	-	154	146	156	153	156	155	141	149	151	133	145	146	157	159
Chloride	mg/L	250	132	198	76.2	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
COD	mg/L	-	-	-	20	32	20	24	26	45	19	23	18	23	20	21	19	29
Specific Conductivity	umhos/cm	-	-	-	900	918	952	919	916	929	921	921	906	844	867	861	902	959
DOC	mg/L	5	-	-	**5.3**	**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**
Fluoride	mg/L	1.5	0.45	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	-	-	**8.38**	**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**
Magnesium	mg/L	-	-	-	11.3	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
Manganese	mg/L	0.05	-	-	**0.4**	**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**
Nitrate	mg/L	10	2.5	2.5	< 0.1	< 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
Nitrite	mg/L	1	0.3	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	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.65	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
Phenols	mg/L	-	-	-	< 0.001	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
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	3.7	3.9	3.8	4.2	3.4	4	4.1	3.7	3.7	4	4.3	4.3
Sodium	mg/L	200	106	121	38.2	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
Sulphate	mg/L	500	251	252	17	17	17	16	13	14	17	16	16	15	16	11	10	8
TDS	mg/L	500	372	512	**535**	**510**	**531**	**516**	**501**	**522**	**504**	**516**	**503**	462	478	469	**535**	**525**
Tot Kjel N	mg/L	-	-	-	1.6	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
Ammonia (NH3-N)	mg/L	-	-	-	1.3	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
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	432	409	437	428	438	435	394	417	422	375	405	408	439	445
BOD	mg/L	-	-	-	--	--	--	--	--									
Cyanide (free)	mg/L	-	-	-	--	--	--	--	--									
TSS	mg/L	-	-	-	--	--	--	--	--									
Aluminum	mg/L	0.1	0.06	0.09	0.05	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
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	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0004	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
Barium	mg/L	1	0.32	0.28	0.218	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
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	0.085	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
Cadmium	mg/L	0.005	0.0013	0.0013	0.00003	< 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	0.014	0.014	0.0025	< 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
Chromium (VI)	mg/L	-	-	-														< 0.001
Cobalt	mg/L	-	-	-	< 0.005	< 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
Copper	mg/L	1	0.5	0.5	0.0006	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
Lead	mg/L	0.01	0.003	0.003	0.00008	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
Mercury	mg/L	0.001	0.0003	0.0003	< 0.00002	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
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	< 0.01	< 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	-	-	-	< 0.00002	< 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	-	-	-	0.389	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
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	-	-	-	0.0016	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
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

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 26-Oct-22	MW18B 19-Apr-23	MW18B 11-Oct-23	MW18B 17-Apr-24	MW18B 07-Oct-24	MW19 15-Apr-15	MW19 07-Oct-15	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
Total Alkalinity	mg/L	500	360	381	414	454	474	**511**	492	294	315	318	320	303	305	298	301	288
Calcium	mg/L	-	-	-	151	175	134	185	184	144	153	145	149	132	138	134	129	134
Chloride	mg/L	250	132	198	60.3	65.2	70.9	77.4	85.1	37.3	37	36	34.9	36	32.9	33.5	45.7	58.7
COD	mg/L	-	-	-	29	30	31	43	43	11	13	16	8	16	20	11	11	11
Specific Conductivity	umhos/cm	-	-	-	977	1035	1050	1180	1170	932	814	845	840	783	791	731	783	823
DOC	mg/L	5	-	-	**6.3**	**7.9**	**10.8**	**19.1**	**14.6**	**5.2**	4.7	4.3	**5.8**	**5.1**	**5.4**	**5.8**	**5.7**	**5.7**
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 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
Iron	mg/L	0.3	-	-	**8.98**	**10.7**	**8.31**	**12.2**	**11.6**	0.035	0.065	0.052	0.081	0.07	0.089	0.009	0.064	0.041
Magnesium	mg/L	-	-	-	12.3	12.6	11.2	13.7	14.5	14.7	15.6	15.4	16.4	13.9	14.6	13.8	12.8	13.5
Manganese	mg/L	0.05	-	-	**0.427**	**0.52**	**0.402**	**0.551**	**0.544**	**0.052**	**0.061**	**0.06**	**0.063**	**0.058**	**0.061**	**0.06**	**0.063**	**0.06**
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	<0.05	<0.05	<0.05	0.6	0.6	0.8	0.3	0.7	0.69	0.66	0.39	1.41
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	0.3	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.55	7.65	7.27	7.61	7.66	7.81	7.88	7.88	7.8	8.05	7.79	8.05	7.91	8.04
Phenols	mg/L	-	-	-	< 0.001	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	0.001	0.006	< 0.001	0.001	< 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	-	-	-	4.7	5	4.2	5.2	6	3	3.2	3.2	3.4	3.2	3.2	3.6	3.1	4
Sodium	mg/L	200	106	121	40.8	41.5	38.7	44.5	49.6	17.3	18.8	18.4	25.8	17.7	17.9	18.9	16.5	18.9
Sulphate	mg/L	500	251	252	6	2	2	2	<1	106	99	85	82	61	41	33	42	38
TDS	mg/L	500	372	512	**536**	**587**	**564**	**635**	**628**	**501**	**518**	497	**505**	450	432	416	429	440
Tot Kjel N	mg/L	-	-	-	2.3	2.9	2.3	3.5	2.7	0.7	0.3	0.5	0.4	0.3	0.3	0.4	0.3	0.5
Ammonia (NH3-N)	mg/L	-	-	-	1.74	2.64	2.37	2.64	2.23	0.11	0.02	0.02	0.04	0.04	0.03	0.04	0.02	< 0.01
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	429	488	381	**519**	**520**	420	446	425	440	387	405	392	375	390
BOD	mg/L	-	-	-						--	--	--	--	--	--			
Cyanide (free)	mg/L	-	-	-						--	--	--	--	--	--			
TSS	mg/L	-	-	-						--	--	--	--	--	--			
Aluminum	mg/L	0.1	0.06	0.09	0.06	0.05	0.08	0.1	0.06	0.04	0.04	0.04	0.07	0.07	0.07	0.08	0.07	0.07
Antimony	mg/L	0.006	0.002	0.002	< 0.0001	< 0.0001	0.0002	0.0001	0.0002	0.0001	< 0.0001	< 0.0001	0.0002	< 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	0.0002	0.0003	0.0003	0.0003	0.0002	0.0004	0.0003	0.0001	0.0002	0.0003
Barium	mg/L	1	0.32	0.28	0.233	0.277	0.22	0.304	0.302	0.145	0.157	0.143	0.169	0.149	0.156	0.149	0.147	0.151
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	<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	0.113	0.143	0.127	0.195	0.192	0.082	0.083	0.058	0.088	0.085	0.084	0.075	0.065	0.073
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000010	< 0.000012	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0007	0.0024	< 0.0002	0.0098	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	-	-	-	< 0.001	< 0.001	<0.01	<0.01	<0.01									
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	0.0006	0.0007	0.0008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.008
Copper	mg/L	1	0.5	0.5	0.0006	0.0002	0.0007	0.0005	0.0003	0.0022	0.0022	0.0023	0.0017	0.0014	0.0011	0.0034	0.0017	0.0021
Lead	mg/L	0.01	0.003	0.003	0.00008	< 0.00004	<0.00002	0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	< 0.00002	< 0.00002	0.00005	< 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	0.0004	0.0008	0.0006	0.0007	0.0007	0.0005	0.0006	0.0006	0.0013
Nickel	mg/L	-	-	-	< 0.01	< 0.01	0.0012	0.003	0.0016	< 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	0.003	< 0.001	0.002	< 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	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.431	0.45	0.397	0.494	0.522	0.312	0.326	0.318	0.468	0.258	0.277	0.27	0.264	0.29
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	-	-	-	0.0011	0.0011	0.0011	0.0013	0.0012	0.0019	0.0007	0.0007	0.001	0.0015	0.0003	< 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	0.007	< 0.005	0.009	< 0.005	< 0.005

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 21-Oct-19	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) 07-Oct-24	MW22 16-Apr-15
Total Alkalinity	mg/L	500	360	381	292	294	293	318	405	423	435	445	449	462	472	460	405	250
Calcium	mg/L	-	-	-	153	134	133	139	148	165	166	152	160	130	170	172	174	83.4
Chloride	mg/L	250	132	198	56.1	52.6	40.2	36.8	34.1	33.1	32.8	28.3	29.5	32.3	34.6	39.7	30.4	59.3
COD	mg/L	-	-	-	14	15	9	12	9	26	21	14	11	18	29	25	27	20
Specific Conductivity	umhos/cm	-	-	-	829	818	784	814	862	963	969	950	932	940	1000	997	895	648
DOC	mg/L	5	-	-	**5.8**	**5.9**	4.9	**6.5**	**5.8**	**5.7**	**5.7**	5	**6.5**	**8.8**	**10.3**	9	**9.4**	**8.7**
Fluoride	mg/L	1.5	0.45	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	-	-	0.081	0.057	0.108	0.076	0.147	0.211	0.202	**0.458**	< 0.005	0.292	**0.425**	**0.511**	**0.495**	**0.908**
Magnesium	mg/L	-	-	-	15.1	14.6	14	14.4	15.6	17.7	17.8	18.3	17.4	16.6	19.7	21.3	21.5	17.7
Manganese	mg/L	0.05	-	-	**0.079**	**0.071**	**0.071**	**0.078**	**0.085**	**0.101**	**0.101**	**0.101**	**0.106**	**0.097**	**0.142**	**0.155**	**0.159**	0.034
Nitrate	mg/L	10	2.5	2.5	0.82	0.92	0.08	0.35	0.07	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	< 0.1
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	<0.05	<0.05	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.91	7.9	7.69	7.86	7.94	7.74	7.74	7.68	7.73	7.44	7.91	7.78	7.91	7.89
Phenols	mg/L	-	-	-	< 0.002	< 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
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	-	-	-	3.9	3.5	3.5	3.8	3.9	4	4.1	4.2	4	3.4	4	4.7	4.7	3.6
Sodium	mg/L	200	106	121	21.7	23.9	24.7	31.3	33.3	33.1	33.4	29.8	24.6	20.2	19.7	21.4	21.5	23.4
Sulphate	mg/L	500	251	252	40	44	44	35	34	31	31	28	24	21	19	18	14	< 1
TDS	mg/L	500	372	512	465	449	436	451	**512**	**540**	**547**	**528**	**529**	500	**534**	**532**	**509**	340
Tot Kjel N	mg/L	-	-	-	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.7	0.3	0.6	0.4	0.4	0.9
Ammonia (NH3-N)	mg/L	-	-	-	0.02	0.01	0.02	0.02	0.03	0.18	0.02	0.07	0.43	<0.05	0.33	0.09	<0.05	0.56
Ammonia - Unionized	mg/L	-	-	-													<0.01	
Hardness (CaCO3)	mg/L	500	362	460	445	395	390	407	434	485	488	456	471	393	**506**	**519**	**522**	281
BOD	mg/L	-	-	-													<3	--
Cyanide (free)	mg/L	-	-	-													<0.005	--
TSS	mg/L	-	-	-													670	--
Aluminum	mg/L	0.1	0.06	0.09	0.09	0.08	0.04	0.08	0.08	0.08	0.08	0.04	0.04	0.08	0.09	0.06	0.05	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	0.0002	0.0003	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
Barium	mg/L	1	0.32	0.28	0.183	0.158	0.154	0.166	0.18	0.2	0.201	0.195	0.203	0.168	0.216	0.223	0.224	0.091
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	< 0.002
Boron	mg/L	5	1.3	1.3	0.078	0.075	0.072	0.079	0.084	0.093	0.094	0.106	0.105	0.105	0.105	0.118	0.118	0.091
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	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	< 0.001	<0.001	<0.01	<0.01	<0.01	0.0002
Chromium (VI)	mg/L	-	-	-						< 0.001	< 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	< 0.005	0.007	0.001	0.001	0.0016	0.0016	< 0.005
Copper	mg/L	1	0.5	0.5	0.0024	0.0033	0.0034	0.0038	0.0023	0.0021	0.0021	0.0023	0.0023	0.0024	0.0027	0.0029	0.0031	0.0011
Lead	mg/L	0.01	0.003	0.003	0.00007	0.00004	0.00007	0.00007	< 0.00002	0.00003	0.00004	< 0.00002	< 0.00002	<0.00002	0.00003	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	< 0.00002
Molybdenum	mg/L	-	-	-	0.0007	0.0004	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0003	0.0003	< 0.0001
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0024	0.004	0.0037	0.0036	< 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	<0.0001	< 0.00002
Strontium	mg/L	-	-	-	0.322	0.282	0.277	0.288	0.312	0.341	0.344	0.336	0.327	0.304	0.356	0.381	0.382	1.45
Thallium	mg/L	-	-	-	< 0.00005	< 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
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	0.0017
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	0.016

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)	MW22 08-Oct-15	MW22 27-Apr-16	MW22 03-Oct-16	MW22 17-Apr-17	MW22 24-Oct-17	MW22 24-Apr-18	MW22 15-Oct-18	MW22 11-Apr-19	MW22 21-Oct-19	MW22 22-Apr-20	MW22 20-Oct-20	MW22 19-Apr-21	MW22 27-Oct-21	MW22 20-Apr-22
Total Alkalinity	mg/L	500	360	381	257	260	298	309	250	262	273	240	258	237	239	235	263	255
Calcium	mg/L	-	-	-	89.1	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	132	198	60.3	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	-	-	-	16	12	24	31	29	25	21	24	32	31	22	26	15	32
Specific Conductivity	umhos/cm	-	-	-	626	798	910	879	665	818	655	657	698	655	654	661	621	673
DOC	mg/L	5	-	-	**7.1**	**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	0.45	0.45	0.2	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	-	-	**1.03**	**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	-	-	-	18.8	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	-	-	0.031	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	< 0.1	< 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	< 0.1	< 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	-	-	7.89	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	-	-	-	3.6	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	121	25	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	< 1	2	9	11	1	3	40	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TDS	mg/L	500	372	512	354	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	-	-	-	0.54	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	460	300	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	0.06	0.09	0.03	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	0.101	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	-	-	-	< 0.002	< 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	0.085	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	< 0.00002	< 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	0.014	0.014	0.0017	< 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	-	-	-														< 0.001
Cobalt	mg/L	-	-	-	< 0.005	< 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	0.0006	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	0.00003	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	-	-	-	< 0.0001	< 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	< 0.01
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	-	-	-	< 0.00002	< 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	-	-	-	1.49	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	-	-	-	0.001	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	0.006	< 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

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)	MW22 26-Oct-22	MW22 19-Apr-23	MW22 11-Oct-23	MW22 17-Apr-24	MW22 07-Oct-24	MW22A 16-Apr-15	MW22A 08-Oct-15	MW22A 27-Apr-16	MW22A 03-Oct-16	MW22A 17-Apr-17	MW22A 24-Oct-17	MW22A 24-Apr-18	MW22A 15-Oct-18	MW22A 11-Apr-19
Total Alkalinity	mg/L	500	360	381	256	256	290	265	335	325	318	347	250	265	274	273	272	281
Calcium	mg/L	-	-	-	89.7	89.5	73.2	86.7	96.7	158	146	160	90.2	107	142	153	138	153
Chloride	mg/L	250	132	198	50.9	54.1	53.4	50	55.6	110	96.1	106	59.5	97.7	92.4	120	111	117
COD	mg/L	-	-	-	40	18	31	43	54	31	22	17	19	25	37	27	23	28
Specific Conductivity	umhos/cm	-	-	-	664	663	685	663	801	951	854	1010	662	805	900	957	876	939
DOC	mg/L	5	-	-	**7.7**	**7.9**	**11.5**	**12.2**	**15.7**	**10.2**	7	**7.2**	9	**8.4**	**8.5**	**8.7**	**8.2**	**9.9**
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1	<0.1	0.1	<0.1	0.2	0.1	< 0.1	< 0.1	0.5	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	**2.29**	**1.75**	**1.68**	**1.92**	**3.67**	**3.7**	**3.41**	**3.68**	**1.02**	**1.52**	**2.97**	**2.73**	**3.03**	**3.52**
Magnesium	mg/L	-	-	-	19.6	19.1	17.6	18.3	28.7	7.1	6.28	6.51	19.5	20	6.41	6.51	5.81	11.6
Manganese	mg/L	0.05	-	-	**0.069**	0.034	0.038	0.038	**0.06**	**0.245**	**0.215**	**0.229**	0.035	0.049	**0.169**	**0.146**	**0.133**	**0.214**
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	0.09	< 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	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.77	7.82	7.1	7.82	7.76	7.61	7.78	7.8	7.9	8.06	7.64	7.79	7.76	7.87
Phenols	mg/L	-	-	-	< 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	< 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	0.2
Potassium	mg/L	-	-	-	7.9	4.4	4.7	4.1	8.8	1.5	1.3	1.4	3.6	3.9	1.3	1.7	1.3	2.4
Sodium	mg/L	200	106	121	30.4	22.9	22	20.8	29.4	39	40.6	48.4	25.5	28.6	39.8	47.3	38.8	28.2
Sulphate	mg/L	500	251	252	< 1	< 1	<1	1	<1	12	10	14	< 1	2	6	8	8	6
TDS	mg/L	500	372	512	356	346	356	344	421	**528**	495	**550**	351	421	456	**505**	470	492
Tot Kjel N	mg/L	-	-	-	1.9	1	1.7	2.4	2.9	1.4	1.1	0.9	0.9	0.9	0.8	0.7	0.8	1.1
Ammonia (NH3-N)	mg/L	-	-	-	1.08	0.78	1.6	1.79	2.4	0.39	0.51	0.56	0.56	0.65	< 0.01	0.4	0.64	0.62
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	305	302	255	292	360	424	390	427	306	350	381	409	369	430
BOD	mg/L	-	-	-						--	--	--	--	--	--			
Cyanide (free)	mg/L	-	-	-						--	--	--	--	--	--			
TSS	mg/L	-	-	-						--	--	--	--	--	--			
Aluminum	mg/L	0.1	0.06	0.09	0.03	0.02	0.06	**0.16**	0.03	0.05	0.05	0.05	0.05	0.06	0.07	0.08	0.07	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	0.0004	< 0.0001	< 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	0.0002	0.0003	0.0002	< 0.0001	0.0005	0.0004	< 0.0001	0.0001	0.0002
Barium	mg/L	1	0.32	0.28	0.088	0.098	0.075	0.091	0.093	0.096	0.09	0.089	0.101	0.123	0.087	0.085	0.076	0.123
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	<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	0.143	0.1	0.112	0.095	0.205	0.022	0.013	< 0.005	0.087	0.079	0.014	0.01	0.011	0.035
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000010	< 0.000010	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.000029	< 0.000014	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0006	0.0028	< 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									
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	0.0002	0.0002	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007
Copper	mg/L	1	0.5	0.5	0.0005	0.0002	0.0005	0.0004	0.0003	0.0006	0.0006	0.0006	0.0002	0.0012	0.0001	< 0.0001	0.0003	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	< 0.00002	0.00005	< 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	0.0002	< 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	0.0002	0.0006	0.0003	< 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	0.002	< 0.001	0.003	< 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	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	1.39	1.49	1.32	1.41	2.12	0.502	0.423	0.443	1.43	1.48	0.35	0.355	0.298	0.966
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	0.0041	0.0028	0.0029	0.0011	0.0016	0.0021	0.0018	0.002	0.0021
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005	<0.005	<0.005	<0.005	0.009	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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 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	MW22B 16-Apr-15	MW22B 08-Oct-15	MW22B 27-Apr-16
Total Alkalinity	mg/L	500	360	381	386	315	317	317	382	344	365	373	364	353	336	264	274	415
Calcium	mg/L	-	-	-	177	170	157	270	268	231	174	285	161	204	158	143	121	176
Chloride	mg/L	250	132	198	97.4	141	113	**414**	**561**	**428**	**342**	**504**	**336**	**310**	234	109	55.5	27.5
COD	mg/L	-	-	-	264	31	85	30	21	37	34	33	62	68	50	5	21	< 5
Specific Conductivity	umhos/cm	-	-	-	1130	1050	978	1960	2380	2060	1860	2205	1660	1680	1360	936	708	1040
DOC	mg/L	5	-	-	**64.1**	8	**10.3**	4.5	4.3	3.4	2.5	3.7	**6.2**	**14.2**	**9.4**	3.5	1.8	4.8
Fluoride	mg/L	1.5	0.45	0.45	**5.3**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 1	< 0.1	<0.1	<0.7	<0.1	0.2	0.1	< 0.1
Iron	mg/L	0.3	-	-	**5.66**	**3.98**	**3.55**	**6.42**	**6.66**	**5.65**	**4.35**	**7.47**	0.29	**3.58**	**3.5**	0.009	0.012	0.01
Magnesium	mg/L	-	-	-	8.41	8.05	9.27	12.3	12.2	10.9	12.7	14.4	12.3	14.7	13	6.82	5.27	8.13
Manganese	mg/L	0.05	-	-	**0.219**	**0.22**	**0.154**	**0.385**	**0.397**	**0.334**	**0.234**	**0.437**	**0.236**	**0.268**	**0.192**	0.031	0.011	**0.128**
Nitrate	mg/L	10	2.5	2.5	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.3	< 0.5	< 0.05	<0.05	<0.40	<0.05	4.2	1.8	**17.5**
Nitrite	mg/L	1	0.3	0.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.3	< 0.5	< 0.05	<0.05	0.52	<0.05	< 0.1	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.63	7.69	7.55	7.62	7.83	7.52	7.67	7.61	7.27	7.75	7.76	7.76	7.82	7.66
Phenols	mg/L	-	-	-	0.115	< 0.002	0.019	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	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	-	-	-	1.5	1.7	1.9	2.6	2.5	2	2.6	2.3	2.5	2.8	2.7	1.1	1.2	1.4
Sodium	mg/L	200	106	121	47.6	48.4	44.7	135	**235**	194	177	176	154	122	103	43.5	24.2	51.2
Sulphate	mg/L	500	251	252	5	9	2	10	14	9	< 10	9	6	19	7	49	26	40
TDS	mg/L	500	372	512	**580**	**568**	**522**	**1036**	**1330**	**1083**	**933**	**1224**	**909**	**917**	**737**	**529**	406	**631**
Tot Kjel N	mg/L	-	-	-	1.4	0.9	1.3	1.3	1.6	2	1.7	2.1	1.3	1.6	1.4	0.5	0.2	0.7
Ammonia (NH3-N)	mg/L	-	-	-	0.57	0.47	0.46	0.98	1.11	1.2	0.92	1.62	0.89	0.86	0.84	< 0.01	0.02	0.05
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	477	458	431	**726**	**720**	**622**	488	**771**	453	**570**	448	386	325	473
BOD	mg/L	-	-	-												--	--	--
Cyanide (free)	mg/L	-	-	-												--	--	--
TSS	mg/L	-	-	-												--	--	--
Aluminum	mg/L	0.1	0.06	0.09	0.1	0.09	0.06	**0.13**	**0.12**	**0.11**	0.06	0.08	**0.11**	**0.31**	0.06	0.03	0.03	0.05
Antimony	mg/L	0.006	0.002	0.002	0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0003	<0.0001	0.0002	0.0002	< 0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0003	0.0001	0.0003	< 0.0003	< 0.0003	< 0.0003	0.0001	< 0.0003	0.0002	0.0002	0.0001	0.0002	0.0001	0.0002
Barium	mg/L	1	0.32	0.28	0.119	0.112	0.096	0.218	0.288	0.247	0.216	0.327	0.206	0.247	0.182	0.041	0.035	0.051
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	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.095	0.022	0.057	0.036	0.041	0.036	0.049	0.036	0.048	0.052	0.048	0.059	0.065	0.051
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000015	< 0.000015	< 0.000015	< 0.000029	< 0.000029	< 0.000029	< 0.000012	< 0.000029	<0.000015	<0.000015	<0.000015	0.00003	< 0.00002	0.00005
Chromium (total)	mg/L	0.05	0.014	0.014	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	<0.01	<0.01	0.0003	0.002	< 0.0002
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	< 0.005	< 0.005	< 0.005	< 0.005	0.007	0.0003	0.0004	0.0004	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0006	0.0002	0.0004	0.0008	0.0006	0.0004	0.0003	0.0005	0.0005	0.0005	0.0003	0.0026	0.0026	0.0026
Lead	mg/L	0.01	0.003	0.003	0.00007	< 0.00004	0.00013	< 0.00009	< 0.00009	< 0.00009	< 0.00004	< 0.00009	0.00009	<0.00002	<0.00002	< 0.00002	< 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	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	0.0003	<0.0001	0.0002	<0.0001	< 0.0001	0.0003	0.0002
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0008	0.0007	<0.0002	< 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	0.003	< 0.001	0.003	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	-	-	-	< 0.0001	< 0.0001	< 0.0001	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-	-	-	0.453	0.463	0.605	0.825	0.9	0.767	0.943	0.993	0.893	1.2	1.01	0.306	0.251	0.393
Thallium	mg/L	-	-	-	< 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	< 0.00005
Vanadium	mg/L	-	-	-	0.0021	0.0021	0.0029	0.0018	0.0016	0.0021	0.0019	0.0021	0.0013	0.0003	0.0019	0.0019	0.0007	0.0015
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	0.006	< 0.005

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 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	MW22B 19-Apr-23
Total Alkalinity	mg/L	500	360	381	453	447	**553**	**1120**	**4300**	**1200**	**2140**	**1870**	**2760**	**1910**	**1890**	**1200**	**1260**	**2440**
Calcium	mg/L	-	-	-	216	133	238	838	1520	310	466	413	525	500	364	307	256	428
Chloride	mg/L	250	132	198	21.6	27.9	86	**420**	129	195	**274**	**285**	38	**288**	**338**	181	199	**404**
COD	mg/L	-	-	-	22	38	36	5670	8250	234	455	357	627	401	380	188	230	537
Specific Conductivity	umhos/cm	-	-	-	1030	919	1270	6840	10400	2880	4660	4180	6030	4560	4320	3050	3050	4951
DOC	mg/L	5	-	-	**9.4**	**10.6**	**8.1**	**134**	**533**	**83.2**	**174**	**90.7**	**100**	**30**	**90.6**	**14.4**	**54**	**24.1**
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1	< 0.1	**165**	**75.7**	< 1	< 1	< 3	< 0.1	< 1	< 1	< 1	1.5	< 1
Iron	mg/L	0.3	-	-	0.006	**5.87**	**30**	**123**	**363**		**1.65**	**7.9**	**38.2**	**33.5**	**31.7**	**28.1**	0.198	**0.825**
Magnesium	mg/L	-	-	-	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	72.9
Manganese	mg/L	0.05	-	-	**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**	**1.73**
Nitrate	mg/L	10	2.5	2.5	10	0.4	1.96	< 0.5	< 0.3	< 0.5	< 0.5	< 1	< 0.05	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nitrite	mg/L	1	0.3	0.3	< 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	< 0.5
pH Lab	pH unit	6.5 - 8.5	-	-	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	7.42
Phenols	mg/L	-	-	-	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	0.017
Phosphorus	mg/L	-	-	-	< 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	0.1
Potassium	mg/L	-	-	-	2.8	4.4	7.5	315	420	138	218	163	239	157	146	95.9	103	197
Sodium	mg/L	200	106	121	17.2	18.9	51	**534**	**709**	189	**319**	**259**	**356**	**267**	**285**	**204**	**210**	**381**
Sulphate	mg/L	500	251	252	27	17	17	221	< 5	17	< 10	< 30	< 1	18	17	40	21	14
TDS	mg/L	500	372	512	**611**	487	**775**	**3622**	**5998**	**1747**	**2865**	**2484**	**2934**	**2657**	**2617**	**1709**	**1734**	**3266**
Tot Kjel N	mg/L	-	-	-	1	1.1	0.9	233	508	92.8	182	166	319	214	203	114	153	268
Ammonia (NH3-N)	mg/L	-	-	-	0.07	0.19	0.52	189	421	108	183	141	283	172	192	95.7	130	237
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	**572**	353	**634**	**2340**	**4310**	**931**	**1400**	**1280**	**1630**	**1490**	**1110**	**913**	**871**	**1370**
BOD	mg/L	-	-	-	--	--	--											
Cyanide (free)	mg/L	-	-	-	--	--	--											
TSS	mg/L	-	-	-	--	--	--											
Aluminum	mg/L	0.1	0.06	0.09	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	**0.12**
Antimony	mg/L	0.006	0.002	0.002	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	0.0015
Arsenic	mg/L	0.025	0.006	0.006	< 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	0.0025
Barium	mg/L	1	0.32	0.28	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	0.133
Beryllium	mg/L	-	-	-	< 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	< 0.002
Boron	mg/L	5	1.3	1.3	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	2.9
Cadmium	mg/L	0.005	0.0013	0.0013	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	< 0.000059
Chromium (total)	mg/L	0.05	0.014	0.014	< 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	0.015
Chromium (VI)	mg/L	-	-	-												< 0.001	< 0.001	< 0.001
Cobalt	mg/L	-	-	-	< 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	0.025
Copper	mg/L	1	0.5	0.5	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	0.0005
Lead	mg/L	0.01	0.003	0.003	< 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	< 0.0002
Mercury	mg/L	0.001	0.0003	0.0003	< 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	< 0.00002
Molybdenum	mg/L	-	-	-	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	0.0006
Nickel	mg/L	-	-	-	< 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	0.03
Selenium	mg/L	0.01	0.003	0.004	< 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	0.005
Silver	mg/L	-	-	-	< 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	< 0.0002
Strontium	mg/L	-	-	-	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	1.4
Thallium	mg/L	-	-	-	< 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	0.00007
Vanadium	mg/L	-	-	-	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	0.0077
Zinc	mg/L	5	2.5	2.5	< 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	0.011

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 11-Oct-23	MW22B 17-Apr-24	MW22B 07-Oct-24	MW23 16-Apr-15	MW23 07-Oct-15	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	MW23 22-Apr-20
Total Alkalinity	mg/L	500	360	381	**2040**	**1750**	**1620**	382	389	239	262	391	382	391	379	357	367	359
Calcium	mg/L	-	-	-	281	296	290	152	152	93.3	106	153	157	142	153	153	163	155
Chloride	mg/L	250	132	198	**323**	**353**	**368**	67.3	65.7	9.6	13.2	64.8	52.5	53.7	66.9	65.3	64.7	72.3
COD	mg/L	-	-	-	466	417	330	19	18	7	5	27	30	50	27	23	24	26
Specific Conductivity	umhos/cm	-	-	-	4620	4890	3990	897	868	497	559	918	906	869	906	906	913	921
DOC	mg/L	5	-	-	**29.4**	**151**	**86.7**	**9.2**	**7.2**	1.3	3.4	**9.5**	**9.9**	**8.2**	**10.1**	**9.7**	**9.4**	**9.7**
Fluoride	mg/L	1.5	0.45	0.45	<0.7	<0.7	<0.7	0.2	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	-	-	**25.9**	**0.442**	**36.6**	**4.99**	**5.03**	0.066	0.218	**5.19**	**5.08**	0.043	**5.01**	**4.99**	**5.55**	**5.36**
Magnesium	mg/L	-	-	-	59.4	60.8	51.9	13.8	14.1	5.76	6.38	14.2	14.8	14.3	13.3	14.1	14.6	15.3
Manganese	mg/L	0.05	-	-	**2.53**	**5.47**	**6.23**	**0.161**	**0.13**	0.019	0.039	**0.133**	**0.134**	0.032	**0.131**	**0.129**	**0.138**	**0.134**
Nitrate	mg/L	10	2.5	2.5	<0.40	<0.40	<0.40	< 0.1	< 0.1	0.3	0.2	0.2	< 0.05	< 0.05	< 0.05	< 0.05	0.06	0.08
Nitrite	mg/L	1	0.3	0.3	<0.40	<0.40	<0.40	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.25	7.47	7.7	7.64	7.75	7.99	7.98	7.85	7.53	7.91	7.89	7.86	7.76	7.65
Phenols	mg/L	-	-	-	0.012	0.023	0.006	< 0.001	< 0.001	< 0.001	0.007	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002
Phosphorus	mg/L	-	-	-	2.8	<0.1	2.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.1	< 0.1
Potassium	mg/L	-	-	-	160	183	166	2.7	2.7	1.1	1	2.8	2.7	3.5	2.6	3	3.2	3
Sodium	mg/L	200	106	121	**286**	**298**	**283**	28.3	28.8	5.9	7.6	28.6	29.2	29.8	27.4	29.7	30.6	30.4
Sulphate	mg/L	500	251	252	14	36	14	2	2	7	7	2	2	1	< 1	2	< 1	2
TDS	mg/L	500	372	512	**2610**	**2760**	**2240**	**501**	**505**	267	299	**508**	494	480	497	487	**503**	493
Tot Kjel N	mg/L	-	-	-	273	262	239	0.8	0.9	0.2	0.4	0.7	0.7	1.7	0.7	0.8	0.7	0.7
Ammonia (NH3-N)	mg/L	-	-	-	257	250	226	0.23	0.37	0.02	0.04	0.4	0.33	0.45	0.37	0.45	0.4	0.37
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	**947**	**1020**	**937**	438	438	257	291	441	453	414	437	440	468	450
BOD	mg/L	-	-	-				--	--	--	--	--	--					
Cyanide (free)	mg/L	-	-	-				--	--	--	--	--	--					
TSS	mg/L	-	-	-				--	--	--	--	--	--					
Aluminum	mg/L	0.1	0.06	0.09	**0.15**	0.1	**0.17**	0.04	0.04	0.04	0.04	0.09	0.08	0.08	0.07	0.08	0.09	0.08
Antimony	mg/L	0.006	0.002	0.002	0.0009	0.0008	0.0005	< 0.0001	< 0.0001	< 0.0001	0.0004	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0025	0.0026	0.0027	0.0004	0.0003	0.0004	< 0.0001	0.0003	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.32	0.28	0.207	0.092	0.197	0.149	0.148	0.141	0.156	0.156	0.166	0.128	0.162	0.16	0.181	0.163
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	< 0.002
Boron	mg/L	5	1.3	1.3	2.29	2.82	2.32	0.085	0.081	0.06	0.084	0.086	0.094	0.084	0.079	0.092	0.1	0.101
Cadmium	mg/L	0.005	0.0013	0.0013	<0.000015	<0.000030	0.000056	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	0.019	<0.01	<0.01	0.0005	0.003	< 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											
Cobalt	mg/L	-	-	-	0.0083	0.0115	0.0119	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0005	0.0026	0.0023	0.0002	0.0005	0.0006	0.0004	0.0008	0.0001	0.0011	0.0003	0.0004	0.0007	< 0.0001
Lead	mg/L	0.01	0.003	0.003	0.00012	<0.00009	0.00134	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00007	< 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	-	-	-	0.0005	0.0006	0.0004	< 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	-	-	-	0.0241	0.0207	0.0242	< 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	0.002	< 0.001	0.003	< 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	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	1.09	1.1	1.07	0.827	0.818	0.811	0.815	0.758	0.785	0.757	0.753	0.825	0.861	0.807
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	-	-	-	0.0066	0.0047	0.0058	0.0032	0.0015	0.0014	0.0017	0.0025	0.0009	< 0.0001	0.0006	0.0007	0.0006	0.0007
Zinc	mg/L	5	2.5	2.5	0.01	0.009	0.062	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.009	< 0.005	< 0.005	< 0.005	< 0.005

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)	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	MW23A 16-Apr-15	MW23A 07-Oct-15	MW23A 28-Apr-16	MW23A 04-Oct-16	MW23A 18-Apr-17
Total Alkalinity	mg/L	500	360	381	353	355	396	373	389	146	423	419	421	239	248	239	262	251
Calcium	mg/L	-	-	-	155	161	158	156	139	59.8	126	155	163	94.1	98.8	93.3	106	96.4
Chloride	mg/L	250	132	198	68.9	67.5	66.1	63.5	63.2	0.5	65.9	64.1	72.7	8.1	9	9.6	13.2	11.3
COD	mg/L	-	-	-	28	22	19	20	39	9	27	31	46	< 5	< 5	7	5	5
Specific Conductivity	umhos/cm	-	-	-	905	908	898	918	924	289	950	977	1010	488	483	497	559	526
DOC	mg/L	5	-	-	**7.6**	**11.4**	**9.4**	**7.2**	6	4.2	**12.6**	**14.9**	**12.2**	2.4	1.8	1.3	3.4	2.2
Fluoride	mg/L	1.5	0.45	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	0.4
Iron	mg/L	0.3	-	-	**5.4**	**5.5**	**5.38**	**5.34**	**5.13**	0.008	**4.65**	**5.65**	**5.82**	0.043	0.151	0.066	0.218	0.109
Magnesium	mg/L	-	-	-	14.4	14.6	14.6	14.1	14	1.21	13	14.4	16.4	5.55	5.89	5.76	6.38	5.77
Manganese	mg/L	0.05	-	-	**0.133**	**0.143**	**0.135**	**0.133**	**0.121**	0.015	**0.113**	**0.137**	**0.145**	0.013	0.034	0.019	0.039	0.027
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	<0.05	<0.05	<0.05	0.4	0.3	0.3	0.2	0.3
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	0.2
pH Lab	pH unit	6.5 - 8.5	-	-	7.44	7.59	7.89	7.57	7.64	7.72	7.63	7.68	7.86	7.92	7.85	7.99	7.98	8.07
Phenols	mg/L	-	-	-	< 0.001	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	0.007	< 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	3	3.1	2.9	3	0.3	2.8	3	3.6	1	1.1	1.1	1	1
Sodium	mg/L	200	106	121	28.1	30.4	30.7	29.2	28.2	0.8	26.6	28.7	32.8	7.1	7.9	5.9	7.6	5.9
Sulphate	mg/L	500	251	252	< 1	1	1	1	< 1	< 1	<1	1	<1	7	7	7	7	7
TDS	mg/L	500	372	512	486	492	**517**	494	487	151	**505**	**521**	**539**	269	280	267	299	280
Tot Kjel N	mg/L	-	-	-	0.7	0.7	0.7	3	1	0.3	1.5	1	2	0.4	0.4	0.2	0.4	0.2
Ammonia (NH3-N)	mg/L	-	-	-	0.38	0.43	0.4	2.65	0.5	0.12	0.91	1.13	0.77	< 0.01	0.01	0.02	0.04	0.01
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	446	463	455	448	405	154	368	447	475	258	271	257	291	265
BOD	mg/L	-	-	-										--	--	--	--	--
Cyanide (free)	mg/L	-	-	-										--	--	--	--	--
TSS	mg/L	-	-	-										--	--	--	--	--
Aluminum	mg/L	0.1	0.06	0.09	0.04	0.08	0.08	0.08	0.04	< 0.01	0.09	0.09	0.05	0.02	0.03	0.03	0.03	0.06
Antimony	mg/L	0.006	0.002	0.002	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	< 0.0001
Arsenic	mg/L	0.025	0.006	0.006	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	0.0001
Barium	mg/L	1	0.32	0.28	0.159	0.168	0.167	0.163	0.148	0.005	0.142	0.172	0.182	0.07	0.076	0.066	0.082	0.072
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.092	0.092	0.093	0.087	0.094	0.007	0.091	0.1	0.109	0.018	0.019	< 0.005	0.018	0.017
Cadmium	mg/L	0.005	0.0013	0.0013	0.000236	< 0.000015	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	<0.000015	<0.000015	0.00011	< 0.00002	< 0.00002	< 0.00002	< 0.000020
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	< 0.0002	0.0019	< 0.0002	**0.0582**	< 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	< 0.005	< 0.005	< 0.005	0.0006	0.0006	0.0007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.001	0.0011	0.0004	0.0002	0.0005	0.0008	0.0006	0.0004	0.0003	0.0015	0.0009	0.001	0.0011	0.0014
Lead	mg/L	0.01	0.003	0.003	0.00022	0.00004	< 0.00002	< 0.00002	0.00002	< 0.00002	<0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	0.00002	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	-	-	-	0.0003	< 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	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0007	0.0008	0.0008	< 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	0.002
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	-	-	-	0.794	0.819	0.83	0.782	0.758	0.105	0.722	0.799	0.91	0.203	0.207	0.201	0.211	0.183
Thallium	mg/L	-	-	-	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	< 0.00005
Vanadium	mg/L	-	-	-	0.001	0.0007	0.0006	0.0007	0.0006	0.0003	0.0006	0.0006	0.0006	0.0016	0.0008	0.0007	< 0.0001	0.0013
Zinc	mg/L	5	2.5	2.5	< 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	< 0.005

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 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	MW23A 17-Apr-24
Total Alkalinity	mg/L	500	360	381	250	217	250	232	258	225	248	228	268	233	255	235	268	237
Calcium	mg/L	-	-	-	104	96.3	101	97.7	121	96.1	107	101	103	94.7	98.9	91.1	75.3	88.7
Chloride	mg/L	250	132	198	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	7.2
COD	mg/L	-	-	-	9	< 5	< 5	< 5	7	< 5	< 5	< 5	< 5	9	8	< 5	<5	<5
Specific Conductivity	umhos/cm	-	-	-	530	419	533	512	571	502	570	520	537	503	532	482	523	480
DOC	mg/L	5	-	-	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**	3.4
Fluoride	mg/L	1.5	0.45	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	-	-	0.244	< 0.005	0.261	0.142	0.296	0.127	**0.313**	0.186	**0.313**	0.183	**0.496**	0.113	0.125	0.141
Magnesium	mg/L	-	-	-	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	5.29
Manganese	mg/L	0.05	-	-	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	0.007
Nitrate	mg/L	10	2.5	2.5	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	0.13
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	-	-	7.84	8.02	7.92	8.02	7.92	7.88	7.64	7.83	8	7.57	7.81	7.77	7.37	7.83
Phenols	mg/L	-	-	-	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	<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	1.3	1	1.1	1.1	1.1	1	1.3	1.1	0.8	0.9
Sodium	mg/L	200	106	121	7.7	6.5	7.8	6.7	9.5	6.3	7	7.7	7.7	7	9.4	6	6.5	4.8
Sulphate	mg/L	500	251	252	6	5	7	6	7	6	7	7	6	6	6	5	6	6
TDS	mg/L	500	372	512	286	249	287	270	319	264	297	275	299	269	288	258	271	248
Tot Kjel N	mg/L	-	-	-	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	0.2
Ammonia (NH3-N)	mg/L	-	-	-	< 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	0.22
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	286	264	276	268	331	264	295	277	282	260	274	249	209	243
BOD	mg/L	-	-	-	--													
Cyanide (free)	mg/L	-	-	-	--													
TSS	mg/L	-	-	-	--													
Aluminum	mg/L	0.1	0.06	0.09	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	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	< 0.0001	< 0.0001	<0.0001	<0.0001
Barium	mg/L	1	0.32	0.28	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	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	<0.0001	<0.0001
Boron	mg/L	5	1.3	1.3	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	0.018
Cadmium	mg/L	0.005	0.0013	0.0013	< 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	<0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 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	<0.01
Chromium (VI)	mg/L	-	-	-										< 0.001	< 0.001	< 0.001	<0.01	<0.01
Cobalt	mg/L	-	-	-	< 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	0.0002
Copper	mg/L	1	0.5	0.5	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	0.0012
Lead	mg/L	0.01	0.003	0.003	< 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	0.00011
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	0.0004	0.001
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	< 0.0001	< 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	-	-	-	0.2	0.182	0.197	0.202	0.251	0.191	0.214	0.206	0.213	0.192	0.223	0.18	0.171	0.176
Thallium	mg/L	-	-	-	< 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	<0.00005
Vanadium	mg/L	-	-	-	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	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

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 07-Oct-24	MW23B 16-Apr-15	MW23B 07-Oct-15	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	MW23B 19-Apr-21
Total Alkalinity	mg/L	500	360	381	242	160	169	149	159	154	132	141	153		141	139	149	136
Calcium	mg/L	-	-	-	92.8	67.7	70	62.9	68.3	60.3	62.4	59.2	60.9		63.1	61	69.5	62.4
Chloride	mg/L	250	132	198	10	1.7	0.8	1	< 0.5	1.1	0.8	0.8	< 0.5		1.4	0.9	1.2	0.7
COD	mg/L	-	-	-	11	25	14	7	< 5	8	20	5	< 5		43	5	68	7
Specific Conductivity	umhos/cm	-	-	-	510	313	307	289	322	295	261	264	294		285	287	308	287
DOC	mg/L	5	-	-	2.9	2.3	1.6	1.7	3	2.2	2.6	2.7	2.3		1.5	2.3	2.7	3
Fluoride	mg/L	1.5	0.45	0.45	<0.1	0.1	0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	0.153	0.005	0.005	0.012	0.013	0.011	0.005	0.018	0.053		0.02	0.02	< 0.005	0.006
Magnesium	mg/L	-	-	-	5.97	1.34	1.53	1.34	1.54	1.27	1.25	1.1	1.24		1.43	1.37	1.49	1.35
Manganese	mg/L	0.05	-	-	0.022	**0.071**	0.016	0.015	0.004	0.005	0.009	0.024	0.023		**0.305**	0.011	< 0.001	0.003
Nitrate	mg/L	10	2.5	2.5	0.09	0.1	0.3	0.2	0.4	0.2	0.14	0.08	0.15		0.28	0.16	0.25	0.21
Nitrite	mg/L	1	0.3	0.3	<0.05	< 0.1	< 0.1	< 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	-	-	8.01	8.06	7.9	8.13	8.08	8.17	7.99	7.98	7.94		7.97	7.92	7.93	7.99
Phenols	mg/L	-	-	-	<0.001	< 0.001	< 0.001	< 0.001	0.002	0.001	0.004	< 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	-	-	-	1.3	0.2	0.3	0.2	0.2	0.2	0.1	0.3	0.2		0.4	0.2	0.3	0.2
Sodium	mg/L	200	106	121	6.9	0.9	1.1	1	1.1	0.7	1	1.1	0.9		1	0.9	0.9	0.9
Sulphate	mg/L	500	251	252	6	2	2	2	2	2	3	2	< 1		1	1	1	2
TDS	mg/L	500	372	512	264	171	179	159	171	160	147	149	156		154	149	164	149
Tot Kjel N	mg/L	-	-	-	0.4	0.7	0.3	0.3	0.3	0.4	0.2	0.3	0.2		0.6	0.2	0.6	0.3
Ammonia (NH3-N)	mg/L	-	-	-	0.32	< 0.01	< 0.01	0.03	0.04	0.02	0.04	< 0.1	0.03		0.12	< 0.01	0.02	0.03
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	257	175	181	163	177	156	161	153	157		164	158	180	162
BOD	mg/L	-	-	-		--	--	--	--	--	--			Dry				
Cyanide (free)	mg/L	-	-	-		--	--	--	--	--	--							
TSS	mg/L	-	-	-		--	--	--	--	--	--							
Aluminum	mg/L	0.1	0.06	0.09	0.03	0.02	0.02	0.02	0.03	0.04	0.04	0.05	0.05		0.05	0.03	0.01	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
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	0.072	0.006	0.007	0.005	0.008	0.005	0.005	0.004	0.007		0.009	0.005	0.007	0.005
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
Boron	mg/L	5	1.3	1.3	0.022	0.006	0.008	< 0.005	0.005	0.006	0.008	< 0.005	< 0.005		0.01	0.006	0.008	0.007
Cadmium	mg/L	0.005	0.0013	0.0013	<0.000015	0.00003	< 0.00002	< 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	0.014	0.014	<0.01	0.0003	0.0012	< 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													
Cobalt	mg/L	-	-	-	0.0004	< 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	0.0011	0.0013	0.0009	0.0009	0.0009	0.0014	0.0003	0.0008	0.0008		0.0006	0.0004	0.0023	0.0024
Lead	mg/L	0.01	0.003	0.003	<0.00002	< 0.00002	< 0.00002	0.00003	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	0.00007	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	-	-	-	<0.0001	< 0.0001	0.0001	< 0.0001	0.0001	0.0001	0.0001	0.0001	0.0002		0.0002	< 0.0001	0.0001	0.0001
Nickel	mg/L	-	-	-	0.0003	< 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	0.002	< 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	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.202	0.131	0.13	0.119	0.124	0.103	0.111	0.106	0.103		0.118	0.106	0.118	0.108
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	0.0011	0.0005	0.0005	0.0007	0.0008	0.0001	< 0.0001	0.0002		0.0004	0.0002	0.0003	0.0002
Zinc	mg/L	5	2.5	2.5	<0.005	< 0.005	0.013	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005

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)	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	MW26 15-Apr-15	MW26 07-Oct-15	MW26 27-Apr-16	MW26 03-Oct-16	MW26 17-Apr-17	MW26 23-Oct-17	MW26 25-Apr-18
Total Alkalinity	mg/L	500	360	381	150	153	153	157	160	158	153	273	271	297	266	292	262	283
Calcium	mg/L	-	-	-	63.1	64.1	61.2	61.5	49.3	60.6	60.2	117	118	123	117	131	116	120
Chloride	mg/L	250	132	198	1.3	0.6	< 0.5	< 0.5	<0.5	2	<0.5	43.4	43	42.6	40.7	42.9	31.2	51.9
COD	mg/L	-	-	-	< 5	11	7	6	15	31	16	264	150	544	132	11	175	5
Specific Conductivity	umhos/cm	-	-	-	277	297	296	301	297	295	303	678	683	715	684	710	658	669
DOC	mg/L	5	-	-	2.2	3	2.5	3	**5.2**	3.3	2.8	3.8	2.4	3.2	4.3	4.2	4.7	4.7
Fluoride	mg/L	1.5	0.45	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	-	-	0.016	0.017	0.018	0.007	0.031	0.01	0.07	**0.57**	**0.697**	**0.618**	**0.66**	**0.741**	**0.576**	**0.521**
Magnesium	mg/L	-	-	-	1.25	1.35	1.5	1.32	1.17	1.3	1.38	10.6	10.9	11.6	11	11.1	10.7	11.3
Manganese	mg/L	0.05	-	-	0.001	0.014	0.003	0.004	**0.158**	0.009	**0.098**	0.032	0.033	0.035	0.035	0.037	0.033	0.037
Nitrate	mg/L	10	2.5	2.5	0.24	0.08	0.18	0.06	0.27	<0.05	0.09	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.99	7.4	7.89	7.87	7.02	7.75	8.1	7.99	8.11	7.88	7.79	8.07	7.95	7.89
Phenols	mg/L	-	-	-	< 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	< 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	-	-	-	0.3	0.2	0.4	0.3	0.2	0.3	0.4	2.5	2.5	2.6	2.4	2.5	2.5	2.9
Sodium	mg/L	200	106	121	1	0.8	1.2	0.8	0.9	0.8	1	17.2	18.1	18.8	18.2	17.2	17.3	18.4
Sulphate	mg/L	500	251	252	< 1	1	< 1	< 1	1	2	<1	27	25	21	38	22	26	6
TDS	mg/L	500	372	512	157	162	156	158	152	151	155	382	381	399	388	403	362	381
Tot Kjel N	mg/L	-	-	-	0.3	0.3	0.4	0.3	0.6	0.3	0.5	0.8	0.6	0.4	0.8	0.3	0.5	1.4
Ammonia (NH3-N)	mg/L	-	-	-	0.03	0.2	0.03	0.11	0.18	0.15	0.34	0.17	0.13	0.06	0.09	0.05	0.05	0.12
Ammonia - Unionized	mg/L	-	-	-														
Hardness (CaCO3)	mg/L	500	362	460	163	166	159	159	128	157	156	335	341	354	337	373	334	346
BOD	mg/L	-	-	-								< 2	< 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	-	-	-								51600	48600	--	--	20	48500	115000
Aluminum	mg/L	0.1	0.06	0.09	0.04	0.03	0.02	0.01	0.04	0.03	0.02	0.03	0.03	0.03	0.06	0.06	0.06	**0.12**
Antimony	mg/L	0.006	0.002	0.002	< 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	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	0.0002	0.0003	0.0002	< 0.0001	0.0002	0.0002	< 0.0001
Barium	mg/L	1	0.32	0.28	0.007	0.005	0.008	0.005	0.006	0.005	0.007	0.157	0.164	0.161	0.162	0.21	0.167	0.164
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.002	<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	0.008	< 0.005	0.007	0.006	<0.005	0.007	0.007	0.04	0.039	0.02	0.036	0.042	0.042	0.041
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0006	0.0017	< 0.0002	< 0.0002	0.001	< 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	< 0.005	0.0004	0.0001	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0009	0.0007	0.0014	0.0008	0.0007	0.002	0.0006	0.001	0.0006	0.0005	0.0002	< 0.0001	0.0002	0.0003
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 0.00002	0.00003	< 0.00002	<0.00002	0.00004	<0.00002	< 0.00002	0.00003	0.00003	0.00003	< 0.00002	< 0.00002	0.0001
Mercury	mg/L	0.001	0.0003	0.0003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	<0.00002	<0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	-	-	-	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	0.0001
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	0.0005	<0.0002	< 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	<0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001
Strontium	mg/L	-	-	-	0.109	0.109	0.114	0.105	0.096	0.105	0.114	0.392	0.397	0.41	0.362	0.336	0.352	0.358
Thallium	mg/L	-	-	-	< 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	< 0.00005
Vanadium	mg/L	-	-	-	0.0003	0.0003	0.0003	0.0002	0.0004	0.0002	0.0004	0.0023	0.0008	0.0009	0.001	0.002	0.0009	0.0008
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

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 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	MW26-1 15-Apr-15
Total Alkalinity	mg/L	500	360	381	273	281	254	353	265	266	287	301	264	289	288	287	274	341
Calcium	mg/L	-	-	-	107	125	118	149	112	122	119	121	117	120	108	114	112	131
Chloride	mg/L	250	132	198	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	51.4
COD	mg/L	-	-	-	8	99	148	18	< 5	9	8	29	105	34	19	235	147	10
Specific Conductivity	umhos/cm	-	-	-	661	723	676	832	670	710	670	695	677	686	688	700	678	793
DOC	mg/L	5	-	-	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	**5.5**
Fluoride	mg/L	1.5	0.45	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	-	-	**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**	**1.33**
Magnesium	mg/L	-	-	-	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	12.8
Manganese	mg/L	0.05	-	-	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	**0.065**
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	< 0.1
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	0.05	<0.05	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	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	7.73
Phenols	mg/L	-	-	-	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	< 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	-	-	-	2.5	2.7	2.7	2.2	2.7	2.7	2.7	2.6	2.5	3	2.7	2.5	2.9	2.5
Sodium	mg/L	200	106	121	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	23
Sulphate	mg/L	500	251	252	26	17	26	< 1	21	17	18	16	24	17	21	17	15	9
TDS	mg/L	500	372	512	366	387	367	454	366	376	385	394	386	383	357	364	360	***436***
Tot Kjel N	mg/L	-	-	-	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	0.3
Ammonia (NH3-N)	mg/L	-	-	-	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	0.1
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	460	308	358	341	424	324	351	342	348	336	346	313	328	326	***380***
BOD	mg/L	-	-	-	5	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	<3	3	<3	< 2
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	-	-	-	109000	36200	32000	18	5400	9400	21000	40200	30100	30500	11800	65000	59800	26
Aluminum	mg/L	0.1	0.06	0.09	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	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	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	0.0003
Barium	mg/L	1	0.32	0.28	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	0.196
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	< 0.002
Boron	mg/L	5	1.3	1.3	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	0.045
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	0.00003
Chromium (total)	mg/L	0.05	0.014	0.014	< 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	0.0006
Chromium (VI)	mg/L	-	-	-								< 0.001	< 0.001	< 0.001	<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	0.0003	0.0002	0.0003	< 0.005
Copper	mg/L	1	0.5	0.5	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	0.0005
Lead	mg/L	0.01	0.003	0.003	< 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	< 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	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0002	0.0004	0.0002	0.0002	< 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	0.0003	0.0003	0.0002	< 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	<0.0001	< 0.00002
Strontium	mg/L	-	-	-	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	0.548
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	0.0003	0.0003	0.0006	0.0002	0.0002	0.0002	0.0003	0.0004	0.0002	0.0002	0.0002	0.0002	0.0027
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	0.012

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 07-Oct-15	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	MW26-1 20-Apr-22
Total Alkalinity	mg/L	500	360	381	326	333	321	329	316	338	303	313	303	306	334	300	335	326
Calcium	mg/L	-	-	-	133	131	130	137	129	131	123	135	129	131	130	133	129	127
Chloride	mg/L	250	132	198	50.5	48.4	48.5	49.3	38.9	121	49.3	49	46.5	51.3	50.8	49.7	50.3	50.7
COD	mg/L	-	-	-	60	< 5	9	20	15	11	< 5	16	10	14	< 5	11	7	12
Specific Conductivity	umhos/cm	-	-	-	777	774	774	786	753	773	754	779	771	763	753	773	754	738
DOC	mg/L	5	-	-	3.6	4.3	**5.4**	**5.7**	**5.3**	**5.5**	**5.4**	**6.5**	**5.1**	**5.6**	4.7	6	**5.1**	4.2
Fluoride	mg/L	1.5	0.45	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	-	-	**1.35**	**1.34**	**1.29**	**1.43**	**1.19**	**0.615**	**1.17**	**1.29**	**1.28**	**1.27**	**1.31**	**1.33**	**1.25**	**1.24**
Magnesium	mg/L	-	-	-	13.2	13.3	13.3	12.8	13	13.1	12.1	12.9	13.2	13.2	12.6	13.1	12.8	12.6
Manganese	mg/L	0.05	-	-	**0.065**	**0.064**	**0.063**	**0.065**	**0.063**	**0.073**	**0.059**	**0.063**	**0.061**	**0.062**	**0.061**	**0.061**	**0.058**	**0.057**
Nitrate	mg/L	10	2.5	2.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	0.3	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	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.87	7.82	7.83	7.85	7.88	7.88	7.78	7.61	7.99	7.74	7.84	7.69	7.92	7.75
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	-	-	-	2.5	2.6	2.4	2.5	2.6	2.8	2.5	2.7	2.8	2.6	2.8	2.7	2.7	2.6
Sodium	mg/L	200	106	121	23.7	23	23.8	20.8	22.6	23.1	21.8	23.3	22.7	22.3	22.3	22.9	22.6	21.8
Sulphate	mg/L	500	251	252	11	9	12	11	10	< 1	10	6	9	8	9	8	7	10
TDS	mg/L	500	372	512	**432**	**429**	**424**	**432**	**407**	**494**	**402**	**419**	**406**	**413**	**430**	**411**	**427**	**422**
Tot Kjel N	mg/L	-	-	-	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.3
Ammonia (NH3-N)	mg/L	-	-	-	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	0.14
Ammonia - Unionized	mg/L	-	-	-								<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hardness (CaCO3)	mg/L	500	362	460	**388**	**381**	**380**	**395**	**376**	**381**	357	**391**	**377**	**382**	**377**	**386**	**375**	**369**
BOD	mg/L	-	-	-	< 3	< 3	< 3	< 3	< 3	< 3	4	< 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	-	-	-	18	--	--	3	28	14	6	7	18	14	7	3	< 3	11
Aluminum	mg/L	0.1	0.06	0.09	0.04	0.04	0.04	0.06	0.06	**0.08**	**0.07**	**0.07**	**0.09**	**0.07**	**0.07**	**0.08**	**0.08**	**0.07**
Antimony	mg/L	0.006	0.002	0.002	< 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	< 0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0003	0.0003	< 0.0001	0.0003	0.0003	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	0.198	0.186	0.199	0.226	0.209	0.197	0.194	0.208	0.201	0.206	0.202	0.205	0.197	0.194
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	0.045	0.024	0.043	0.049	0.051	0.046	0.046	0.049	0.052	0.052	0.054	0.053	0.053	0.053
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.00002	< 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	0.014	0.014	0.0034	< 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	-	-	-														< 0.001
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	0.0007	0.0004	0.0002	0.0005	0.0002	0.0002	0.0003	0.0004	0.0008	0.0006	0.0012	0.0009	0.0006	0.0003
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00007	< 0.00002	0.00005	0.00004	< 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	< 0.01
Selenium	mg/L	0.01	0.003	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
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	-	-	-	0.543	0.548	0.511	0.455	0.499	0.492	0.508	0.539	0.531	0.504	0.51	0.531	0.526	0.508
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	-	-	-	0.0015	0.0013	0.0012	0.0022	0.0014	0.0003	0.0003	0.0004	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	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005

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 24-Oct-22	MW26-1 19-Apr-23	MW26-1 12-Oct-23	MW26-1 17-Apr-24	MW26-1 07-Oct-24	MW26-2 15-Apr-15	MW26-2 07-Oct-15	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	MW26-2 11-Apr-19
Total Alkalinity	mg/L	500	360	381	323	329	331	324	314	**376**	**379**	**380**	**374**	**382**	**369**	**384**	360	357
Calcium	mg/L	-	-	-	126	130	118	123	127	148	152	148	150	158	153	149	143	153
Chloride	mg/L	250	132	198	68.8	47	51.8	49.6	45.2	49.7	48.5	47.5	47.4	49.2	40.1	53.4	49.8	49
COD	mg/L	-	-	-	5	15	10	11	15	9	12	7	16	14	28	18	18	23
Specific Conductivity	umhos/cm	-	-	-	780	760	766	780	763	836	840	830	848	855	828	837	841	841
DOC	mg/L	5	-	-	3.6	2.1	**7.7**	7	**5.9**	**7.5**	**5.3**	6	**7.7**	**7.4**	**7.7**	**6.6**	**7.6**	**8.6**
Fluoride	mg/L	1.5	0.45	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	< 0.1
Iron	mg/L	0.3	-	-	**1.19**	**1.31**	**1.16**	**1.23**	**1.24**	**4.3**	**4.06**	**3.94**	**3.64**	**4.07**	**3.64**	**2.98**	**3.33**	**3.44**
Magnesium	mg/L	-	-	-	12.6	13.3	12.3	12.3	13.5	11.9	12.7	12.6	13	12.5	12.8	12.6	12.1	12.2
Manganese	mg/L	0.05	-	-	**0.057**	**0.062**	**0.053**	**0.055**	**0.057**	**0.1**	**0.098**	**0.096**	**0.099**	**0.101**	**0.096**	**0.094**	**0.09**	**0.092**
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	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	0.3	0.3	< 0.05	< 0.05	<0.05	0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.68	7.96	7.35	7.94	8.13	7.68	7.74	7.66	7.77	7.73	7.82	7.87	7.69	7.5
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	< 0.002	< 0.002
Phosphorus	mg/L	-	-	-	< 0.1	< 0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	0.02	< 0.1	< 0.1	< 0.1
Potassium	mg/L	-	-	-	2.6	3	2.8	2.6	3	2.2	2.2	2.2	2.1	2.2	2.2	2.5	2.3	2.3
Sodium	mg/L	200	106	121	20.9	22.9	22	20	22.4	20.3	22.2	21.2	23			23.6	22.2	22.4
Sulphate	mg/L	500	251	252	8	8	9	8	7	< 1	< 1	< 1	< 1	5	1	< 1	< 1	< 1
TDS	mg/L	500	372	512	**434**	**422**	**401**	**409**	**409**	**463**	**470**	**464**	**465**	**481**	**457**	**475**	**449**	**458**
Tot Kjel N	mg/L	-	-	-	0.4	0.5	0.2	0.5	0.3	0.5	0.4	0.5	0.6	0.5	0.5	0.5	0.5	0.5
Ammonia (NH3-N)	mg/L	-	-	-	0.1	0.36	0.18	0.21	0.12	0.19	0.18	0.2	0.22	0.2	0.19	0.27	0.19	0.2
Ammonia - Unionized	mg/L	-	-	-	< 0.01	< 0.01	<0.01	<0.01	<0.01									<0.01
Hardness (CaCO3)	mg/L	500	362	460	**367**	**379**	346	358	**373**	**418**	**431**	**421**	**429**	**446**	**435**	**424**	**407**	**433**
BOD	mg/L	-	-	-	< 3	< 3	<3	<3	<3	< 2	3	< 3	< 3	< 3	< 3	< 3	4	< 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	-	-	-	12	17	8	10	7	22	12	--	--	10	28	80	10	33
Aluminum	mg/L	0.1	0.06	0.09	**0.09**	0.03	**0.09**	**0.08**	0.04	0.04	0.04	0.04	0.04	**0.08**	**0.08**	**0.07**	0.06	**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	0.0003	0.0003	0.0003	< 0.0001	0.0003	0.0003	0.0001	< 0.0001	< 0.0001
Barium	mg/L	1	0.32	0.28	0.2	0.208	0.19	0.196	0.202	0.181	0.187	0.176	0.192	0.222	0.21	0.187	0.193	0.197
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	<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	0.054	0.057	0.058	0.054	0.056	0.034	0.034	0.012	0.033	0.035	0.039	0.038	0.035	0.04
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000010	< 0.000010	<0.000015	<0.000015	<0.000015	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0009	0.0041	< 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									
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	0.0004	0.0003	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0017	0.007
Copper	mg/L	1	0.5	0.5	0.0005	0.0003	0.0005	0.0007	0.0001	0.0007	0.0004	0.0003	< 0.0001	0.0008	0.0002	0.0001	0.0002	0.0009
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	< 0.00002	< 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	0.0002	0.0001	0.0001	< 0.0001	0.0001	< 0.0001	0.0002
Nickel	mg/L	-	-	-	< 0.01	< 0.01	0.0006	0.0004	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	0.002	< 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	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.501	0.556	0.513	0.5	0.546	0.626	0.619	0.608	0.587	0.519	0.575	0.565	0.581	0.611
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	0.0003	0.0003	0.0033	0.002	0.0017	0.0018	0.0027	0.002	0.0007	0.0006	0.0007
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005	<0.005	<0.005	<0.005	0.015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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 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 (DUP) 07-Oct-24	MW27-I 15-Apr-15	MW27-I 07-Oct-15
Total Alkalinity	mg/L	500	360	381	**380**	270	**365**	343	**384**	**386**	**371**	**387**	**393**	**374**	**369**	**370**	172	142
Calcium	mg/L	-	-	-	151	117	149	153	151	149	147	150	139	142	149	145	339	436
Chloride	mg/L	250	132	198	46.3	42.8	51.1	50	50.4	50.9	68.8	48.3	53.9	51.1	49	45.5	**3540**	**3230**
COD	mg/L	-	-	-	15	14	9	17	14	23	10	17	21	23	21	24	21	28
Specific Conductivity	umhos/cm	-	-	-	846	683	836	853	826	828	871	849	873	860	858	846	9750	10100
DOC	mg/L	5	-	-	**7.4**	4	**6.4**	**8.2**	**7.1**	**5.9**	**5.2**	3.5	**10.8**	**8.2**	**8.5**	**8.7**	0.7	< 0.2
Fluoride	mg/L	1.5	0.45	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	**0.9**	**1.2**
Iron	mg/L	0.3	-	-	**3.4**	**0.656**	**3.51**	**3.51**	**3.4**	**3.37**	**3.32**	**3.59**	**3.27**	**3.44**	**3.32**	**3.15**	**0.738**	**1.21**
Magnesium	mg/L	-	-	-	13.1	11	12.5	12.7	12.6	12.4	12.5	13	12.2	12	13.2	13	179	228
Manganese	mg/L	0.05	-	-	**0.093**	0.034	**0.093**	**0.092**	**0.092**	**0.09**	**0.093**	**0.097**	**0.089**	**0.092**	**0.095**	**0.093**	0.018	0.03
Nitrate	mg/L	10	2.5	2.5	0.07	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	< 0.1	< 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	<0.05	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.89	7.81	7.77	7.62	7.96	7.7	7.59	7.94	7.39	7.99	7.97	8.13	7.66	7.68
Phenols	mg/L	-	-	-	< 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	< 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	-	-	-	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.7	2.5	2.3	2.8	2.7	50.8	53.4
Sodium	mg/L	200	106	121	23.5	17.3	22.9	23.3	23.4	22.5	22	24.3	23.3	21.4	24.2	23.8	**1300**	**1500**
Sulphate	mg/L	500	251	252	< 1	21	< 1	< 1	1	< 1	< 1	< 1	<1	2	<1	<1	< 1	< 1
TDS	mg/L	500	372	512	**469**	**374**	**460**	**451**	**475**	**472**	**479**	**475**	**462**	**454**	**463**	**455**	**5520**	**5550**
Tot Kjel N	mg/L	-	-	-	0.4	0.3	0.5	0.6	0.5	0.5	0.6	0.6	0.4	1.1	1	0.5	9.1	11.1
Ammonia (NH3-N)	mg/L	-	-	-	0.19	0.03	0.2	0.2	0.2	0.21	0.19	0.29	0.25	0.62	0.28	0.22	7.99	8.8
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	460	**431**	338	**424**	**435**	**429**	**423**	**419**	**430**	**398**	**404**	**427**	**416**	**1580**	**2030**
BOD	mg/L	-	-	-	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	<3	<3	<3	<3	< 2	12
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	-	-	-	20	33900	14	< 3	5	11	17	9	10	12	8	12	436	460
Aluminum	mg/L	0.1	0.06	0.09	**0.09**	**0.08**	**0.08**	**0.09**	**0.1**	**0.08**	**0.08**	0.04	**0.1**	**0.08**	0.05	0.04	0.06	**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	0.0002
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	0.0003	< 0.0001
Barium	mg/L	1	0.32	0.28	0.2	0.164	0.195	0.201	0.199	0.195	0.2	0.207	0.194	0.196	0.205	0.199	**1.71**	**1.73**
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	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.044	0.044	0.045	0.041	0.043	0.04	0.042	0.046	0.043	0.045	0.049	0.048	1.06	1.04
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	0.00003	0.00003
Chromium (total)	mg/L	0.05	0.014	0.014	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	<0.01	0.0006	0.0022
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	< 0.005	0.002	0.0016	0.0017	0.0017	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0013	0.0006	0.001	< 0.0001	0.0007	0.0003	0.0004	0.0005	0.0003	0.0009	0.0002	<0.0001	0.0057	0.0068
Lead	mg/L	0.01	0.003	0.003	0.00008	0.00005	0.00004	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	<0.00002	0.00002	<0.00002	<0.00002	0.00046	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	< 0.0001	< 0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	< 0.0001	0.0003
Nickel	mg/L	-	-	-	0.01	< 0.01	0.01	< 0.01	0.01	0.01	0.01	0.01	0.0153	0.0154	0.0153	0.0156	< 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	**0.14**
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	0.00006	0.00003
Strontium	mg/L	-	-	-	0.604	0.362	0.578	0.59	0.594	0.571	0.578	0.632	0.582	0.562	0.615	0.605	26.5	33
Thallium	mg/L	-	-	-	< 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	-	-	-	0.0007	0.0002	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	< 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	<0.005	<0.005	< 0.005	0.011

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-I 09-Nov-15	MW27-I 27-Apr-16	MW27-I 07-Jul-16	MW27-I 03-Oct-16	MW27-I 22-Feb-17	MW27-I 17-Apr-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	MW27-I 19-Oct-20
Total Alkalinity	mg/L	500	360	381	160	160	163	161	160	167	158	157	174	158	151	152	158	155
Calcium	mg/L	-	-	-	331	767	395	385	489	345	316	387	396	362	394	417	344	464
Chloride	mg/L	250	132	198	**3640**	**5110**	**4070**	**3790**	**3590**	**3420**	**3050**	**3260**	**3010**	**3130**	**3300**	**3020**	**2790**	**3490**
COD	mg/L	-	-	-	44	207	24	22	21	25	78	307	187	32	107	214	323	71
Specific Conductivity	umhos/cm	-	-	-	10400	11800	10300	10300	11200	10100	10600	11100	8560	9200	9350	9670	8300	10200
DOC	mg/L	5	-	-	< 0.2	< 0.2	< 0.2	0.4	0.6	0.7	< 0.2	0.3	0.7	0.6	0.8	0.3	0.5	0.3
Fluoride	mg/L	1.5	0.45	0.45	**0.9**	< 3	**0.8**	< 3	**1.4**	< 3	< 3	< 3	< 3	< 3	< 0.1	< 3	< 10	< 3
Iron	mg/L	0.3	-	-	**0.576**	**0.632**	0.274	**0.432**	**1.08**	**0.816**	**0.503**	**0.59**	**0.659**	**0.578**	**0.614**	**0.758**	**0.569**	**1.12**
Magnesium	mg/L	-	-	-	192	386	217	214	256	200	186	204	209	185	198	225	183	268
Manganese	mg/L	0.05	-	-	0.011	0.016	0.017	0.017	0.026	0.017	0.01	0.015	0.021	0.014	0.013	0.016	0.012	0.022
Nitrate	mg/L	10	2.5	2.5	< 0.1	< 3	< 5	< 3	< 1	< 3	< 1	< 1	< 1	< 1	< 0.05	< 1	< 5	1.25
Nitrite	mg/L	1	0.3	0.3	< 0.1	< 3	< 5	< 3	< 1	< 3	< 1	< 1	< 1	< 1	< 0.05	< 1	< 5	< 1
pH Lab	pH unit	6.5 - 8.5	-	-	7.55	7.56	7.54	7.7	7.57	7.73	7.68	7.69	7.76	8.05	7.5	7.71	7.59	7.56
Phenols	mg/L	-	-	-	< 0.001	0.009	0.009	0.031	0.027	< 0.001	0.02	0.131	< 0.001	0.031	< 0.002	< 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	-	-	-	44.8	60.2	53.7	52.8	54.1	53	45.5	56.3	61	52.5	53.1	60.6	53.8	67.6
Sodium	mg/L	200	106	121	**1140**	**1950**	**1430**	**1300**	**1350**	**1150**	**1140**	**1190**	**1350**	**1210**	**1220**	**1300**	**1130**	**1250**
Sulphate	mg/L	500	251	252	< 1	< 30	2	< 30	< 10	65	< 30	< 30	< 30	< 30	< 1	< 30	< 100	< 30
TDS	mg/L	500	372	512	**5450**	**8390**	**6270**	**5860**	**5860**	**5360**	**4870**	**5206**	**5147**	**5042**	**5262**	**5128**	**4604**	**5638**
Tot Kjel N	mg/L	-	-	-	10.7	13.2	< 2	13	12.3	10.8	11	10.6	9.6	9.4	8.3	10.3	8.9	11.8
Ammonia (NH3-N)	mg/L	-	-	-	9.62	10.4	0.07	10.3	9.45	11.8	8.61	8.58	8.25	8.65	7.97	9.06	8.05	9.39
Ammonia - Unionized	mg/L	-	-	-											0.04	0.02	< 0.01	< 0.01
Hardness (CaCO3)	mg/L	500	362	460	**1620**	**3500**	**1880**	**1840**	**2270**	**1830**	**1560**	**1810**	**1850**	**1670**	**1800**	**1970**	**1610**	**2260**
BOD	mg/L	-	-	-	18	10	3	< 3	11	4	17	5	< 3	9	13	18	15	16
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	-	-	-	102	--	--	--	265	156	180	188	190	140	37	66	59	31
Aluminum	mg/L	0.1	0.06	0.09	**0.08**	**0.07**	**0.08**	**0.08**	**0.09**	**0.19**	**0.07**	**0.13**	**0.14**	**0.13**	**0.15**	**0.16**	**0.13**	**0.15**
Antimony	mg/L	0.006	0.002	0.002	< 0.0001	< 0.0001	0.0002	0.0003	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0005	< 0.0002	< 0.0005
Arsenic	mg/L	0.025	0.006	0.006	< 0.0001	0.0003	< 0.0001	0.0003	**0.0783**	**0.0168**	**0.0226**	**0.023**	< 0.0005	< 0.0001	< 0.0001	< 0.001	< 0.0005	< 0.001
Barium	mg/L	1	0.32	0.28	**1.76**	**1.9**	**2.07**	2	**2.05**	**2.45**	**1.69**	**2.34**	**2.15**	**2.17**	**2.24**	**2.38**	**2.06**	**2.26**
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	0.96	1.09	1.12	1.13	1.04	1.1	0.971	1.13	1.14	1.02	1.1	1.18	1.11	1.15
Cadmium	mg/L	0.005	0.0013	0.0013	0.00002	0.00003	0.00003	0.00005	0.00003	0.000093	0.000032	0.000028	< 0.000059	< 0.000015	0.000018	< 0.00012	< 0.000059	< 0.00012
Chromium (total)	mg/L	0.05	0.014	0.014	0.0007	< 0.0002	< 0.0002	< 0.0002	0.0017	< 0.001	0.003	< 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	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0073	0.0082	0.0077	0.0088	0.0119	0.0124	0.0073	0.0053	0.0006	0.0003	0.0004	0.0112	0.0144	0.0016
Lead	mg/L	0.01	0.003	0.003	0.00003	0.00005	0.00002	< 0.00002	< 0.00002	0.00006	0.00009	< 0.00002	0.00018	0.00004	0.00006	< 0.0004	< 0.0002	< 0.0004
Mercury	mg/L	0.001	0.0003	0.0003	< 0.00002	0.00005	< 0.00002	< 0.00002	0.00009	< 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	< 0.0004	< 0.0001	< 0.0001	< 0.0009	< 0.0004	< 0.0009
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	< 0.02	**0.085**	**0.134**	< 0.001	0.002	**0.016**	**0.004**	< 0.02	**0.141**	**0.102**	**0.067**	**0.071**
Silver	mg/L	-	-	-	0.00004	0.00007	0.00003	0.00003	0.00004	0.00004	0.00002	0.00002	< 0.0002	< 0.0001	< 0.0001	< 0.0005	0.0042	< 0.0005
Strontium	mg/L	-	-	-	27.7	31.2	31.5	31.2	37.3	27.5	26.1	30.5	30.4	30.3	31.7	34	27.4	38.2
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	< 0.00008	< 0.00005	< 0.00008
Vanadium	mg/L	-	-	-	0.0004	< 0.0001	< 0.0001	0.0007	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0007	< 0.0001	0.0001	< 0.001	< 0.0007	< 0.001
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

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-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 07-Oct-24	MW27-II 15-Apr-15	MW27-II 07-Oct-15	MW27-II 10-Nov-15	MW27-II 27-Apr-16	MW27-II 07-Jul-16	MW27-II 03-Oct-16
Total Alkalinity	mg/L	500	360	381	147	166	170	172	173	173	178	154	197	196	201	198	201	200
Calcium	mg/L	-	-	-	403	479	410	357	361	344	287	547	82.1	91	76.7	88.6	97.2	101
Chloride	mg/L	250	132	198	**3090**	**3760**	**3040**	**2610**	**2920**	**3640**	**2540**	**4180**	9.9	15.3	16.6	21.3	26.1	36.5
COD	mg/L	-	-	-	313	64	57	55	129	151	118	146	92	171	137	402	5	< 5
Specific Conductivity	umhos/cm	-	-	-	9360	9760	8950	8750	8480	9220	8010	12100	440	470	488	495	510	536
DOC	mg/L	5	-	-	0.6	< 0.2	< 0.2	< 0.2	< 0.2	1.1	1.2	1.1	1.2	0.4	1.4	0.6	1.1	2.5
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1	< 3	< 0.1	< 0.1	<0.1	<0.7	<0.1	0.2	0.1	0.1	< 0.1	0.1	< 0.1
Iron	mg/L	0.3	-	-	**0.71**	**0.892**	**0.71**	**0.7**	**0.635**	**0.621**	**0.506**	<0.005	0.014	< 0.005	< 0.005	< 0.005	< 0.005	0.119
Magnesium	mg/L	-	-	-	214	246	219	195	193	188	154	291	6.85	7.59	6.87	7.68	8.28	8.51
Manganese	mg/L	0.05	-	-	0.01	0.018	0.015	0.032	0.013	0.013	0.009	0.022	0.009	0.011	0.008	0.006	0.01	0.014
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	< 1	< 0.05	< 0.05	<0.05	<0.40	<0.05	0.8	0.6	0.6	0.7	0.6	< 0.1
Nitrite	mg/L	1	0.3	0.3	**0.37**	< 0.05	< 1	< 0.05	< 0.05	<0.05	**0.41**	**13**	< 0.1	0.2	0.1	0.2	**0.3**	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.6	7.76	7.61	7.66	7.76	7.28	7.83	7.83	7.98	7.98	7.9	7.86	7.86	7.99
Phenols	mg/L	-	-	-	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 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	-	-	-	48	60.9	49.9	49.9	51.9	56.3	47.3	56.1	1.4	1.7	1.3	1.5	1.6	1.5
Sodium	mg/L	200	106	121	**1220**	**1300**	**1180**	**1140**	**995**	**1070**	**907**	**1430**	3	3.5	3.2	3.9	4.5	4.9
Sulphate	mg/L	500	251	252	< 1	2	< 30	< 1	< 1	<2	12	1	20	20	19	22	21	< 1
TDS	mg/L	500	372	512	**5070**	**5961**	**5009**	**4464**	**4626**	**5300**	**4580**	**6650**	245	260	247	267	283	273
Tot Kjel N	mg/L	-	-	-	9.2	11.3	10.6	8.6	9.4	10.8	10	9.2	1.6	1.2	0.6	0.2	4.1	0.9
Ammonia (NH3-N)	mg/L	-	-	-	8.38	8.93	8.08	8.46	6.66	9.78	8.23	8.47	0.09	0.06	0.07	0.07	0.12	0.1
Ammonia - Unionized	mg/L	-	-	-	< 0.01	0.03	0.18	0.05	0.01	0.03	<0.01	0.03						
Hardness (CaCO3)	mg/L	500	362	460	**1890**	**2210**	**1930**	**1690**	**1690**	**1630**	**739**	**2570**	233	259	220	253	277	288
BOD	mg/L	-	-	-	16	7	3	< 3	< 3	<3	<3	<3	< 2	< 3	< 3	< 3	6	< 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	-	-	-	23	49	15	11	16	17	25	24	4200	47000	18700	--	--	--
Aluminum	mg/L	0.1	0.06	0.09	**0.31**	**0.15**	**0.27**	**0.08**	**0.08**	**0.12**	**0.14**	**0.1**	0.03	0.03	0.03	0.03	0.03	**0.15**
Antimony	mg/L	0.006	0.002	0.002	0.0006	< 0.0005	< 0.0002	< 0.0001	0.0003	0.0003	<0.0002	0.0003	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.025	0.006	0.006	< 0.001	< 0.001	< 0.0005	< 0.0001	< 0.0005	<0.0003	<0.0005	<0.0003	0.0003	0.0005	0.0005	0.0002	0.0004	< 0.0001
Barium	mg/L	1	0.32	0.28	**2.02**	**2.45**	**2.13**	**1.93**	**2.07**	**2.08**	**1.7**	**2.46**	0.06	0.073	0.063	0.064	0.081	0.088
Beryllium	mg/L	-	-	-	< 0.02	< 0.002	< 0.01	< 0.002	< 0.002	<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	1.09	1.13	1.08	1.1	1.12	1.12	1.01	1.16	0.012	0.012	0.01	< 0.005	0.012	0.009
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.00012	< 0.00012	< 0.000059	0.000013	< 0.000059	<0.000030	<0.000059	<0.000030	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.001	0.0022	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (VI)	mg/L	-	-	-			< 0.001	< 0.001	< 0.001	<0.01	<0.01	<0.01						
Cobalt	mg/L	-	-	-	< 0.05	< 0.005	< 0.03	< 0.005	0.006	0.0006	0.0004	0.0007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.002	0.0024	0.0007	0.0003	0.0004	0.0004	0.0049	0.0004	0.0013	0.0007	0.0003	0.0006	0.0007	0.0007
Lead	mg/L	0.01	0.003	0.003	0.00036	< 0.0004	< 0.0002	0.00002	< 0.0002	<0.00009	<0.00018	<0.00009	0.00006	< 0.00002	< 0.00002	< 0.00002	0.00005	0.00014
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	-	-	-	0.0017	< 0.0009	< 0.0004	< 0.0001	< 0.0004	<0.0002	<0.0004	<0.0002	< 0.0001	0.0003	0.0003	0.0003	0.0003	0.0003
Nickel	mg/L	-	-	-	< 0.1	< 0.01	< 0.05	< 0.01	< 0.01	<0.0002	0.002	<0.0002	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.01	0.003	0.004	**0.075**	<0.03	<0.1	<0.02	< 0.002	<0.001	<0.002	<0.001	< 0.001	0.001	< 0.001	< 0.001	0.001	< 0.001
Silver	mg/L	-	-	-	< 0.0005	0.0016	< 0.0002	< 0.0001	< 0.0002	<0.0001	0.0003	0.0018	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002
Strontium	mg/L	-	-	-	33.4	38.9	33.6	29.1	31.2	30.7	24.2	43.8	0.181	0.194	0.167	0.196	0.199	0.209
Thallium	mg/L	-	-	-	< 0.00008	< 0.05	< 0.00005	< 0.00005	0.00007	<0.00005	<0.00005	<0.00005	0.00011	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	-	-	< 0.001	< 0.001	< 0.0007	< 0.0001	< 0.0007	<0.0004	<0.0007	<0.0004	0.0015	0.0011	0.0003	0.0009	0.0009	0.0012
Zinc	mg/L	5	2.5	2.5	< 0.05	0.007	< 0.03	0.013	< 0.005	<0.005	<0.005	<0.021	0.012	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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 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	MW27-II 27-Oct-21	MW27-II 20-Apr-22	MW27-II 26-Oct-22
Total Alkalinity	mg/L	500	360	381	200	205	201	199	210	213	193	197	192	204	194	216	222	217
Calcium	mg/L	-	-	-	92.1	99.6	86.7	97.3	95.8	86.1	90.6	86.5	87.2	84.5	85.4	84.1	84.8	80
Chloride	mg/L	250	132	198	31.9	31.4	26.6	29.8	33.1	29.5	25.3	21.6	24.3	18.6	16.7	15	15.1	15
COD	mg/L	-	-	-	104	181	75	67	< 5	17	< 5	7	< 5	159	10	< 5	39	97
Specific Conductivity	umhos/cm	-	-	-	529	540	545	536	518	530	516	498	497	488	486	471	474	470
DOC	mg/L	5	-	-	2	1.8	1.4	3.1	2.3	1.6	1.5	1.4	1.8	1.8	1.9	1.5	1.5	1
Fluoride	mg/L	1.5	0.45	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	-	-	0.143	< 0.005	< 0.005	0.005	0.008	0.005	< 0.005	0.006	0.018	0.005	0.021	0.015	0.119	< 0.005
Magnesium	mg/L	-	-	-	7.79	7.88	7.58	8.19	8.13	7.3	7.65	7.73	7.91	7.02	7.37	7.08	7.15	7.17
Manganese	mg/L	0.05	-	-	0.009	0.008	0.005	0.006	0.003	0.004	0.004	0.003	0.005	0.003	0.004	0.004	0.005	< 0.001
Nitrate	mg/L	10	2.5	2.5	0.7	0.7	0.65	0.63	0.99	0.6	0.57	0.64	0.43	0.54	0.81	0.65	0.63	0.67
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	-	-	7.95	8.1	7.96	7.96	8	8.05	7.86	8.06	7.92	7.97	7.96	8.13	7.91	7.98
Phenols	mg/L	-	-	-	< 0.001	< 0.001	0.004	< 0.001	< 0.001	0.006	< 0.002	< 0.001	< 0.002	< 0.001	< 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	< 0.1
Potassium	mg/L	-	-	-	1.4	1.4	1.4	1.5	1.8	1.4	1.5	1.5	1.7	1.6	1.5	1.6	1.5	1.6
Sodium	mg/L	200	106	121	6	5.7	6.7	7.8	11.7	10.6	9.6	12.1	10.3	12.1	11	12.1	11.2	11
Sulphate	mg/L	500	251	252	21	21	17	19	18	19	17	16	18	17	15	15	15	16
TDS	mg/L	500	372	512	284	293	266	283	294	282	268	263	265	263	253	264	268	260
Tot Kjel N	mg/L	-	-	-	2	1	0.9	0.7	0.2	0.4	0.2	0.2	< 0.1	1.5	0.3	0.3	0.1	1.6
Ammonia (NH3-N)	mg/L	-	-	-	0.03	0.07	0.06	0.04	0.02	0.05	0.05	0.05	0.03	0.13	0.06	0.07	0.05	0.06
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	460	262	281	248	277	273	245	258	248	251	240	244	239	241	271
BOD	mg/L	-	-	-	< 3	< 3	< 3	< 3	< 3	4	< 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	-	-	-	26300	64	35000	51500	575	2200	92	2510	1330	28700	30300	15000	208	26400
Aluminum	mg/L	0.1	0.06	0.09	**0.17**	**0.07**	0.03	0.06	0.05	0.05	0.03	0.06	0.06	0.05	0.05	0.06	0.05	0.04
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	0.0004	0.0004	0.0006	< 0.0001	< 0.0001	0.0003	0.0002	0.0004	0.0003	0.0002	0.0002	0.0003	0.0003
Barium	mg/L	1	0.32	0.28	0.076	0.086	0.066	0.079	0.072	0.07	0.07	0.068	0.07	0.068	0.065	0.068	0.066	0.062
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	0.041	0.01	0.014	0.011	0.01	0.013	0.014	0.013	0.014	0.012	0.014	0.009	0.005
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.00002	< 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
Chromium (total)	mg/L	0.05	0.014	0.014	0.0012	< 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
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	< 0.005	< 0.005	0.009	0.0004	0.008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	0.0007	0.0012	0.0011	0.0004	0.001	0.0007	0.0008	0.0012	0.0009	0.0021	0.0017	0.001	0.0005	0.001
Lead	mg/L	0.01	0.003	0.003	0.00015	< 0.00002	0.00007	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	0.00002	0.00008	0.00005	< 0.00002	0.00004	0.00011
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	0.0002	0.0003	0.0004	0.0003	0.0003	0.0003	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	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
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	-	-	-	0.214	0.173	0.187	0.201	0.195	0.197	0.194	0.193	0.185	0.181	0.182	0.181	0.175	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	< 0.05	< 0.00005	< 0.00005
Vanadium	mg/L	-	-	-	0.0014	0.001	0.0014	< 0.0001	< 0.0001	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0005
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005	< 0.005	< 0.005	0.055	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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 19-Apr-23	MW27-II 12-Oct-23	MW27-II 17-Apr-24	MW27-II 07-Oct-24	MW27-III 15-Apr-15	MW27-III 07-Oct-15	MW27-III 09-Nov-15	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	MW27-III 17-Apr-17	MW27-III 20-Jul-17
Total Alkalinity	mg/L	500	360	381	217	229	213	208	168	172	175	174	176	178	175	179	181	178
Calcium	mg/L	-	-	-	83.4	76.6	76.7	79.8	68.1	73.9	61.1	61.9	70.3	74.8	73.6	69.8	76.3	65
Chloride	mg/L	250	132	198	12.5	13	10.6	11.5	2.7	2.8	2.9	2.7	2.6	3	3	3.7	3	2.9
COD	mg/L	-	-	-	< 5	12	7	94	581	638	236	730	304	< 5	6	183	221	174
Specific Conductivity	umhos/cm	-	-	-	471	481	473	470	363	382	386	380	378	379	384	385	395	390
DOC	mg/L	5	-	-	1.4	2.7	2.2	2.6	2	1	1.4	3.5	0.9	1.3	4.2	2.5	2.2	1.4
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	<0.1	<0.1	<0.1	0.2	0.1	0.1	< 0.1	< 0.1	0.1	0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	0.024	0.006	0.016	0.005	0.172	0.157	0.176	0.114	0.077	0.207	0.111	0.142	0.065	0.027
Magnesium	mg/L	-	-	-	7.51	7.04	6.79	7.33	6.31	6.88	6.1	6.13	6.75	7.26	7.08	6.65	6.79	6.51
Manganese	mg/L	0.05	-	-	0.005	0.004	0.004	0.003	0.021	0.021	0.018	0.016	0.023	0.024	0.023	0.022	0.02	0.019
Nitrate	mg/L	10	2.5	2.5	0.58	0.7	0.62	0.86	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05
Nitrite	mg/L	1	0.3	0.3	< 0.05	<0.05	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	8.1	7.44	8.05	8.2	7.99	8.03	8	8.04	8.04	8	8.1	8.03	8.13	8.11
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	< 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	-	-	-	1.9	1.7	1.5	1.7	1.3	1.5	1.2	1.2	1.4	1.5	1.5	1.3	1.3	1.3
Sodium	mg/L	200	106	121	12.3	11.7	10.5	11	3.1	3.6	3.2	3.2	3.2	3.5	3.6	3.4	3	3.4
Sulphate	mg/L	500	251	252	14	15	14	13	23	22	21	20	22	23	22	21	22	18
TDS	mg/L	500	372	512	261	249	245	253	206	214	201	200	212	221	216	214	221	204
Tot Kjel N	mg/L	-	-	-	0.2	<0.1	0.2	1.3	28.3	5.9	3.5	8.8	0.6	6.5	2.5	3.2	4.8	1.1
Ammonia (NH3-N)	mg/L	-	-	-	0.06	0.07	<0.05	0.27	0.2	0.13	0.19	0.09	0.1	0.07	0.1	0.06	0.1	0.08
Ammonia - Unionized	mg/L	-	-	-	< 0.01	<0.01	<0.01	<0.01										
Hardness (CaCO3)	mg/L	500	362	460	239	220	220	230	196	213	178	180	203	217	213	202	219	189
BOD	mg/L	-	-	-	< 3	<3	<3	<3	< 2	< 3	< 3	< 3	< 3	6	< 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	-	-	-	267	253	686	116000	8200	19000	7800	--	--	--	--	5600	6000	4400
Aluminum	mg/L	0.1	0.06	0.09	0.02	0.06	0.05	0.03	0.02	0.03	0.02	0.03	0.05	0.06	**0.11**	**0.13**	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	0.0004	0.0002	< 0.0001	0.0001
Arsenic	mg/L	0.025	0.006	0.006	0.0002	0.0002	0.0001	0.0002	0.0005	0.0005	0.0003	0.0004	0.0003	0.0004	0.0002	0.0004	0.0004	0.0003
Barium	mg/L	1	0.32	0.28	0.069	0.064	0.062	0.063	0.107	0.121	0.109	0.104	0.1	0.103	0.129	0.119	0.134	0.096
Beryllium	mg/L	-	-	-	< 0.002	<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	0.013	0.012	0.015	0.013	0.009	0.01	0.007	0.007	< 0.005	0.01	0.008	< 0.005	0.034	0.008
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.000010	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	<0.001	<0.01	<0.01	0.0006	0.0015	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0008	< 0.001	< 0.002
Chromium (VI)	mg/L	-	-	-	< 0.001	<0.01	<0.01	<0.01										
Cobalt	mg/L	-	-	-	< 0.005	0.0003	0.0002	0.0003	< 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	0.0005	0.0016	0.0006	0.0004	0.0009	0.0006	< 0.0001	0.0004	0.0005	0.0003	0.0003	0.0003	0.0009	0.0008
Lead	mg/L	0.01	0.003	0.003	< 0.00002	<0.00002	<0.00002	<0.00002	< 0.00002	0.00003	< 0.00002	0.00002	0.00005	0.00005	0.0001	0.00012	< 0.00002	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	0.00005	< 0.00002	< 0.00002
Molybdenum	mg/L	-	-	-	0.0003	0.0003	0.0003	0.0003	0.0004	0.0007	0.0006	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Nickel	mg/L	-	-	-	< 0.01	0.0007	0.0006	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	0.01	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	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-	-	-	0.192	0.177	0.17	0.182	0.153	0.161	0.14	0.132	0.156	0.157	0.155	0.161	0.135	0.143
Thallium	mg/L	-	-	-	< 0.00005	<0.00005	<0.00005	<0.00005	0.00006	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	-	-	-	0.0003	0.0003	0.0003	0.0003	0.0013	0.0007	0.0002	0.0005	0.0006	0.0005	0.0011	0.0011	0.0012	0.0013
Zinc	mg/L	5	2.5	2.5	< 0.005	<0.005	<0.005	<0.005	< 0.005	0.008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

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 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	MW27-III 12-Oct-23	MW27-III 17-Apr-24
Total Alkalinity	mg/L	500	360	381	175	188	190	172	171	173	178	175	183	194	190	194	205	198
Calcium	mg/L	-	-	-	71.7	74.6	70.4	73.2	73.1	74.6	77.7	92.2	82.4	85.8	80.2	86.7	79.5	81.9
Chloride	mg/L	250	132	198	3	4.7	4.8	5.7	9	13.4	15	19.6	20.4	24.5	25.2	24.1	26	24.1
COD	mg/L	-	-	-	180	< 5	< 5	162	450	630	461	363	205	278	698	246	68	179
Specific Conductivity	umhos/cm	-	-	-	382	384	398	402	415	422	426	449	445	465	467	481	481	482
DOC	mg/L	5	-	-	3.5	2.2	1.6	1.7	1.3	1.7	1.9	2.3	1.7	1.6	1.2	1.2	3.2	2.4
Fluoride	mg/L	1.5	0.45	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	-	-	0.088	0.083	0.181	0.146	0.173	0.213	0.209	**0.519**	0.069	0.178	**0.342**	**0.329**	0.276	**0.369**
Magnesium	mg/L	-	-	-	6.96	7.24	6.51	6.73	7.38	7.37	7.34	8.17	7.77	8	8.44	8.6	8.09	8.11
Manganese	mg/L	0.05	-	-	0.026	0.019	0.02	0.022	0.022	0.021	0.021	0.046	0.023	0.026	0.025	0.028	0.025	0.023
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	< 0.05	< 0.05	0.06	0.07	< 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	-	-	8.07	8.05	8.08	8	8.07	7.9	7.98	8.03	8.07	7.97	7.97	8.09	7.37	7.95
Phenols	mg/L	-	-	-	0.002	< 0.001	0.018	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.002	< 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	-	-	-	1.8	1.8	1.5	1.4	1.7	1.4	1.7	1.6	1.7	1.5	1.8	1.8	1.8	1.5
Sodium	mg/L	200	106	121	4.6	4.4	3.3	3.4	3.5	3.3	3.5	3.5	3.7	3.5	4.1	3.9	3.8	3.4
Sulphate	mg/L	500	251	252	19	22	25	21	23	23	22	22	24	21	23	20	23	20
TDS	mg/L	500	372	512	212	228	226	216	221	227	234	253	250	262	258	262	249	249
Tot Kjel N	mg/L	-	-	-	1.4	1	7.2	3.6	3.1	3.7	11.3	3.1	3.5	10.5	4.1	3.7	1.2	2.4
Ammonia (NH3-N)	mg/L	-	-	-	0.11	0.1	0.07	0.18	0.15	0.04	0.09	0.07	0.09	0.09	0.01	0.45	0.08	0.09
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	460	208	216	203	211	213	217	224	264	238	247	235	252	232	238
BOD	mg/L	-	-	-	< 3	< 3	14	< 3	4	< 3	6	< 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	-	-	-	10000	4320	73000	10900	44000	22000	46100	20800	15000	11100	30700	6920	4110	6480
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.05	0.05	0.05	0.06	0.05	0.05	***0.24***	0.06	0.06	0.03	0.02	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	0.0005	< 0.0001	0.0006	0.0002	0.0003	0.0003	0.0003	0.0003	0.0001	0.0001	0.0002	0.0001	0.0002	<0.0001
Barium	mg/L	1	0.32	0.28	0.124	0.117	0.128	0.114	0.119	0.119	0.147	0.133	0.137	0.139	0.136	0.143	0.152	0.131
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	<0.0001	<0.0001
Boron	mg/L	5	1.3	1.3	0.011	0.008	0.007	0.008	0.012	0.009	0.012	0.01	0.013	0.007	0.01	0.009	0.011	0.014
Cadmium	mg/L	0.005	0.0013	0.0013	< 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	<0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 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	<0.01
Chromium (VI)	mg/L	-	-	-										< 0.001	< 0.001	< 0.001	<0.01	<0.01
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	0.0001
Copper	mg/L	1	0.5	0.5	0.0005	0.0007	0.0004	0.0005	0.0005	0.0001	0.0019	0.0019	0.0009	0.0004	0.0005	0.0002	0.0004	0.0003
Lead	mg/L	0.01	0.003	0.003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00005	< 0.00002	0.00007	0.00034	0.00004	0.00006	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	-	-	-	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004	0.0005	0.0005	0.0005	0.0005	0.0005	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	<0.0002	0.0006
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	< 0.0001	< 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	0.152	0.157	0.158	0.165	0.158	0.167	0.192	0.18	0.177	0.189	0.198	0.187	0.18
Thallium	mg/L	-	-	-	< 0.00005	< 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
Vanadium	mg/L	-	-	-	< 0.0001	0.0003	0.0002	< 0.0001	0.0001	< 0.0001	0.0002	0.0011	0.0003	0.0002	< 0.0001	< 0.0001	0.0002	<0.0001
Zinc	mg/L	5	2.5	2.5	0.017	0.014	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	<0.005

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	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I	MW28-I
					07-Oct-24	15-Apr-15	07-Oct-15	09-Nov-15	21-Jan-16	27-Apr-16	07-Jul-16	03-Oct-16	22-Feb-17	17-Apr-17	20-Jul-17	23-Oct-17	25-Apr-18	15-Oct-18
Total Alkalinity	mg/L	500	360	381	182	202	204	203	203	205	202	200	204	206	200	198	207	199
Calcium	mg/L	-	-	-	81.1	78	84.4	70.3	72.2	83.5	90.7	93.5	87.5	97.3	92.5	108	112	106
Chloride	mg/L	250	132	198	22.6	6.4	8.4	9.1	9.3	13.4	21.9	26.7	27.1	34.7	40.6	49.7	74.4	75.2
COD	mg/L	-	-	-	750	76	29	13	8	< 5	< 5	< 5	< 5	< 5	< 5	14	29	< 5
Specific Conductivity	umhos/cm	-	-	-	466	432	452	466	455	463	490	511	516	539	584	606	632	658
DOC	mg/L	5	-	-	2.9	2	0.8	0.4	3.1	0.9	1.2	2.7	2.6	2	1	1.3	1.8	1.4
Fluoride	mg/L	1.5	0.45	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	< 0.1
Iron	mg/L	0.3	-	-	0.241	0.234	**0.41**	**0.375**	0.276	**0.387**	**0.306**	**0.379**	**0.408**	**0.509**	**0.41**	**0.502**	**0.427**	**0.501**
Magnesium	mg/L	-	-	-	8.67	8.47	8.65	7.92	7.98	8.96	9.73	9.95	9.35	9.89	10.2	11.4	12	11.4
Manganese	mg/L	0.05	-	-	0.023	0.021	0.021	0.019	0.018	0.021	0.025	0.024	0.025	0.024	0.023	0.026	0.028	0.027
Nitrate	mg/L	10	2.5	2.5	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	1	0.3	0.3	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 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	-	-	8.11	8.03	7.96	7.93	7.98	8	7.89	7.96	7.92	8.07	8.02	7.97	7.98	7.97
Phenols	mg/L	-	-	-	<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	< 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	1.9	1.9	1.5	1.5	1.8	1.9	1.9	1.7	1.9	1.8	2	2.6	2.1
Sodium	mg/L	200	106	121	4	4.9	5.9	4.4	4.4	4.5	5	5	4.6	4.3	4.6	5	6.4	6.1
Sulphate	mg/L	500	251	252	18	20	19	19	17	18	19	19	18	19	16	15	19	19
TDS	mg/L	500	372	512	245	241	251	235	235	254	270	276	271	291	286	311	351	340
Tot Kjel N	mg/L	-	-	-	4.5	1.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.2
Ammonia (NH3-N)	mg/L	-	-	-	0.1	0.17	0.06	0.1	0.08	0.1	0.07	0.07	0.06	0.05	0.05	0.05	0.09	0.09
Ammonia - Unionized	mg/L	-	-	-	<0.01													
Hardness (CaCO3)	mg/L	500	362	460	238	230	247	208	213	246	267	275	257	284	273	317	329	312
BOD	mg/L	-	-	-	3	< 2	< 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	-	-	-	23600	6300	630	250	--	--	--	--	455	100	33	156	710	110
Aluminum	mg/L	0.1	0.06	0.09	0.03	0.02	0.02	0.04	0.03	0.02	0.03	0.08	0.07	0.06	0.04	0.06	0.06	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	0.0002	0.0003	< 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	0.0001	< 0.0001	0.0001	0.0002	< 0.0001	0.0002	0.0002	0.0002	0.0003	< 0.0001	< 0.0001
Barium	mg/L	1	0.32	0.28	0.153	0.102	0.096	0.089	0.089	0.094	0.112	0.118	0.11	0.127	0.111	0.138	0.136	0.138
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	0.011	0.02	0.018	0.015	0.015	< 0.005	0.02	0.017	< 0.005	0.043	0.017	0.021	0.019	0.018
Cadmium	mg/L	0.005	0.0013	0.0013	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000014	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	<0.01	0.0004	0.0015	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.001	< 0.001	< 0.002	< 0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	-	-	-	<0.01													
Cobalt	mg/L	-	-	-	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001
Copper	mg/L	1	0.5	0.5	0.0008	0.0006	0.0001	< 0.0001	0.0006	0.0003	0.0003	0.0004	0.0002	0.0008	< 0.0001	< 0.0001	0.0003	0.0002
Lead	mg/L	0.01	0.003	0.003	<0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	0.0001	0.00004	< 0.00002	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	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	-	-	-	0.0004	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0001	0.0009
Nickel	mg/L	-	-	-	<0.0002	< 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	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.193	0.27	0.274	0.22	0.22	0.273	0.33	0.269	0.272	0.237	0.271	0.295	0.302	0.321
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	0.0012	0.0006	0.0001	0.0003	0.0005	0.0004	0.0006	0.0008	0.0011	0.001	0.0001	< 0.0001	0.0002
Zinc	mg/L	5	2.5	2.5	<0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.008	< 0.005	< 0.005	< 0.005	< 0.005	0.009	< 0.005

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 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-II 15-Apr-15	MW28-II 07-Oct-15
Total Alkalinity	mg/L	500	360	381	196	198	220	204	191	218	220	217	220	228	222	214	214	208
Calcium	mg/L	-	-	-	105	106	98.7	97.5	96	94.1	94.6	88.8	91.5	83.7	83.4	88.8	88.1	91.6
Chloride	mg/L	250	132	198	63.4	62.2	48.5	45.9	37.3	36.1	35.9	37.6	32	37.5	31	31.2	14.6	13.6
COD	mg/L	-	-	-	7	< 5	< 5	< 5	< 5	< 5	< 5	< 5	10	5	7	<5	330	2070
Specific Conductivity	umhos/cm	-	-	-	628	643	574	570	553	538	542	546	545	548	544	546	475	474
DOC	mg/L	5	-	-	1.7	1.4	1.8	1.7	2	1.7	1.4	0.8	1.4	3.6	2.8	2.4	2.4	2.6
Fluoride	mg/L	1.5	0.45	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	-	-	**0.492**	**0.526**	**0.478**	**0.511**	**0.491**	**0.483**	**0.464**	**0.472**	**0.488**	**0.433**	**0.415**	**0.442**	0.227	**0.324**
Magnesium	mg/L	-	-	-	11.2	12.2	10.8	10.2	10.1	9.93	9.78	10.3	10.2	9.37	9.01	9.86	7	7.3
Manganese	mg/L	0.05	-	-	0.025	0.026	0.023	0.024	0.022	0.022	0.022	0.027	0.023	0.02	0.02	0.021	0.033	0.034
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	< 0.1	< 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	<0.05	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5	-	-	7.8	7.99	7.86	7.92	7.92	8.07	7.9	7.93	8.06	7.28	7.95	8.18	7.99	8.18
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	-	-	-	2.1	2.3	2.1	2.2	2.1	2.1	2	2.3	2.4	2.2	2	2.4	1.7	1.8
Sodium	mg/L	200	106	121	7	8.7	9.4	9.5	10.4	11.2	11.3	11.9	13.1	13.3	12.6	14.3	4.7	5.5
Sulphate	mg/L	500	251	252	18	17	19	19	18	17	17	17	15	16	15	13	17	16
TDS	mg/L	500	372	512	325	328	321	307	289	302	303	298	297	284	282	289	262	262
Tot Kjel N	mg/L	-	-	-	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.3	0.4	0.2	0.2	1.4	1.3
Ammonia (NH3-N)	mg/L	-	-	-	0.07	0.06	0.05	0.09	0.06	0.05	0.07	0.04	0.15	0.42	0.05	0.07	0.14	0.1
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	460	309	315	291	286	282	276	277	264	271	248	246	262	249	259
BOD	mg/L	-	-	-	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	<3	<3	<3	< 2	< 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	-	-	-	75	170	50	106	80	66	39	23	13	7	23	7	38600	292000
Aluminum	mg/L	0.1	0.06	0.09	0.06	0.08	0.05	0.06	0.06	0.06	0.05	0.03	0.02	0.07	0.05	0.02	0.03	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	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0007
Barium	mg/L	1	0.32	0.28	0.132	0.136	0.129	0.129	0.125	0.123	0.123	0.125	0.129	0.118	0.117	0.124	0.094	0.101
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	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.021	0.023	0.02	0.022	0.02	0.021	0.017	0.019	0.021	0.019	0.021	0.02	0.016	0.015
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	0.00005	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0003	0.0019
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0002	0.0001	0.0002	< 0.005	< 0.005
Copper	mg/L	1	0.5	0.5	< 0.0001	0.0005	0.0003	0.0011	0.001	0.0005	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003
Lead	mg/L	0.01	0.003	0.003	< 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	< 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	0.0002	0.0002	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	< 0.0001	0.0003
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	0.0006	<0.0002	< 0.01	< 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	-	-	-	0.315	0.329	0.278	0.276	0.271	0.272	0.26	0.272	0.285	0.258	0.245	0.266	0.218	0.222
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	-	-	-	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	0.0013	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	< 0.005	< 0.005

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 09-Nov-15	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	360	381	213	211	215	216	212	217	222	217	242	225	223	210	209	206
Calcium	mg/L	-	-	-	77.9	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	132	198	14.7	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	-	-	-	364	530	546	< 5	< 5	185	179	245	86	15	5	66	170	138
Specific Conductivity	umhos/cm	-	-	-	496	489	497	495	510	526	526	524	526	514	532	548	574	561
DOC	mg/L	5	-	-	0.8	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	0.45	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	-	-	**0.316**	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	-	-	-	6.58	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	-	-	0.032	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	< 0.1	< 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	< 0.1	< 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	-	-	7.92	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	-	-	-	1.5	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	121	4.9	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	17	18	17	19	22	24	21	18	20	21	23	17	19	18
TDS	mg/L	500	372	512	251	254	266	277	285	286	291	268	297	293	295	291	304	299
Tot Kjel N	mg/L	-	-	-	0.6	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	-	-	-	0.19	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
Hardness (CaCO3)	mg/L	500	362	460	222	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	-	-	-	67800	--	--	--	--	112000	26	82000	89000	26900	235000	41600	935000	46000
Aluminum	mg/L	0.1	0.06	0.09	0.03	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	0.0003	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	0.083	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	-	-	-	< 0.002	< 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	0.013	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	< 0.00002	< 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	0.014	0.014	< 0.0002	< 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	-	-	-														
Cobalt	mg/L	-	-	-	< 0.005	< 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	< 0.0001	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	-	-	-	0.0002	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	-	-	-	< 0.01	< 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	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.185	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	-	-	-	0.0002	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

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-III 15-Apr-15	MW28-III 07-Oct-15	MW28-III 09-Nov-15	MW28-III 21-Jan-16	MW28-III 27-Apr-16
Total Alkalinity	mg/L	500	360	381	218	204	228	241	230	234	244	235	228	214	212	215	216	220
Calcium	mg/L	-	-	-	105	106	105	107	92.8	104	91.2	93.7	99.1	99.7	107	91.5	93.9	104
Chloride	mg/L	250	132	198	40.7	35.7	37.5	34.3	31.8	28.9	32	28.8	27.4	32	33.5	33.3	33.2	32.1
COD	mg/L	-	-	-	149	82	78	46	69	79	51	211	219	62	111	269	18	258
Specific Conductivity	umhos/cm	-	-	-	577	571	562	559	549	557	558	561	559	565	575	597	591	590
DOC	mg/L	5	-	-	1.9	2.6	2.1	2.2	1.3	1	3.7	3.1	3	1.9	1.4	0.6	2.1	**16.2**
Fluoride	mg/L	1.5	0.45	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	< 0.1
Iron	mg/L	0.3	-	-	**0.417**	**0.423**	**0.421**	**0.469**	**0.419**	**0.485**	**0.394**	**0.393**	**0.48**	0.255	**0.386**	**0.354**	0.193	**0.31**
Magnesium	mg/L	-	-	-	8.43	8.52	8.36	8.28	8.15	8.6	7.77	7.62	8.4	7.34	7.96	7.2	7.21	8
Manganese	mg/L	0.05	-	-	0.04	0.041	0.042	0.046	0.04	0.049	0.038	0.039	0.047	0.044	0.047	0.043	0.042	**0.051**
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	< 0.1	< 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	-	-	7.88	7.98	8.12	7.95	7.93	8.05	7.47	7.98	8.2	7.95	8.14	7.87	7.96	7.92
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	< 0.001
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	2.1	1.9	2.2	2.3	2.2	1.9	2.4	2.1	2.3	1.9	1.9	2.2
Sodium	mg/L	200	106	121	7.1	7.2	7.9	8.5	10.1	11.2	11.6	11.2	13	9.4	10.4	9	9.6	10.4
Sulphate	mg/L	500	251	252	19	19	19	16	17	15	19	16	13	34	37	39	40	40
TDS	mg/L	500	372	512	314	301	317	321	300	311	289	291	301	313	326	311	316	329
Tot Kjel N	mg/L	-	-	-	1.1	0.1	2.3	0.7	0.5	0.8	0.4	1.2	1.2	0.9	0.4	0.4	0.3	0.2
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	0.04	0.07	0.06	0.07
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	460	297	300	297	302	265	294	260	266	282	279	300	258	264	294
BOD	mg/L	-	-	-	< 3	< 3	< 3	< 3	< 3	< 3	<3	<3	<3	< 2	< 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	7300	11200	36000	--	--
Aluminum	mg/L	0.1	0.06	0.09	0.07	0.07	0.07	0.07	0.02	0.08	0.07	0.06	**0.11**	0.03	0.03	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	0.001	0.0004	0.0004	< 0.0001	0.0003
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	0.118	0.114	0.102	0.101	0.106
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	5	1.3	1.3	0.021	0.017	0.019	0.014	0.018	0.019	0.017	0.018	0.018	0.036	0.036	0.031	0.029	0.012
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	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	<0.001	<0.01	<0.01	0.0002	0.0017	< 0.0002	< 0.0002	< 0.0002
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	< 0.005	< 0.005	< 0.005	0.0002	0.0001	0.0003	< 0.005	< 0.005	< 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	0.0006	0.0006	< 0.0001	0.0004	0.0004
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	< 0.00002	< 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	-	-	-	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	0.0007	<0.0002	< 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	-	-	-	0.239	0.246	0.245	0.239	0.235	0.262	0.234	0.224	0.248	0.21	0.22	0.187	0.176	0.215
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	0.0015	0.0007	0.0001	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	0.013	< 0.005	< 0.005	< 0.005	< 0.005

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 07-Jul-16	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
Total Alkalinity	mg/L	500	360	381	218	216	222	226	222	222	261	233	218	220	222	246	216	242
Calcium	mg/L	-	-	-	111	118	103	116	99.7	115	115	107	116	119	119	116	117	122
Chloride	mg/L	250	132	198	34.6	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
COD	mg/L	-	-	-	< 5	< 5	82	57	98	66	15	< 5	17	50	39	48	14	< 5
Specific Conductivity	umhos/cm	-	-	-	600	607	609	625	631	632	632	641	651	657	649	649	642	622
DOC	mg/L	5	-	-	1.3	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
Fluoride	mg/L	1.5	0.45	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	-	-	**0.328**	**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**
Magnesium	mg/L	-	-	-	8.38	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
Manganese	mg/L	0.05	-	-	**0.052**	**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**
Nitrate	mg/L	10	2.5	2.5	< 0.1	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
Nitrite	mg/L	1	0.3	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	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.88	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
Phenols	mg/L	-	-	-	0.004	< 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	-	-	-	2.3	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
Sodium	mg/L	200	106	121	11.4	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
Sulphate	mg/L	500	251	252	43	46	45	44	41	39	53	54	55	56	59	58	52	51
TDS	mg/L	500	372	512	342	352	337	352	324	341	388	361	361	366	372	381	356	376
Tot Kjel N	mg/L	-	-	-	1.1	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
Ammonia (NH3-N)	mg/L	-	-	-	0.03	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
Ammonia - Unionized	mg/L	-	-	-									<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hardness (CaCO3)	mg/L	500	362	460	313	331	290	324	282	323	324	301	325	336	338	326	329	343
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	-	-	-	--	--	55000	3000	15400	17100	17100	6800	11200	32000	6800	3780	4100	5700
Aluminum	mg/L	0.1	0.06	0.09	0.03	**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**
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	0.0004	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
Barium	mg/L	1	0.32	0.28	0.119	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
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	0.036	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
Cadmium	mg/L	0.005	0.0013	0.0013	< 0.00002	< 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
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.0002	< 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
Chromium (VI)	mg/L	-	-	-														
Cobalt	mg/L	-	-	-	< 0.005	< 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
Copper	mg/L	1	0.5	0.5	0.0001	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
Lead	mg/L	0.01	0.003	0.003	0.00002	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
Mercury	mg/L	0.001	0.0003	0.0003	< 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	< 0.00002
Molybdenum	mg/L	-	-	-	0.0004	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
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	< 0.00002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.202	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
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	-	-	-	0.0005	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
Zinc	mg/L	5	2.5	2.5	< 0.005	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

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 20-Apr-22	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	Office 15-Apr-15	Office 07-Oct-15	Office 27-Apr-16	Office 03-Oct-16	Office 17-Apr-17	Office 23-Oct-17	Office 25-Apr-18	Office 15-Oct-18
Total Alkalinity	mg/L	500	360	381	248	244	250	257	248	241	231	242	237	231	238	225	233	225
Calcium	mg/L	-	-	-	115	107	114	104	107	107	70.4	72.8	73.4	71.6	72.2	69.4	69.4	67
Chloride	mg/L	250	132	198	31	30.8	29.5	34.1	32.1	31.1	11.9	13.1	14.2	11.5	12	10.8	11.3	14.4
COD	mg/L	-	-	-	18	33	36	9	83	65	11	10	5	15	15	23	12	35
Specific Conductivity	umhos/cm	-	-	-	624	621	635	634	636	628	470	471	494	487	482	465	460	467
DOC	mg/L	5	-	-	2.2	1.5	1	4.3	3.7	3.3	**5.9**	**6.1**	**5.7**	7	**6.3**	**6.4**	**6.8**	6
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	0.2	0.2	0.3	0.2	0.6	0.2	< 0.1	< 0.1
Iron	mg/L	0.3	-	-	**0.388**	**0.444**	**0.33**	**0.436**	**0.307**	**0.427**	**7.87**	**4.26**	**3.69**	**3.55**	**4.61**	**4.39**	**4.58**	**3.05**
Magnesium	mg/L	-	-	-	8.69	8.95	9.18	8.58	8.42	9.17	15.4	15.8	16	16.4	15.6	15.6	15.8	14.7
Manganese	mg/L	0.05	-	-	**0.061**	**0.053**	**0.074**	**0.051**	**0.054**	**0.052**	**0.081**	**0.057**	0.047	0.049	**0.062**	**0.067**	**0.053**	0.043
Nitrate	mg/L	10	2.5	2.5	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	< 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	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	-	-	7.89	7.94	8.02	7.3	8.04	8.12	7.99	7.96	8.11	8.08	8.19	8.12	8.07	8.06
Phenols	mg/L	-	-	-	< 0.001	< 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
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	-	-	-	2.2	2.5	2.6	2.4	2.1	2.6	3.5	3.5	3.6	3.5	3.6	3.5	3.9	3.3
Sodium	mg/L	200	106	121	13.3	13.4	14	13.6	12.2	13.8	11	11.9	12.1	12.1	10.7	11.3	11.8	11.3
Sulphate	mg/L	500	251	252	47	46	41	41	36	31	2	< 1	1	1	1	1	< 1	< 1
TDS	mg/L	500	372	512	366	356	361	329	330	339	262	268	268	260	264	252	258	250
Tot Kjel N	mg/L	-	-	-	0.2	0.2	0.3	0.1	0.3	0.4	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.5
Ammonia (NH3-N)	mg/L	-	-	-	0.04	0.03	0.06	<0.05	<0.05	0.13	0.32	0.39	0.39	0.44	0.41	0.38	0.4	0.4
Ammonia - Unionized	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01								
Hardness (CaCO3)	mg/L	500	362	460	323	305	324	295	302	305	239	247	249	246	245	238	238	228
BOD	mg/L	-	-	-	< 3	< 3	< 3	<3	<3	<3	--	--	--	--	--	--		
Cyanide (free)	mg/L	-	-	-	< 0.005	< 0.005	< 0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--		
TSS	mg/L	-	-	-	10100	2790	4170	1560	16900	118000	--	--	--	--	--	--		
Aluminum	mg/L	0.1	0.06	0.09	0.06	0.03	0.03	0.07	0.07	0.03	0.03	0.02	0.02	0.02	0.05	0.04	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	0.0001	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
Barium	mg/L	1	0.32	0.28	0.128	0.134	0.136	0.127	0.125	0.132	0.095	0.088	0.085	0.091	0.089	0.088	0.094	0.096
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	<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	0.036	0.039	0.042	0.042	0.043	0.048	0.084	0.078	0.06	0.081	0.087	0.089	0.087	0.078
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	< 0.00002	< 0.00002	< 0.000020	< 0.000014	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.05	0.014	0.014	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0006	0.0014	< 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								
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	< 0.005	0.0002	0.0002	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	0.0003	0.0004	< 0.0001	0.0005	0.0002	0.0001	0.0093	0.0027	0.003	0.001	0.0027	0.0111	0.0024	0.0024
Lead	mg/L	0.01	0.003	0.003	0.00003	< 0.00002	< 0.00002	0.00002	<0.00002	<0.00002	0.00213	0.00099	0.00042	0.00012	0.00021	0.00138	0.00013	0.00024
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	0.0004	0.0003	0.0004	0.0004	< 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	<0.0002	0.0009	<0.0002	< 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	0.002	< 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	< 0.00002	< 0.00002	< 0.0001	< 0.0001
Strontium	mg/L	-	-	-	0.207	0.211	0.226	0.209	0.199	0.216	1.13	1.1	1.09	1.07	0.987	0.979	1.08	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	0.0015	0.0007	0.0007	0.0009	0.0009	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	0.014	0.006	0.006	< 0.005	0.006	0.014	< 0.005	0.006

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 24-Apr-19	Office 21-Oct-19	Office 19-Oct-20	Office 19-Apr-21	Office 27-Oct-21	Office 21-Apr-22	Office 11-Oct-23	Office 07-Oct-24
Total Alkalinity	mg/L	500	360	381	215	214	203	205	236	232	239	207
Calcium	mg/L	-	-	-	66.8	69	67.3	67.9	69.4	68.5	52.5	54.6
Chloride	mg/L	250	132	198	14.3	12.7	< 0.1	13.9	14	13.5	32.3	15.3
COD	mg/L	-	-	-	18	11	13	12	5	12	20	17
Specific Conductivity	umhos/cm	-	-	-	469	457	452	463	468	465	471	455
DOC	mg/L	5	-	-	**29.1**	**5.8**	**6.2**	**7.1**	**6.3**	**5.9**	**8.4**	**6.1**
Fluoride	mg/L	1.5	0.45	0.45	< 0.1	0.2		0.1	0.1	< 0.1	<0.1	0.1
Iron	mg/L	0.3	-	-	**4.49**	**4.64**		**4.06**	**4.32**	**2.51**	**2.44**	**3.57**
Magnesium	mg/L	-	-	-	15.4	16.1	15.5	15.6	16	15.7	13.6	19
Manganese	mg/L	0.05	-	-	**0.061**	**0.06**	**0.066**	**0.058**	**0.054**	**0.061**	0.049	0.05
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	8.01	7.9	8.02	8.14	7.96	7.55	8.06
Phenols	mg/L	-	-	-	< 0.002	< 0.002	< 0.001	0.001	< 0.002	< 0.001	<0.001	<0.001
Phosphorus	mg/L	-	-	-	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1
Potassium	mg/L	-	-	-	3.4	4	3.6	3.8	3.7	3.6	3.3	4.1
Sodium	mg/L	200	106	121	11.1	12.1	11.1	11.8	11.7	10.7	9.6	12.7
Sulphate	mg/L	500	251	252	< 1	< 1	< 1	< 1	< 1	2	<1	<1
TDS	mg/L	500	372	512	246	249	233	237	261	257	244	235
Tot Kjel N	mg/L	-	-	-	0.6	0.5	0.5	0.5	0.6	1	0.8	0.7
Ammonia (NH3-N)	mg/L	-	-	-	0.48	0.41	0.41	0.39	0.43	0.68	0.58	0.54
Ammonia - Unionized	mg/L	-	-	-								
Hardness (CaCO3)	mg/L	500	362	460	230	239	232	234	239	236	187	215
BOD	mg/L	-	-	-								
Cyanide (free)	mg/L	-	-	-			13.6					
TSS	mg/L	-	-	-								
Aluminum	mg/L	0.1	0.06	0.09	0.05	0.05	< 0.01	0.05	0.04	0.01	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	0.0002	<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	0.085	0.097	0.092	0.092	0.094	0.091	0.072	0.1
Beryllium	mg/L	-	-	-	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001
Boron	mg/L	5	1.3	1.3	0.084	0.1	0.09	0.087	0.088	0.088	0.079	0.326
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	0.014	0.014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01
Chromium (VI)	mg/L	-	-	-						< 0.001	<0.01	<0.01
Cobalt	mg/L	-	-	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0001	0.0002
Copper	mg/L	1	0.5	0.5	0.0013	0.0015	0.0023	0.0001	< 0.0001	0.0015	0.0005	0.0004
Lead	mg/L	0.01	0.003	0.003	0.0001	0.00011	0.00013	< 0.00002	< 0.00002	0.00166	<0.00002	0.00015
Mercury	mg/L	0.001	0.0003	0.0003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	<0.00002
Molybdenum	mg/L	-	-	-	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0003
Nickel	mg/L	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0007	0.001
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	-	-	-	1.06	1.18	1.11	1.1	1.15	1.03	0.956	1.07
Thallium	mg/L	-	-	-	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.005	<0.00005	<0.00005
Vanadium	mg/L	-	-	-	0.0002	0.0001	0.0002	< 0.0001	0.0002	< 0.0001	0.0001	0.0001
Zinc	mg/L	5	2.5	2.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.018	<0.005	0.005

ODWQS - Ontario Drinking Water Quality Standards
RUP - Reasonable Use Policy Criteria
Bold and highlighted indicates ODWQS exceedance
Bold and Italics indicates RUP exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	CWQG	WP1 16-Apr-15	WP1 08-Oct-15	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
Total Alkalinity	mg/L	-	-	205	202	203	200	202	194	250	223	202	205	183	200	175
Calcium	mg/L	-	-	76.6	80.4	75.3	74.5	78.7	75.4	82.2	87.3	88.5	96.1	82.3	94.7	77.6
Chloride	mg/L	-	120	17.5	17.3	18.5	17.4	24.9	18.2	30.6	16.5	40.1	31.7	22.9	17.6	13.8
COD	mg/L	-	-	60	62	61	53	52	75	77	10100	693	548	80	418	564
Specific Conductivity	umhos/cm	-	-	466	468	460	449	468	454	521	501	535	561	451	513	411
DOC	mg/L	-	-	18.7	17.5	16.2	14.7	15.3	17.8	14	18.7	14.5	16.5	15.5	17	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	< 0.1
Iron	mg/L	0.3	-	**0.66**	**1.08**	**1.22**	**1.83**	**2.72**	**1.95**	0.016	**2.69**	**1.05**	**0.88**	**0.598**	**0.552**	**0.449**
Magnesium	mg/L	-	-	4.7	4.78	4.76	4.66	4.63	4.59	4.89	5.02	5.17	6.16	5.19	5.36	4.57
Manganese	mg/L	-	-	0.127	0.134	0.126	0.123	0.125	0.106	0.114	0.493	0.515	0.484	0.477	0.514	0.476
Nitrate	mg/L	-	2.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.05	0.09	< 0.05	0.09
Nitrite	mg/L	-	0.06	< 0.1	< 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	-	7.52	7.5	7.37	7.57	7.51	7.49	7.48	7.08	7.21	7.48	7.35	7.27	7.39
Phenols	mg/L	0.001	-	< 0.001	< 0.001	**0.003**	< 0.001	< 0.001	**0.005**	**0.004**	**0.013**	< 0.002	< 0.001	< 0.002	< 0.001	**0.028**
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
Potassium	mg/L	-	-	2.2	2.4	2.2	2.3	2.1	2.3	2.2	1.3	1.5	1.9	1.4	1.6	1.5
Sodium	mg/L	-	-	6.2	6.7	6.4	7.3	6.1	8.4	7.6	8.2	18.5	14.6	10.9	10.8	8.7
Sulphate	mg/L	-	-	13	14	6	2	1	4	< 1	21	< 1	19	7	33	< 1
TDS	mg/L	-	-	244	250	237	232	243	232	279	278	278	295	242	285	213
Tot Kjel N	mg/L	-	-	1.4	0.8	1.5	1.5	1.4	1.6	2.7	154	11.2	8.6	1.6	6	7.2
Ammonia (NH3-N)	mg/L	-	-	0.63	0.76	0.77	0.81	0.82	0.78	0.9	1.44	0.61	0.72	0.39	0.55	0.44
Ammonia - Unionized	mg/L	0.02	-									<0.01	<0.01	< 0.01	< 0.01	< 0.01
Hardness (CaCO3)	mg/L	-	-	211	221	208	205	216	207	226	239	242	266	227	259	213
BOD	mg/L	-	-	< 2	< 3	< 3	< 3	< 3	< 3	< 3	16	< 3	< 3	3	< 3	4
Cyanide (free)	mg/L	-	-	< 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	-	-	81	90	--	--	82	110	1100	39000	1360	900	1100	1360	1620
Aluminum	mg/L	0.075	-	0.06	0.07	0.07	0.07	**0.08**	0.06	0.05	0.06	0.06	**0.08**	0.06	0.07	0.06
Antimony	mg/L	0.02	-	< 0.0001	0.0002	< 0.0001	0.0003	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.005	-	0.0004	0.0006	0.0005	0.0001	0.0004	0.0004	0.0003	0.0014	0.0006	0.0003	0.0002	0.0003	0.0003
Barium	mg/L	-	-	0.033	0.038	0.032	0.037	0.048	0.035	0.034	0.041	0.034	0.043	0.028	0.036	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
Boron	mg/L	-	1.5	< 0.005	< 0.005	< 0.005	< 0.005	0.021	< 0.005	< 0.005	0.005	< 0.005	0.007	< 0.005	0.011	< 0.005
Cadmium	mg/L	0.0005	-	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000020	< 0.000014	0.000016	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.001	-	0.0004	**0.0029**	< 0.0002	< 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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	-	0.0008	0.0009	0.0005	0.0003	< 0.0001	0.0002	0.0014	0.0001	0.0008	0.0007	0.0002	0.0013	0.0012
Lead	mg/L	0.005	-	0.00019	0.00015	0.00067	0.00023	0.00017	0.00015	0.0004	0.00006	0.00023	0.00011	0.00004	0.00012	0.00012
Mercury	mg/L	0.0002	-	< 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
Molybdenum	mg/L	0.04	-	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
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
Selenium	mg/L	0.1	-	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	< 0.00002	< 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	-	-	0.168	0.173	0.161	0.155	0.134	0.153	0.152	0.193	0.182	0.216	0.165	0.202	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
Vanadium	mg/L	0.006	-	0.0022	0.0016	0.0013	0.0014	0.0023	0.0011	0.0006	0.0004	0.0004	0.0004	0.0007	0.0002	0.0005
Zinc	mg/L	0.02	-	**23.1**	**26.3**	**21.8**	**20.9**	**23.3**	**24.3**	**32.5**	**9.6**	**4.33**	**2.32**	**0.967**	**0.884**	**0.406**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedance
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	WP1 27-Oct-21	WP1 20-Apr-22	WP1 24-Oct-22	WP1 19-Apr-23	WP1 12-Oct-23	WP1 18-Apr-24	WP1 (DUP) 18-Apr-24	WP1 07-Oct-24	WP2 17-Apr-15	WP2 08-Oct-15	WP2 42488	WP2 18-Apr-17	WP2 24-Oct-17	WP2 24-Apr-18
Total Alkalinity	mg/L	-	258	233	297	204	287	228	228	280	977	919	1300	1110	393	902
Calcium	mg/L	-	107	92.8	119	72.6	101	79.5	78.2	101	265	244	357	273	131	264
Chloride	mg/L	-	16	14.6	27.7	17.5	18	18.8	18.1	11.6	**203**	**199**	**219**	**223**	34.5	**205**
COD	mg/L	-	387	138	374	683	553	378	387	564	239	212	286	170	211	131
Specific Conductivity	umhos/cm	-	521	472	640	474	588	498	497	579	2200	2130	2800	2540	849	2050
DOC	mg/L	-	20.5	16.4	21.1	9.1	26.5	20.3	17.3	20.6	24	20.1	25	57.9	21.8	18.8
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	0.5	< 0.1	< 0.1	0.2
Iron	mg/L	0.3	**0.516**	**0.616**	**0.648**	**0.527**	**0.583**	**0.61**	**0.605**	**0.486**	**6.31**	< 0.005	**20.1**	**8.92**	**3.07**	**5.73**
Magnesium	mg/L	-	6.07	5.4	6.87	4.41	6.11	5.24	5.18	6.14	72.4	77.5	89.1	79	7.36	72.2
Manganese	mg/L	-	0.575	0.597	0.689	0.437	0.522	0.517	0.507	0.426	0.093	0.021	0.269	0.13	0.19	0.062
Nitrate	mg/L	-	< 0.05	< 0.05	< 0.05	0.14	<0.05	<0.05	<0.05	<0.05	< 0.1	0.1	< 0.5	< 0.1	< 0.05	< 0.05
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	< 0.1	< 0.1	< 0.5	**0.1**	< 0.05	< 0.05
pH Lab	pH unit	6.5-8.5	7.74	7.49	7.23	7.27	7.06	7.28	7.53	7.72	7.66	7.79	7.22	7.4	7.69	7.83
Phenols	mg/L	0.001	**0.002**	< 0.001	< 0.001	< 0.001	<0.005	<0.001	<0.001	**0.011**	< 0.001	< 0.001	**0.021**	**0.004**	**0.007**	< 0.001
Phosphorus	mg/L	0.03	< 0.1	**0.1**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1
Potassium	mg/L	-	1.8	1.5	1.9	1.5	2.2	1.8	1.7	2.6	3.9	3.7	4.7	4.2	0.6	4.5
Sodium	mg/L	-	9.5	7.9	8.3	6.9	8.4	6.7	6.6	7.8	100	112	135	123	23.4	147
Sulphate	mg/L	-	3	1	< 1	3	4	<1	<1	<1	21	4	48	23	1	< 1
TDS	mg/L	-	300	266	344	229	305	258	257	299	1260	1190	1650	1400	439	1241
Tot Kjel N	mg/L	-	6.9	2.2	6.1	10.8	9.2	5.5	5.7	8.9	3.2	2.3	4.2	3.3	2.9	2.9
Ammonia (NH3-N)	mg/L	-	0.54	0.69	0.75	2.09	0.82	0.68	0.8	1.13	0.71	0.66	0.87	0.75	1.36	0.48
Ammonia - Unionized	mg/L	0.02	< 0.01	0.01	< 0.01	< 0.01	<0.01	<0.01	0	0.01						
Hardness (CaCO3)	mg/L	-	292	254	326	200	278	220	217	279	960	929	1260	1010	358	957
BOD	mg/L	-	< 3	< 3	< 3	< 3	<3	<3		3	3	27	< 3	7	< 3	5
Cyanide (free)	mg/L	-	< 0.005	< 0.005	< 0.005	< 0.005	<0.008	<0.005		<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
TSS	mg/L	-	1060	310	320	1480	750	1420		1120	29900	2320	--	3150	540	640
Aluminum	mg/L	0.075	**0.14**	0.07	**0.09**	0.05	**0.08**	0.05	0.05	0.07	0.05	0.06	0.07	**0.12**	0.07	**0.11**
Antimony	mg/L	0.02	0.0004	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0004	0.0002	0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.005	0.0004	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0002	0.0006	0.0018	0.0009	0.0018	0.0006	0.0009
Barium	mg/L	-	0.041	0.03	0.045	0.026	0.04	0.028	0.028	0.038	0.407	0.294	0.76	0.586	0.092	0.417
Beryllium	mg/L	1.1	< 0.002	< 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
Boron	mg/L	-	0.006	< 0.005	0.005	< 0.005	<0.005	<0.005	<0.005	0.007	0.049	0.048	0.024	0.059	0.008	0.04
Cadmium	mg/L	0.0005	< 0.000015	< 0.000015	< 0.000010	< 0.000010	<0.000015	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.00002	< 0.00002	< 0.000020	0.000015	< 0.000015
Chromium (total)	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	<0.01	< 0.0002	**0.0226**	< 0.0002	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	< 0.005	0.0003	0.0002	0.0002	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.0009	0.0015	0.0006	0.0006	0.0005	0.0002	0.0002	0.0003	0.0014	0.0015	0.0015	0.0021	0.0004	0.0003
Lead	mg/L	0.005	0.00042	0.00008	0.00004	0.00005	0.00006	0.00006	0.00006	0.00006	0.00003	< 0.00002	0.00006	< 0.00002	**0.0154**	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	0.0003	0.0002	0.0004	0.0001	0.0005
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	0.0003	<0.0002	<0.0002	<0.0002	< 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	0.003	0.004	0.001	0.001	0.002	0.003
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	< 0.0001
Strontium	mg/L	-	0.232	0.181	0.25	0.157	0.233	0.182	0.18	0.231	1.81	1.77	2.49	1.76	0.308	1.8
Thallium	mg/L	0.0003	< 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	0.006	0.0009	0.0007	0.0002	0.0007	0.0004	0.0008	0.0008	0.0006	**0.0061**	**0.0087**	**0.0074**	**0.0067**	0.0027	0.0009
Zinc	mg/L	0.02	**0.84**	**0.444**	**0.149**	**0.354**	**0.201**	**0.472**	**0.464**	**0.243**	**18**	**1.58**	**13**	**14.7**	**55.6**	**18.8**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	WP2 16-Oct-18	WP2 22-Oct-19	WP2 23-Apr-20	WP2 20-Oct-20	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 07-Oct-24	WP3 17-Apr-15	WP3 08-Oct-15
Total Alkalinity	mg/L	-	571	277	470	446	421	534	483	520	514	492	499	421	345	341
Calcium	mg/L	-	189	178	177	171	147	173	156	171	164	144	134	140	105	108
Chloride	mg/L	-	75.5	35.3	40.8	29.5	30.2	21.6	27.9	29.9	30.9	19.6	25.5	16	34.7	31.9
COD	mg/L	-	11000	5100	682	1480	2040	2440	4520	620	1970	1930	1170	1160	73	68
Specific Conductivity	umhos/cm	-	1360	1120	1070	1070	933	1010	937	1060	1070	947	1000	855	731	724
DOC	mg/L	-	23	17.7	18.7	15.5	22.2	26.7	17.1	16.6	9.6	24.7	28.4	31.3	24.3	17.3
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
Iron	mg/L	0.3	**12.2**	**1.01**	**6.76**	**8.08**	0.037	**11.4**	**13.9**	**21**	**18.3**	**21.7**	**15.7**	**20.8**	**3.92**	**3.46**
Magnesium	mg/L	-	15.2	13.7	13.7	12.2	11.7	12.5	12	13.2	13.1	10.5	11.2	10.3	5.76	6.15
Manganese	mg/L	-	0.27	0.449	0.501	0.697	0.198	0.55	0.476	0.64	0.601	0.588	0.43	0.541	0.166	0.157
Nitrate	mg/L	-	< 0.05	1.57	0.48	0.64	0.17	0.83	0.09	0.85	0.09	0.29	0.07	<0.05	< 0.1	< 0.1
Nitrite	mg/L	-	< 0.05	< 0.05	0.06	0.05	**0.08**	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	7.29	7.66	7.62	7.43	7.5	7.8	7.56	7.33	7.55	7.21	7.61	7.79	7.75	7.62
Phenols	mg/L	0.001	**0.03**	< 0.001	< 0.002	< 0.001	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	<0.010	<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	**0.1**	< 0.1	**0.2**	<0.1	**0.2**	**0.1**	< 0.1	< 0.1
Potassium	mg/L	-	25.5	16.9	13.1	12.8	11.9	15.5	12.1	15.2	13.6	14.2	12.4	12.8	0.5	0.6
Sodium	mg/L	-	70.7	61.5	51.9	67.6	42.2	51	41.1	46.7	43.3	45.5	40.5	35.7	16.4	18.3
Sulphate	mg/L	-	1	242	29	79	4	2	2	< 1	1	<1	2	<1	< 1	< 1
TDS	mg/L	-	759	718	622	649	504	616	564	618	594	504	536	489	376	375
Tot Kjel N	mg/L	-	201	120	19.4	28.2	36.2	51.6	92.1	97.1	41.9	45	29.8	27.3	2.1	2
Ammonia (NH3-N)	mg/L	-	20.7	2.43	5.67	2.9	3.65	5.96	6.37	6.78	8.76	6.69	7.81	6.74	1.14	1.26
Ammonia - Unionized	mg/L	0.02		<0.01	< 0.01	< 0.01	< 0.01	**0.03**	**0.13**	0.01	**0.04**	<0.01	0.02	**0.07**		
Hardness (CaCO3)	mg/L	-	535	501	499	478	416	484	439	482	465	403	381	392	287	295
BOD	mg/L	-	16	9	19	11	16	16	17	19	20	<3	16	15	< 2	< 3
Cyanide (free)	mg/L	-	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.05	<0.085	<0.005	<0.005	< 0.005	< 0.005
TSS	mg/L	-	18000	7500	2200	4600	3350	3900	11100	7400	4280	3060	2540	2360	1640	130
Aluminum	mg/L	0.075	**0.09**	**0.1**	**0.09**	**0.08**	0.07	**0.09**	**0.09**	**0.08**	0.06	**0.1**	0.05	0.05	0.03	0.04
Antimony	mg/L	0.02	0.0002	0.0005	0.0001	0.0002	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	<0.0001	0.0002	0.0002	0.0002
Arsenic	mg/L	0.005	0.0007	0.0007	0.0012	0.0009	0.0011	0.0023	0.0017	0.0015	0.0013	0.0012	0.0007	0.001	0.0008	0.0011
Barium	mg/L	-	0.117	0.125	0.08	0.08	0.062	0.089	0.076	0.095	0.081	0.078	0.066	0.071	0.054	0.053
Beryllium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	<0.0001	< 0.002	< 0.002
Boron	mg/L	-	0.145	0.363	0.16	0.247	0.118	0.132	0.076	0.11	0.089	0.135	0.092	0.15	0.006	0.009
Cadmium	mg/L	0.0005	< 0.000015	0.000016	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000012	< 0.000010	<0.000015	<0.000015	<0.000015	0.00004	< 0.00002
Chromium (total)	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.01	<0.01	0.0009	**0.004**
Chromium (VI)	mg/L	0.001							< 0.001	< 0.001	< 0.001	<0.01	<0.01	<0.01		
Cobalt	mg/L	0.0009	**0.0011**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.0019**	**0.0015**	**0.0017**	< 0.005	< 0.005
Copper	mg/L	0.005	0.0005	0.0009	0.0007	0.0017	0.0021	0.001	0.0007	0.0005	0.0003	0.0008	0.0004	0.0005	0.0014	0.0009
Lead	mg/L	0.005	0.00003	0.0001	0.0001	0.0001	0.00012	0.00007	0.0001	0.00007	0.00006	0.00012	0.00007	0.00008	**0.00596**	**0.0179**
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	0.0004	0.0026	0.0009	0.0007	0.0004	0.0006	0.0004	0.0008	0.0003	0.0004	0.0003	0.0003	< 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	0.0019	0.0019	0.0015	< 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	0.003	0.004
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	0.00003
Strontium	mg/L	-	0.526	0.6	0.456	0.448	0.394	0.459	0.389	0.447	0.438	0.402	0.377	0.393	0.271	0.273
Thallium	mg/L	0.0003	< 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	0.006	0.0004	0.0004	0.0002	0.0001	0.0002	0.0003	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0038	0.0027
Zinc	mg/L	0.02	**9.72**	**1.21**	**1.55**	**1.01**	**0.204**	**0.623**	**0.627**	**0.532**	**0.479**	**0.31**	**0.501**	**0.354**	**56.5**	**72.3**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	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	WP3 23-Apr-20	WP3 20-Oct-20	WP3 20-Apr-21	WP3 27-Oct-21	WP3 21-Apr-22	WP3 24-Oct-22
Total Alkalinity	mg/L	-	345	353	381	362	398	307	321	334	336	313	339	387	415	377
Calcium	mg/L	-	116	117	114	115	125	108	114	130	132	121	127	135	127	128
Chloride	mg/L	-	34.9	**216**	40.4	31.8	45.6	29.6	30	28.8	36.4	32.4	35.8	31.8	31.5	36.4
COD	mg/L	-	65	52	97	37	110	3820	354	460	74	694	393	521	148	624
Specific Conductivity	umhos/cm	-	737	772	808	767	828	632	725	799	804	762	816	788	829	805
DOC	mg/L	-	17.7	17	18.1	19.8	45	22.8	19.5	21.5	18.5	17.5	19.7	25	16.7	19.9
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron	mg/L	0.3	**3.88**	**3.66**	**3.49**	**0.438**	0.01	**1.97**	**0.933**	**0.729**	**0.674**	**2.01**	**1.28**	**0.684**	**2.27**	**1.29**
Magnesium	mg/L	-	6.7	6.83	5.96	6.7	7.09	7.96	8.67	10	11.1	9.52	10.4	9.76	10.5	9.79
Manganese	mg/L	-	0.174	0.167	0.171	0.156	0.231	0.162	0.165	0.187	0.174	0.198	0.215	0.202	0.22	0.221
Nitrate	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.08	0.07	< 0.05	0.05	< 0.05	< 0.05	0.14
Nitrite	mg/L	-	< 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	7.68	7.63	7.74	7.67	7.46	7.54	7.5	7.98	7.72	7.63	7.65	7.91	7.75	7.53
Phenols	mg/L	0.001	**0.022**	< 0.001	**0.004**	**0.007**	**0.004**	**0.038**	< 0.002	< 0.001	< 0.002	< 0.001	**0.006**	< 0.002	0.001	< 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**	**0.1**	< 0.1	< 0.1	**0.1**	**0.2**
Potassium	mg/L	-	0.9	0.6	0.4	0.8	1.1	10.1	9.5	12.3	11.2	12	12.3	12.8	11.3	11.3
Sodium	mg/L	-	19.3	21.5	17.3	21.1	24.5	27.8	29.8	32.9	34.9	32.6	43.6	34.4	36.7	27.1
Sulphate	mg/L	-	< 1	47	< 1	1	< 1	< 1	< 1	26	43	33	15	2	1	< 1
TDS	mg/L	-	390	627	412	396	445	375	390	446	475	431	452	462	473	444
Tot Kjel N	mg/L	-	2	2.1	2.4	2.2	4	65.4	9.8	11.9	3.8	13.5	5.7	13.4	11.7	13.1
Ammonia (NH3-N)	mg/L	-	1.33	1.45	1.45	1.35	1.53	3.96	3.1	3.36	2.66	2.44	2.09	2.16	2.71	2.45
Ammonia - Unionized	mg/L	0.02							**0.05**	0.02	< 0.01	< 0.01	< 0.01	0.02	**0.08**	< 0.01
Hardness (CaCO3)	mg/L	-	317	321	309	315	342	303	321	366	376	342	360	378	361	360
BOD	mg/L	-	< 3	< 3	7	< 3	4	6	< 3	< 3	< 3	< 3	< 3	< 3	5	4
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
TSS	mg/L	-	--	--	4500	2900	1350	5000	160	920	68	3200	1640	1340	3550	1420
Aluminum	mg/L	0.075	0.05	0.05	0.07	**0.2**	0.07	0.07	0.06	**0.08**	**0.09**	0.07	**0.11**	**0.1**	**0.09**	0.05
Antimony	mg/L	0.02	< 0.0001	0.0003	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	0.0001	< 0.0001	0.0001	0.0002	0.0004	0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0007	0.0003	0.0004	0.0004	< 0.0001	0.0003	0.0003	0.0004	0.0002	0.0004	0.0002	0.0003	0.0004	0.0004
Barium	mg/L	-	0.05	0.057	0.076	0.093	0.128	0.044	0.042	0.05	0.044	0.047	0.044	0.05	0.045	0.05
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	< 0.005	0.029	0.009	0.005	0.03	0.026	0.071	0.048	0.108	0.07	0.092	0.05	0.083
Cadmium	mg/L	0.0005	< 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	0.001	< 0.0002	< 0.0002	**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
Cobalt	mg/L	0.0009	< 0.005	< 0.005	< 0.005	< 0.005	**0.006**	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Copper	mg/L	0.005	0.0009	0.0004	0.0004	0.0004	0.0005	0.0005	0.0009	0.0015	0.0005	0.0018	0.0006	0.0009	0.0015	0.0007
Lead	mg/L	0.005	**0.0391**	**0.00761**	**0.00759**	**0.00878**	**0.00759**	0.00077	0.00036	0.00037	0.00008	0.00021	0.00019	0.00028	0.00036	0.00011
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	0.00003	< 0.00002
Molybdenum	mg/L	0.04	0.0001	0.0001	< 0.0001	< 0.0001	0.0002	0.0001	0.0001	0.0002	< 0.0001	0.0001	0.0002	0.0002	0.0003	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	0.002	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
Silver	mg/L	0.0001	< 0.00002	0.00002	0.00004	< 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	-	0.291	0.285	0.229	0.276	0.311	0.279	0.274	0.336	0.311	0.315	0.332	0.342	0.333	0.333
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
Vanadium	mg/L	0.006	0.0031	0.0029	0.0035	0.0013	0.0018	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Zinc	mg/L	0.02	**37.9**	**61.3**	**76.4**	**37.3**	**112**	**7.26**	**4.75**	**3.11**	**2.44**	**1.54**	**1.34**	**1.42**	**1.02**	**0.565**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	WP3 19-Apr-23	WP3 12-Oct-23	WP3 18-Apr-24	WP3 07-Oct-24	WP4 17-Apr-15	WP4 08-Oct-15	WP4 28-Apr-16	WP4 04-Oct-16	WP4 18-Apr-17	WP4 24-Apr-18	WP4 16-Oct-18	WP4 12-Apr-19	WP4 22-Oct-19	WP4 23-Apr-20
Total Alkalinity	mg/L	-	356	2950	374	371	1700	1670	1530	1510	1550	478	515	600	1090	1100
Calcium	mg/L	-	133	392	107	123	308	303	291	289	311	140	121	170	235	258
Chloride	mg/L	-	26	93.4	25.5	21.9	**162**	**142**	**178**	**175**	**265**	20.4	54.1	75.8	**163**	**174**
COD	mg/L	-	223	697	268	265	282	265	234	251	248	89	2200	1180	650	253
Specific Conductivity	umhos/cm	-	761	8450	786	780	4350	3390	3260	3410	3470	912	1230	1480	2630	2610
DOC	mg/L	-	18.5	107	22.1	28.1	96.9	91.4	72	31.8	79.1	26.1	57.4	29.8	37.4	31.2
Fluoride	mg/L	-	< 0.1	<0.1	<0.1	<0.1	0.2	< 0.1	< 0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1
Iron	mg/L	0.3	**1.4**	**1.98**	0.069	**0.667**	**12.9**	**2.9**	**6.17**	**2.08**	**4.6**	0.04	**22.2**		**1.92**	**1.85**
Magnesium	mg/L	-	10.8	74.7	9.15	9.45	45.2	44.7	56.6	52.4	44.3	20.7	16	22.2	38.9	44.3
Manganese	mg/L	-	0.235	1.39	0.18	0.23	0.177	0.132	0.189	0.135	0.191	0.001	0.308	0.291	0.241	0.241
Nitrate	mg/L	-	0.13	<0.05	<0.05	<0.05	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.17	< 0.05	< 0.05	0.16	< 0.5
Nitrite	mg/L	-	< 0.05	<0.05	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.5
pH Lab	pH unit	6.5-8.5	7.74	7.34	7.78	7.97	7.67	7.53	7.57	7.52	7.57	7.84	7.47	7.32	7.83	7.58
Phenols	mg/L	0.001	< 0.001	<0.020	<0.001	<0.001	< 0.001	< 0.001	**0.024**	**0.02**	**0.007**	0.001	< 0.01	**0.03**	< 0.001	< 0.002
Phosphorus	mg/L	0.03	**0.2**	**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**
Potassium	mg/L	-	11.5	294	9.9	12.1	179	188	165	174	177	26.6	53.5	74.9	120	125
Sodium	mg/L	-	29.6	780	23.3	23.7	180	170	118	144	148	25.8	55.5	74.9	163	167
Sulphate	mg/L	-	< 1	<1	<1	<1	69	49	69	11	37	4	19	21	11	< 10
TDS	mg/L	-	426	4840	412	414	2120	2040	1940	1890	2060	530	689	839	1487	1518
Tot Kjel N	mg/L	-	5.6	525	7.7	8.4	111	136	139	108	102	13.2	383	50.9	92.9	76.3
Ammonia (NH3-N)	mg/L	-	2.64	437	2.59	3.11	110	110	104	108	105	4.51	29.7	30.8	76.6	67.2
Ammonia - Unionized	mg/L	0.02	0.01	<0.01	0.01	<0.01								**0.36**	**0.25**	**0.18**
Hardness (CaCO3)	mg/L	-	376	1290	306	346	957	942	960	939	960	435	368	516	747	827
BOD	mg/L	-	5	22	4	4	< 2	13	4	< 3	5	4	14	< 3	5	10
Cyanide (free)	mg/L	-	< 0.005	<0.017	<0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.005	< 0.005
TSS	mg/L	-	465	2640	505	1080	184	65	--	--	105	760	29000	10500	22000	3900
Aluminum	mg/L	0.075	**0.08**	**0.19**	0.04	0.06	**0.09**	**0.08**	**0.11**	**0.09**	**0.08**	0.07	**0.08**	**0.1**	**0.13**	**0.14**
Antimony	mg/L	0.02	< 0.0001	0.0014	<0.0001	0.0001	0.0005	0.0006	0.0007	0.0006	0.0003	0.0002	0.0005	0.0003	0.0003	0.0003
Arsenic	mg/L	0.005	0.0004	0.0035	0.0003	0.0004	0.0036	0.0044	0.0017	0.0024	0.0026	0.002	0.0016	0.0012	0.0007	0.0006
Barium	mg/L	-	0.047	0.322	0.038	0.046	1.28	1.27	1.14	1.11	1.31	0.048	0.131	0.225	0.84	1.02
Beryllium	mg/L	1.1	< 0.002	<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	-	0.051	**3.26**	0.046	0.109	0.474	0.545	0.567	0.635	0.594	0.309	0.369	0.323	0.81	0.736
Cadmium	mg/L	0.0005	< 0.000010	<0.000030	<0.000015	<0.000015	0.00005	0.00009	0.00025	0.00005	0.000061	0.000198	< 0.000015	< 0.000015	< 0.000029	< 0.000029
Chromium (total)	mg/L	0.001	< 0.001	**0.007**	<0.01	<0.01	< 0.0002	**0.028**	< 0.0002	< 0.0002	**0.003**	< 0.001	< 0.001	< 0.001	**0.003**	**0.003**
Chromium (VI)	mg/L	0.001	< 0.001	<0.01	<0.01	<0.01										
Cobalt	mg/L	0.0009	< 0.005	**0.0163**	0.0005	0.0007	**0.009**	**0.007**	< 0.005	< 0.005	**0.008**	< 0.005	**0.0012**	< 0.005	**0.005**	**0.005**
Copper	mg/L	0.005	0.0003	0.0008	0.0004	0.0005	0.0021	0.0018	0.0018	0.0013	0.0027	**0.0062**	0.0014	0.0008	0.0017	0.002
Lead	mg/L	0.005	0.00011	0.00012	0.00021	0.00007	0.00037	0.00056	0.00184	0.00048	0.00077	**0.0116**	0.00009	0.00008	0.00014	0.00011
Mercury	mg/L	0.0002	< 0.00002	<0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00008	**0.00112**	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	< 0.0001	0.0008	<0.0001	0.0001	< 0.0001	0.0002	0.0002	0.0001	0.0001	< 0.0001	0.001	0.0005	0.0003	0.0003
Nickel	mg/L	0.025	< 0.01	**0.0434**	0.001	0.0009	< 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	0.008	<0.001	<0.001	0.005	0.01	0.001	0.006	< 0.001	< 0.001	< 0.001	0.002	0.002	0.002
Silver	mg/L	0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	< 0.00002	0.00004	< 0.00002	0.00004	0.00005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.345	1.82	0.298	0.346	0.776	0.776	0.764	0.75	0.662	0.426	0.347	0.455	0.642	0.656
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	0.0022	<0.0001	<0.0001	**0.0178**	**0.0134**	**0.0126**	**0.0096**	**0.0122**	0.0045	0.0001	0.0013	0.0023	0.0042
Zinc	mg/L	0.02	**1.02**	**0.049**	**0.558**	**0.669**	**52.5**	**135**	**13.2**	**108**	**116**	0.008	**6.86**	**4.94**	**0.557**	**0.206**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	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	WP5 16-Apr-15	WP5 27-Apr-16	WP5 04-Oct-16	WP5 18-Apr-17	WP5 24-Oct-17
Total Alkalinity	mg/L	-	925	778	548	990	557	911	663	850	547	291	245	--	--	--
Calcium	mg/L	-	192	184	155	183	152	206	143	156	146	84.7	87.5	59.7	91.3	105
Chloride	mg/L	-	**134**	94.6	26.5	104	33.6	**131**	51.8	91.4	26.9	29.9	27.5	--	--	--
COD	mg/L	-	2810	1100	308	656	391	487	226	456	226	314	181	--	172	--
Specific Conductivity	umhos/cm	-	2200	1870	1090	2060	1120	2120	1360	1880	1120	651	613	--	--	--
DOC	mg/L	-	23.4	48.9	42.6	18.5	25.4	22.3	57.8	43.2	33.5	17.8	2.4	--		22.2
Fluoride	mg/L	-	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	<0.1	<0.1	<0.1	0.1	< 0.1	--	--	--
Iron	mg/L	0.3	**1.11**	**2.24**	**1.18**	**1.75**	**1.22**	0.22	**0.932**	0.196	**0.745**	**21.9**	**1.71**	**6.15**	**9.22**	**151**
Magnesium	mg/L	-	30.2	26.3	20.4	29.5	20.5	34.6	21	28.2	21.4	7.69	8.69	4.51	7.97	8.74
Manganese	mg/L	-	0.205	0.252	0.237	0.194	0.232	0.242	0.202	0.152	0.213	0.604	0.637	2.68	0.977	1.31
Nitrate	mg/L	-	0.24	0.05	0.23	< 0.3	0.28	< 0.05	<0.40	<0.05	0.12	0.1	0.2	--	--	--
Nitrite	mg/L	-	< 0.05	**0.07**	< 0.05	< 0.3	< 0.05	< 0.05	<0.05	<0.05	<0.05	< 0.1	< 0.1	--	--	--
pH Lab	pH unit	6.5-8.5	7.46	7.47	7.78	7.63	7.36	7.68	7.51	7.77	7.85	8.01	7.73	--	--	--
Phenols	mg/L	0.001	**0.033**	**0.039**	**0.003**	**0.007**	< 0.001	**0.004**	**0.006**	<0.001	<0.001	< 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	< 0.1	<0.1	**0.6**
Potassium	mg/L	-	87	60.1	39.1	76.9	33.1	83.8	45.2	73.6	36.1	14.9	16.2	8.3	16.5	16.4
Sodium	mg/L	-	101	84.5	41	106	33.2	106	47.2	95.4	33.1	22.2	26.6	16.4	24	23.1
Sulphate	mg/L	-	22	19	23	< 5	5	< 1	2	<1	<1	5	31	--	--	--
TDS	mg/L	-	1122	976	649	1154	623	1108	739	1040	594	363	348	--	--	--
Tot Kjel N	mg/L	-	96.8	40	13.1	53.1	15.3	47.2	19.7	37.2	12.9	1.4	3.3	--	2.3	7.5
Ammonia (NH3-N)	mg/L	-	53.8	30	10.4	45	7.91	48.5	20	39.6	9.9	0.35	0.28	--	0.62	0.35
Ammonia - Unionized	mg/L	0.02	**0.11**	**0.03**	0.02	**1.06**	0.02	**0.11**	<0.01	**0.09**	0.02					
Hardness (CaCO3)	mg/L	-	604	568	471	579	464	522	444	451	454	243	254	168	261	298
BOD	mg/L	-	10	7	< 3	8	9	7	<3	7	6	< 2	< 3	--	--	--
Cyanide (free)	mg/L	-	< 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	-	36200	14600	1400	53400	2730	715	660	2380	880	468	--	--	--	--
Aluminum	mg/L	0.075	**0.1**	**0.1**	**0.14**	**0.1**	**0.09**	**0.09**	**0.1**	**0.09**	0.07	0.03	0.06	0.03	0.07	**1.86**
Antimony	mg/L	0.02	0.0003	0.0004	0.0005	0.0003	0.0001	0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	< 0.0001	< 0.0001	0.0002
Arsenic	mg/L	0.005	0.0006	0.0004	0.0003	0.0005	0.0003	0.0003	0.0004	0.0004	0.0003	0.0006	0.0006	0.0002	0.0005	0.001
Barium	mg/L	-	0.621	0.483	0.26	0.479	0.214	0.561	0.284	0.422	0.229	0.024	0.026	0.041	0.032	0.087
Beryllium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	-	0.708	0.403	0.451	0.442	0.383	0.655	0.489	0.552	0.466	0.087	0.146	0.369	0.194	0.312
Cadmium	mg/L	0.0005	< 0.000029	< 0.000029	< 0.000015	< 0.000029	< 0.000012	< 0.000012	<0.000015	<0.000015	<0.000015	0.00003	0.00008	0.00042	0.000027	**0.00321**
Chromium (total)	mg/L	0.001	0.001	0.001	< 0.001	0.001	< 0.001	**0.002**	<0.001	<0.01	<0.01	0.0009	< 0.0002	< 0.0002	**0.002**	**0.016**
Chromium (VI)	mg/L	0.001				< 0.001	< 0.001	< 0.001	<0.01	<0.01	<0.01					
Cobalt	mg/L	0.0009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.006**	**0.0016**	**0.0014**	0.0009	< 0.005	< 0.005	**0.006**	< 0.005	**0.008**
Copper	mg/L	0.005	0.0012	0.0013	0.0011	0.0004	0.0004	0.0003	0.001	0.0006	0.0004	0.0014	0.0019	0.0005	0.0008	**0.0162**
Lead	mg/L	0.005	0.0001	0.00011	0.00018	< 0.00009	0.00008	< 0.00004	0.00006	<0.00004	0.00006	0.00249	**0.0125**	0.00153	0.00343	**0.712**
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	0.00015	--	< 0.00002	0.0001
Molybdenum	mg/L	0.04	0.0005	0.0004	0.0002	< 0.0002	0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	0.0003	0.0008	< 0.0001	0.0002	< 0.0001
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0022	0.0026	0.0014	< 0.01	< 0.01	0.01	< 0.01	0.01
Selenium	mg/L	0.1	0.001	< 0.001	< 0.001	0.003	0.002	< 0.001	<0.001	<0.001	<0.001	< 0.001	< 0.001	0.002	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	0.00005	0.00002	0.00005	< 0.00002
Strontium	mg/L	-	0.501	0.477	0.42	0.455	0.405	0.53	0.402	0.413	0.424	0.236	0.254	0.168	0.204	0.303
Thallium	mg/L	0.0003	< 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	0.006	0.0013	0.001	0.0005	0.0017	0.0003	0.0023	0.0005	0.0011	0.0003	0.0023	0.0025	0.0006	0.0033	0.0035
Zinc	mg/L	0.02	**0.591**	**1.12**	**1.61**	**0.151**	**0.835**	**0.177**	**0.428**	**0.147**	**0.423**	**8.15**	**2.62**	**45.3**	**9.89**	**31.5**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	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	WP5 07-Oct-24
Total Alkalinity	mg/L	-	246	--			150			254	320	313	272	320	272	266
Calcium	mg/L	-	78.8	76.3	417		65	231	85.3	72	70.2	72.6	56.8	81.6	64.4	83.1
Chloride	mg/L	-	15.7	--			15.6			12.7	11.6	9.4	9.8	9.4	9.1	9.8
COD	mg/L	-	52	--	7000		2790		250	70	140	113	97	123	97	113
Specific Conductivity	umhos/cm	-	805	--			489			568	660	609	570	610	549	552
DOC	mg/L	-	16.3	--	17.9		32.4		32.3	15.9	15.8	15.2	12.8	21.7	22.8	26.2
Fluoride	mg/L	-	< 0.1	--			< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1
Iron	mg/L	0.3	**16.8**	**0.454**	**391**		0.047	**95.7**	**31.6**	**1.57**	**12.8**	**1.73**	**14.9**	0.207	0.037	**6.79**
Magnesium	mg/L	-	7.34	6.77	19.6		6.28	22.7	8.1	6.97	7.12	9.27	7.11	7.78	6.68	6.89
Manganese	mg/L	-	0.554	0.007	3.89		0.411	1.4	1.01	1.03	1.3	0.731	0.963	0.624	0.724	0.974
Nitrate	mg/L	-	0.05	--			0.3			0.68	0.25	0.16	0.23	0.14	0.17	0.2
Nitrite	mg/L	-	< 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	--			7.25			8.04	7.57	7.81	7.61	7.09	7.82	8.11
Phenols	mg/L	0.001	< 0.001	--	< 0.02		< 0.002	0.001	< 0.002	< 0.002	< 0.001	< 0.001	**0.004**	<0.001	<0.001	<0.001
Phosphorus	mg/L	0.03	< 0.1	< 0.1	**1.21**		< 0.1	**2.4**	**0.8**	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1
Potassium	mg/L	-	14.1	17.3	16.2		12.7	18.7	14.6	15.5	13.6	16.7	15.4	16.2	11.9	12.5
Sodium	mg/L	-	19.4	26.7	40.8		27.1	55.5	40.5	39.1	41.1	44.1	37.4	33.9	24.7	23.6
Sulphate	mg/L	-	7	--			66			31	22	7	6	4	1	<1
TDS	mg/L	-	308	--			284			333	373	350	311	317	285	304
Tot Kjel N	mg/L	-	1.5	--	22.4		34.8	9.6	2.3	2.8	2.6	2.3	2.4	2.8	2.2	2.6
Ammonia (NH3-N)	mg/L	-	0.37	--	1.1		0.76	1.52	0.55	0.44	0.81	0.26	1.2	0.28	0.79	0.7
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	<0.01
Hardness (CaCO3)	mg/L	-	227	219			188	671	247	209	205	220	171	236	189	236
BOD	mg/L	-	< 3	--		Dry	11			3	< 3	5	5	4	4	5
Cyanide (free)	mg/L	-	< 0.005	--	1120		< 0.005		< 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	500
Aluminum	mg/L	0.075	0.06	0.07	**40.6**		0.04	**23.9**	**3.51**	0.05	0.04	0.03	0.02	0.06	0.02	0.03
Antimony	mg/L	0.02	0.0001	0.0002	< 0.01		0.0006	0.0002	0.0026	0.0001	0.0002	< 0.0001	< 0.0001	0.0004	0.0002	0.0001
Arsenic	mg/L	0.005	0.0005	0.0002	**0.0235**		0.0002	0.0033	**0.0085**	0.0002	0.0003	0.0002	0.0003	0.0013	0.0002	0.0004
Barium	mg/L	-	0.023	0.026	0.79		0.024	0.529	0.08	0.04	0.038	0.035	0.035	0.041	0.026	0.047
Beryllium	mg/L	1.1	< 0.002	< 0.002	< 0.02		< 0.002	0.014	< 0.02	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	0.112	0.246	0.76		0.269	0.496	0.18	0.239	0.093	0.201	0.087	0.174	0.08	0.125
Cadmium	mg/L	0.0005	0.000024	< 0.000015	**0.0177**		< 0.000015	0.000086	0.000439	< 0.000015	< 0.000015	< 0.000010	< 0.000010	0.000112	<0.000015	<0.000015
Chromium (total)	mg/L	0.001	< 0.001	< 0.001	**0.08**		< 0.001	**0.01**	< 0.01	< 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	<0.01
Cobalt	mg/L	0.0009	< 0.005	0.0001	**0.0193**		< 0.005	**0.008**	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	0.0009	0.0004	0.0008
Copper	mg/L	0.005	0.0016	0.0006	**0.202**		0.0007	0.0018	**0.0079**	0.0012	0.0004	0.0008	0.0004	0.0021	0.0002	0.0005
Lead	mg/L	0.005	0.00112	0.00039	**0.441**		< 0.00002	**0.0144**	**0.0427**	0.0001	0.00003	0.00009	< 0.00002	0.00336	<0.00002	<0.00002
Mercury	mg/L	0.0002	< 0.00002		**0.00183**		**0.0003**		0.00008	< 0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	<0.00002
Molybdenum	mg/L	0.04	0.0003	0.0007	< 0.01		0.0008	0.0006	0.0034	0.0003	0.0009	0.0003	0.0007	0.0006	0.0003	0.0005
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.1		< 0.01	0.02	< 0.1	< 0.01	< 0.01	< 0.01	< 0.01	0.002	0.001	0.001
Selenium	mg/L	0.1	< 0.001	< 0.001	< 0.1		< 0.001	< 0.001	< 0.004	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.002		< 0.0001	< 0.0001	**0.001**	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001
Strontium	mg/L	-	0.197	0.224	1.3		0.181	1.5	0.26	0.221	0.192	0.226	0.174	0.246	0.193	0.248
Thallium	mg/L	0.0003	< 0.00005	< 0.00005	< 0.005		< 0.00005	0.00006	**0.00036**	< 0.05	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	<0.00005
Vanadium	mg/L	0.006	0.0001	0.0002	**0.0886**		0.0001	0.0006	0.0036	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0008	<0.0001	<0.0001
Zinc	mg/L	0.02	**4.91**	**0.614**	**113**		**1.19**	**13.7**	**5.15**	**1.53**	**1.73**	**1.12**	**1.23**	**1.38**	**0.489**	**0.866**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	WP6 16-Apr-15	WP6 16-Apr-15	WP6 08-Oct-15	WP6 08-Oct-15	WP6 09-Nov-15	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
Total Alkalinity	mg/L	-	290	--	288	--	290		297	296	--	298	297	298	291	
Calcium	mg/L	-	94.2	114	102	120	459	974	119	865	122	130	121	123	111	117
Chloride	mg/L	-	20.3	--	21.1	--	21.8		21.1	21.3	--	22.3	17.8	23.6	23.3	
COD	mg/L	-	82	--	331	--	73		365	11	--	140	127	22	193	
Specific Conductivity	umhos/cm	-	600	--	607	--	627		620	629	--	625	621	613	631	
DOC	mg/L	-	9.4	--	7.9	--	5.7		6.9	8.3	--	8.3	10.7	7.9	8.1	
Fluoride	mg/L	-	< 0.1	--	0.1	--	0.1		< 0.1	0.1	--	< 0.1	< 0.1	< 0.1	< 0.1	
Iron	mg/L	0.3	0.203	**0.73**	0.255	**1.49**	**9.84**	**1.4**	**1.88**	**4.67**	**1.41**	**2.14**	**0.975**	**1.13**	0.109	**1.58**
Magnesium	mg/L	-	8.73	9.57	8.79	9.77	19.9	18.8	10.2	17.1	10.1	10	10	10.3	9.76	9.51
Manganese	mg/L	-	0.028	0.08	0.008	0.066	0.509	1.16	0.079	0.744	0.068	0.075	0.054	0.069	0.003	0.062
Nitrate	mg/L	-	< 0.1	--	< 0.1	--	< 0.1		0.1	< 0.1	--	< 0.1	0.12	0.07	< 0.05	
Nitrite	mg/L	-	< 0.1	--	< 0.1	--	< 0.1		< 0.1	< 0.1	--	< 0.1	**0.07**	< 0.05	< 0.05	
pH Lab	pH unit	6.5-8.5	8.08	--	7.94	--	7.8		7.95	8.09	--	8.02	7.98	8.04	8.01	
Phenols	mg/L	0.001	< 0.001	--	< 0.001	--	< 0.001		**0.028**	**0.025**	--	< 0.001	**0.006**	< 0.001	**0.01**	
Phosphorus	mg/L	0.03	< 0.1	< 0.1	< 0.1	< 0.1	**2.1**	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	-	1.6	1.8	2	2	1.8	3.2	1.9	2.2	1.9	1.6	2.2	1.7	2.4	2
Sodium	mg/L	-	4.7	5	4.8	5.2	4.7	5.3	5.1	6	5.8	4.9	5.7	5.6	6.5	6.1
Sulphate	mg/L	-	3	--	3	--	3	--	3	3	--	3	4	3	5	
TDS	mg/L	-	306	--	315	--	695	--	341	1100	--	354	340	348	333	
Tot Kjel N	mg/L	-	1.8	--	0.9	1.2	0.8	1.2	0.5	4.4	--	4.9	1.5	1.5	2.7	
Ammonia (NH3-N)	mg/L	-	0.15	--	0.2	0.14	0.19	0.37	0.29	0.71	--	0.27	0.23	0.27	0.24	
Ammonia - Unionized	mg/L	0.02														
Hardness (CaCO3)	mg/L	-	271	324	292	340	1230	2510	339	2550	346	366	344	350	318	332
BOD	mg/L	-	4	--	5	--	< 3	--	< 3	< 3	--	< 3	4	< 3	5	
Cyanide (free)	mg/L	-	< 0.005	--	< 0.005	--	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	
TSS	mg/L	-	19600	--	44900	-	39600	--	--	--	--	35400	16800	2440	77000	
Aluminum	mg/L	0.075	**0.19**	0.03	**0.26**	0.04	**1.7**	**0.12**	0.04	**0.26**	**0.08**	0.07	0.06	**0.08**	**0.11**	0.07
Antimony	mg/L	0.02	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
Arsenic	mg/L	0.005	0.0003	0.0002	0.0006	0.0002	0.0006	0.0007	0.0003	0.0003	< 0.0001	0.0002	0.0002	0.0001	0.0002	< 0.0001
Barium	mg/L	-	0.1	0.171	0.193	0.212	0.26	1.22	0.224	0.474	0.223	0.249	0.243	0.187	0.191	0.239
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	-	0.018	0.017	0.017	0.02	0.021	< 0.005	< 0.005	0.025	0.018	0.036	0.022	0.016	0.021	0.018
Cadmium	mg/L	0.0005	0.00004	0.00005	0.00014	< 0.00002	0.00011	0.00012	< 0.00002	0.00012	< 0.00002	< 0.000020	< 0.000014	< 0.000015	0.000084	< 0.000015
Chromium (total)	mg/L	0.001	**0.0022**	0.0006	**0.0113**	**0.0027**	**0.005**	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 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	**0.005**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.0019**	< 0.0001
Copper	mg/L	0.005	**0.0088**	0.0011	0.0007	0.0005	**0.0115**	0.0008	0.0005	0.0008	0.0002	0.0007	0.0002	0.0002	0.0003	0.0004
Lead	mg/L	0.005	0.00289	0.00002	0.00028	< 0.00002	**0.00519**	0.00007	0.00005	0.0001	0.00008	< 0.00002	< 0.00002	0.00002	< 0.00002	0.00002
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	--
Molybdenum	mg/L	0.04	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0004	< 0.0001	< 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	< 0.01	< 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	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.356	0.427	0.367	0.452	0.943	1.77	0.441	1.58	0.433	0.377	0.422	0.414	0.408	0.441
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	**0.0075**	0.0024	**0.0071**	0.0015	**0.0109**	**0.0061**	0.0013	**0.0064**	0.0016	0.002	0.0018	0.0004	0.0001	0.0007
Zinc	mg/L	0.02	< 0.005	< 0.005	< 0.005	< 0.005	0.017	< 0.005	0.007	0.006	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	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	WP6 24-Oct-22	WP6 19-Apr-23	WP6 12-Oct-23	WP6 18-Apr-24	WP6 (DUP) 18-Apr-24	WP6 07-Oct-24	WP6-F 12-Apr-19
Total Alkalinity	mg/L	-	296	286	288	300	289	317	325	316	320	338	328	331	320	286
Calcium	mg/L	-	797	960	123	132	122	130	129	130	479	118	108	108	119	124
Chloride	mg/L	-	22.3	22.7	24.5	25.4	25.2	25.8	25.9	38	28.9	30	28.2	27.9	28.3	22.1
COD	mg/L	-	103	260	73	129	117	112	72	94	117	78	115	109	143	20
Specific Conductivity	umhos/cm	-	645	637	640	657	665	645	665	703	702	698	709	705	706	641
DOC	mg/L	-	6.8	10.1	11.1	8.4	8.6	11.5	8.1	8.7	8.7	12.3	10.9	11.5	11.7	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	<0.1	< 0.1
Iron	mg/L	0.3	**49.3**	**55.3**	0.008	0.008	0.008	0.066	**1.78**	0.039	**37.6**	**1.24**	**0.962**	**0.961**	0.017	**1.9**
Magnesium	mg/L	-	35.7	37.8	10.8	11.1	10.2	10.6	10.6	10.8	25.5	10.6	10.5	10.4	10.8	9.92
Manganese	mg/L	-	1.01	1.15	0.055	0.033	0.033	0.04	0.092	0.022	0.611	0.051	0.265	0.265	0.064	0.069
Nitrate	mg/L	-	< 0.05	0.14	0.09	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.26	<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	7.99	8.12	7.91	7.85	7.89	8.13	7.91	7.76	7.93	7.53	7.99	8.02	8.04	8.08
Phenols	mg/L	0.001	< 0.02	< 0.001	< 0.002	< 0.001	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001	<0.001	< 0.002
Phosphorus	mg/L	0.03	**4.1**	3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**2.2**	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	-	6.6	8.1	1.7	2.5	1.9	2.5	1.8	2.3	4.7	2.2	1.8	1.8	2.6	1.7
Sodium	mg/L	-	7.3	8.7	6.1	7.3	6.4	7.5	6.8	7.7	8.3	8.5	7.9	7.9	8.3	5.8
Sulphate	mg/L	-	4	4	4	4	4	5	4	5	5	5	5	5	4	4
TDS	mg/L	-	1102	1270	343	363	343	373	378	384	781	363	368	366	366	341
Tot Kjel N	mg/L	-	1.9	3.9	0.9	2.1	2.4	3.5	4.5	3.5	0.9	1.3	1.6	1.6	2.2	0.4
Ammonia (NH3-N)	mg/L	-	0.26	0.24	0.2	0.25	0.14	0.42	1.83	0.32	0.02	0.28	0.21	0.22	0.26	0.22
Ammonia - Unionized	mg/L	0.02	<0.01	<0.01	< 0.01	0.02	< 0.01	< 0.01	**0.08**	< 0.01	< 0.01	<0.01	<0.01	0	<0.01	<0.01
Hardness (CaCO3)	mg/L	-	2140	2560	352	376	347	369	366	369	1300	339	313	313	342	351
BOD	mg/L	-	<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
TSS	mg/L	-	14800	11700	20300	4860	23300	22500	28600	10800	10000	7290	8900		40400	3
Aluminum	mg/L	0.075	**20.2**	**25.2**	0.07	0.07	0.06	**0.11**	**0.09**	0.07	**11.7**	0.07	0.04	0.04	0.06	**0.08**
Antimony	mg/L	0.02	< 0.0001	< 0.001	0.0002	0.0005	0.0008	0.0005	< 0.0001	0.0004	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0039	0.0045	< 0.0001	0.0001	0.0022	< 0.0001	< 0.0001	0.0001	0.0022	<0.0001	<0.0001	<0.0001	0.0004	< 0.0001
Barium	mg/L	-	0.622	0.687	0.201	0.217	0.211	0.237	0.209	0.261	0.435	0.204	0.176	0.176	0.22	0.227
Beryllium	mg/L	1.1	< 0.002	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	<0.0001	<0.0001	0.0002	< 0.002
Boron	mg/L	-	0.074	0.082	0.02	0.024	0.018	0.023	0.017	0.022	0.047	0.019	0.019	0.017	0.02	0.019
Cadmium	mg/L	0.0005	0.000309	0.000354	< 0.000015	< 0.000015	0.000225	< 0.000015	< 0.000015	< 0.000010	0.000154	<0.000015	<0.000015	<0.000015	0.00013	< 0.000015
Chromium (total)	mg/L	0.001	**0.044**	**0.053**	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**0.023**	<0.001	<0.01	<0.01	<0.01	< 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	**0.014**	**0.0224**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.0122**	0.0004	0.0004	0.0004	**0.0042**	0.0004
Copper	mg/L	0.005	**0.069**	**0.103**	0.0015	0.0011	**0.0686**	0.0039	0.0005	0.0011	**0.0506**	0.0007	0.0005	0.0005	0.0005	0.0005
Lead	mg/L	0.005	**0.0216**	**0.028**	0.00003	< 0.00002	**0.0168**	0.00005	0.00003	< 0.00002	**0.0141**	0.00003	<0.00002	<0.00002	0.00014	0.00006
Mercury	mg/L	0.0002	< 0.00002	0.00004	< 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	< 0.001	< 0.0001	< 0.0001	< 0.0009	0.0001	0.0004	< 0.0001	< 0.0001	<0.0001	<0.0001	<0.0001	<0.0002	< 0.0001
Nickel	mg/L	0.025	**0.04**	**0.05**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	0.0006	0.0005	0.0005	0.0039	< 0.01
Selenium	mg/L	0.1	0.003	< 0.01	< 0.001	< 0.001	< 0.004	< 0.001	< 0.001	< 0.001	0.002	<0.001	<0.001	<0.001	<0.001	< 0.001
Silver	mg/L	0.0001	**0.0002**	**0.0007**	< 0.0001	< 0.0001	**0.0009**	< 0.0001	< 0.0001	< 0.0001	**0.0002**	<0.0001	<0.0001	<0.0001	<0.0001	< 0.0001
Strontium	mg/L	-	1.5	1.86	0.43	0.473	0.432	0.475	0.45	0.463	1.02	0.456	0.444	0.442	0.442	0.428
Thallium	mg/L	0.0003	**0.00034**	< 0.0005	< 0.00005	< 0.00005	**0.0004**	< 0.05	< 0.00005	< 0.00005	**0.973**	<0.00005	<0.00005	<0.00005	<0.00005	< 0.00005
Vanadium	mg/L	0.006	**0.058**	**0.0813**	0.0007	0.0008	**0.0629**	0.0007	0.0006	0.0012	**0.0467**	0.0006	0.0005	0.0005	0.0052	0.0006
Zinc	mg/L	0.02	**0.114**	**0.123**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.057**	<0.005	<0.005	<0.005	**0.085**	**0.021**

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Ground Water Quality - General Parameters

Parameters	Units	PWQO	WP6-F 22-Oct-19	WP6-F 23-Apr-20	WP6-F 20-Oct-20	WP6-F 20-Apr-21	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
Total Alkalinity	mg/L	-		292		287	315	317	317	323	319
Calcium	mg/L	-	131	130	127	130	126	128	128	124	129
Chloride	mg/L	-		24.5	25.8	25.1	24.8	38	38	28.8	26.5
COD	mg/L	-		17		18	13	12	12	17	20
Specific Conductivity	umhos/cm	-		643		659	635	702	702	704	702
DOC	mg/L	-	7.6	8.5		9.5	8.1	8	8	8.8	9.6
Fluoride	mg/L	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	<0.1
Iron	mg/L	0.3	**1.2**	**1.81**	**1.79**	**2.01**	**1.16**	**0.512**	**0.512**	**2.04**	**1.94**
Magnesium	mg/L	-	11.1	11.4	10.2	10.7	10.5	10.8	10.8	10.3	11.3
Manganese	mg/L	-	0.068	0.075	0.07	0.084	0.055	0.041	0.041	0.083	0.076
Nitrate	mg/L	-		0.07	< 0.05	< 0.05	< 0.05	0.07	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
pH Lab	pH unit	6.5-8.5		7.93		7.94	8.13	7.82	7.82	7.95	8.16
Phenols	mg/L	0.001				< 0.002		< 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	< 0.1	< 0.1	<0.1
Potassium	mg/L	-	2.3	1.7	2.2	1.8	2.1	2.1	2.1	1.9	2.5
Sodium	mg/L	-	7.5	6.4	6.8	6.5	7.2	7.6	7.6	7.6	9.1
Sulphate	mg/L	-		4	4	4	5	5	5	5	4
TDS	mg/L	-		355		353	365	382	382	373	376
Tot Kjel N	mg/L	-		0.5	0.5	0.4	0.5	0.5	0.5	0.6	<0.1
Ammonia (NH3-N)	mg/L	-		0.16	0.15	0.14	0.14	0.21	0.21	0.31	0.18
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	-	373	372	359	369	358	364	364	352	369
BOD	mg/L	-		< 3		< 3	< 3	< 3	<3	< 3	<3
Cyanide (free)	mg/L	-				< 0.005		< 0.005	<0.005	< 0.005	<0.005
TSS	mg/L	-		14		< 3	< 3	9	9	222	5
Aluminum	mg/L	0.075	**0.09**	0.07	0.07	**0.08**	**0.08**	**0.08**	**0.08**	0.04	0.04
Antimony	mg/L	0.02	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	0.0002	<0.0001
Arsenic	mg/L	0.005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001	< 0.0001	<0.0001
Barium	mg/L	-	0.23	0.194	0.208	0.218	0.213	0.202	0.202	0.185	0.209
Beryllium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.002	< 0.002	<0.0001
Boron	mg/L	-	0.021	0.021	0.025	0.02	0.023	0.02	0.02	0.018	0.024
Cadmium	mg/L	0.0005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000010	<0.00001	< 0.000015	<0.000015
Chromium (total)	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 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
Cobalt	mg/L	0.0009	0.0004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<0.005	0.0002	0.0004
Copper	mg/L	0.005	0.0006	0.0005	0.0031	0.0002	0.0005	0.0005	0.00005	0.0002	<0.0001
Lead	mg/L	0.005	0.0001	< 0.00002	0.00011	< 0.00002	< 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
Molybdenum	mg/L	0.04	< 0.0001	< 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	< 0.01	< 0.01	< 0.01	< 0.01	0.0003
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	< 0.0001	< 0.0001	< 0.0001	<0.0001
Strontium	mg/L	-	0.506	0.449	0.453	0.461	0.465	0.46	0.46	0.439	0.492
Thallium	mg/L	0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.05	< 0.00005	< 0.00005	< 0.005	<0.00005
Vanadium	mg/L	0.006	0.0008	0.0006	0.0007	0.0006	0.0006	0.0004	0.0004	0.0006	0.0007
Zinc	mg/L	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.008	<0.005

ODWQS - Ontario Drinking Water Quality Standards
CWQG - Canadian Water Quality Objectives
Bold and highlighted indicates ODWQS exceedar
Red Bold indicates CWQG exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW2 16-Apr-15	SW2 28-Jul-15	SW2 08-Oct-15	SW2 29-Apr-16	SW2 24-Aug-16	SW2 04-Oct-16	SW2 18-Apr-17	SW2 20-Jul-17	SW2 24-Oct-17	SW2 23-Apr-18	SW2 18-Jul-18	SW2 16-Oct-18	SW2 12-Apr-19	SW2 08-Jul-19
Total Alkalinity	mg/L	-	132	187	191	140	185	187	133	183	154	120	177	175	129	182
BOD	mg/L	-	< 2	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 2	3	< 3	< 3
Calcium	mg/L	-	55.5	84.5	73.4	56.6	73.8	77.4	48.6	64.8	62.3	45.7	63.5	74.5	56.9	77
Chloride	mg/L	-	8.5	11.1	11.1	8.8	10.8	11.1	8.5	7.1	10.8	7.3	13.8	12.9	8.5	10.5
COD	mg/L	-	10	11	< 5	25	21	7	27	48	39	16	< 5	22	22	30
Colour	colour unit	-	36	17	20	41	27	10	51	110	64	26	21	24	31	48
Specific Conductivity	umhos/cm	-	293	427	431	313	425	438	301	388	352	269	437	412	305	400
DOC	mg/L	-	11.1	4.5	2.7	9.9	7.1	2.2	11.7	19.7	18.2	7.1	4.2	7	9.7	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	< 0.1	< 0.1	< 0.1	< 0.1
Cyanide (free)	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 5	< 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	0.023	0.191	0.018	0.007	0.039	0.01	0.008	0.288	0.066	0.029	0.024	0.092	0.052	0.041
Magnesium	mg/L	-	4.29	7.07	5.62	4.71	5.83	6.06	3.88	5.06	5.62	3.66	4.88	7.3	4.46	5.78
Manganese	mg/L	-	0.006	0.057	0.019	0.004	0.032	0.019	0.003	0.65	0.042	0.043	0.034	0.033	0.024	0.026
Nitrate	mg/L	-	0.1	0.5	0.6	0.2	0.4	0.6	< 0.1	0.09	0.22	0.14	0.4	0.54	0.19	0.43
Nitrite	mg/L	-	<0.1	< 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	8.17	8.12	8.2	8.05	8.21	8.2	7.97	8.24	8.03	8.04	8.08	8.07	7.97	8.16
Phenols	mg/L	0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	**0.004**	**0.005**	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002
Total Phosphorus	mg/L	0.03	< 0.1	**0.2**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.09**	0.02	0.01	< 0.01	0.02
Potassium	mg/L	-	1.1	1	0.9	0.6	0.7	0.8	0.6	0.8	0.9	1	0.6	1.1	1.2	0.7
Sodium	mg/L	-	4.8	7.1	5.2	5.2	5.5	5.8	4.4	4.8	6.4	3.7	5	7.6	5.6	4.8
Sulphate	mg/L	-	5	14	15	7	17	15	10	3	5	3	14	11	6	7
Dissolved Solids	mg/L	-	159	239	230	168	226	232	156	201	183	143	208	219	160	215
Tot Kjel N	mg/L	-	0.7	0.5	0.2	0.5	0.5	0.4	0.4	0.7	0.7	0.3	0.3	0.4	0.4	0.3
Ammonia (NH3-N)	mg/L	-	< 0.01	0.04	0.05	0.03	0.04	0.08	0.02	0.05	0.04	0.03	0.05	0.05	0.08	0.08
Total Suspended Solids	mg/L	-	< 3	< 3	< 3	< 3	8	< 3	< 3	10	< 3	< 3	< 3	3	< 3	3
Turbidity	ntu	-	0.4	0.6	0.6	0.3	3.7	0.7	0.3	2.2	1.3	0.6	1.1	1.4	1.1	1.4
Hardness (CaCO3)	mg/L	-	156	240	207	161	208	224	161	183	173	129	179	216	161	219
Unionized Ammonia	mg/L	0.02	<0.0001	0.0015	0.0005	0.0019	0.0008	0.0021	0.0001	0.0017	0.00042	0.000554	0.00008	0.000593	< 0.01	< 0.01
Aluminum	mg/L	0.075	0.02	0.07	0.03	0.02	0.03	0.04	--	--	0.04	0.03	0.05	0.06	0.04	0.05
Antimony	mg/L	0.02	0.0003	0.0019	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	0.0003	0.0004
Arsenic	mg/L	0.005	0.0002	0.0011	< 0.0001	0.0002	0.0002	0.0001	0.0002	0.001	0.0003	0.0004	0.0002	0.0001	0.0002	0.0003
Barium	mg/L	-	0.02	0.065	0.042	0.016	0.043	0.046	0.018	0.032	0.043	0.015	0.035	0.059	0.02	0.042
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	0.2	0.007	0.007	0.007	< 0.005	0.008	< 0.005	0.008	0.007	0.009	< 0.005	0.007	0.012	0.007	0.01
Cadmium	mg/L	0.0005	< 0.00002	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.000014	0.000085	0.000023	< 0.000014	< 0.000015	0.000024	< 0.000015	< 0.000015
Chromium (total)	mg/L	0.001	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001
Chromium (VI)	mg/L	0.001														
Cobalt	mg/L	0.0009	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0003	< 0.0001	0.0002	0.0002
Copper	mg/L	0.005	< 0.0001	< 0.0005	0.0001	0.0001	0.0002	< 0.0001	0.0009	**0.0081**	0.0032	0.0006	0.0006	**0.0052**	0.0006	0.0006
Lead	mg/L	0.005	< 0.00002	0.0002	0.00002	< 0.00002	0.00006	< 0.00002	< 0.00002	0.00069	0.00024	0.00004	0.0002	0.00032	0.00009	0.00003
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	< 0.0001	0.0017	0.0002	< 0.0001	0.0002	0.0002	< 0.0001	0.0003	0.0001	0.0001	0.0002	0.0002	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	< 0.01
Selenium	mg/L	0.1	< 0.001	< 0.005	< 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	0.00004	< 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
Strontium	mg/L	-	0.146	0.23	0.155	0.145	0.177	0.183	0.113	0.166	0.17	0.102	0.137	0.217	0.13	0.18
Thallium	mg/L	0.0003	< 0.00005	< 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	0.0001	0.0014	0.0002	0.0001	0.0001	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0003	0.0002	0.0001	0.0002
Zinc	mg/L	0.02	< 0.005	**0.034**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.056**	0.005	0.005	**0.028**	0.008	**0.04**
Field pH	pH unit	-	7.81	7.87	7.73	8.66	7.6	8.08	7.34	7.87	7.64	8.25	6.57	7.79	7.4	7.46
Field Temp	deg C	-	10.8	24.2	10.1	6.9	23.2	12.4	6.9	22.5	13.4	3	21.6	10.6	4.3	19.5
Field Conductivity	us/cm	-	340	422.4	320	260	398.4	410	305	370	246	280	392	365	310	359
Dissolved Oxygen	mg/L	-	6.59	5.82	6.95	8.8	7.92	6.73	9.04	4.24	6.87	5.28	3.23	11.25	13	10.76

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	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	SW2 24-Oct-22	SW2 20-Apr-23	SW2 30-Aug-23	SW2 12-Oct-23	SW2 18-Apr-24
Total Alkalinity	mg/L	-	164	140	176	162	138	179	152	129	185	164	139	191	159	161
BOD	mg/L	-	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	<3	<3	<3
Calcium	mg/L	-	71.3	64.2	80.7	72.9	56.6	69.7	66	46.9	70.8	65.5	53.6	68.1	57.7	57.9
Chloride	mg/L	-	11.8	9.1	10.9	12.3	11.2	11.6	13.7	9.2	9.5	18.3	8	11.2	9.5	8.1
COD	mg/L	-	9	23	22	35	28	50	44	15	28	23	20	37	47	32
Colour	colour unit	-	24	32	41	41	51	80	61	37	54	39	41	51	67	43
Specific Conductivity	umhos/cm	-	396	307	397	367	308	369	351	299	375	376	317	406	330	324
DOC	mg/L	-	6.4	8.6	8.2	10.2	16.1	21.7	19	11	15.6	16.2	6.6	13.5	22.9	13
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	0.034	0.048	0.072	0.272	0.027	0.046	0.03	0.009	0.049	0.028	0.019	0.119	0.036	0.019
Magnesium	mg/L	-	5.56	5.89	6.91	5.34	4.51	5.3	5.21	3.97	5.3	5.44	4.14	5.52	4.75	4.47
Manganese	mg/L	-	0.018	0.019	0.046	0.061	0.008	0.03	0.003	0.004	0.027	0.005	0.008	0.198	0.012	0.007
Nitrate	mg/L	-	0.56	0.33	0.09	0.14	< 0.05	0.12	< 0.05	0.11	0.17	0.4	0.12	<0.05	0.09	0.26
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	8.04	7.8	8.16	7.91	8.01	8.03	7.74	7.31	8.01	8	7.78	7.9	8.08	7.98
Phenols	mg/L	0.001	< 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
Total Phosphorus	mg/L	0.03	0.03	0.01	**0.04**	0.01	**0.05**	0.02	0.02	0.01	0.02	< 0.01	< 0.01	<0.1	<0.1	0.03
Potassium	mg/L	-	1.2	0.9	1.1	1	0.6	0.5	0.9	0.7	0.5	0.7	0.9	1.6	1.6	1
Sodium	mg/L	-	5.4	5.3	6.3	7.6	5.5	5.3	6	3.4	5.2	5.1	3.6	5.4	4.6	3.5
Sulphate	mg/L	-	16	11	9	8	6	3	2	6	6	10	6	8	4	7
Dissolved Solids	mg/L	-	219	181	220	200	167	204	185	148	212	204	160	215	180	180
Tot Kjel N	mg/L	-	0.3	0.3	0.6	0.8	0.4	0.7	0.6	0.4	1.1	0.4	0.5	3	1.6	0.5
Ammonia (NH3-N)	mg/L	-	0.03	0.01	0.04	0.02	0.03	0.04	0.08	0.22	0.53	0.05	0.1	0.06	1.31	0.07
Total Suspended Solids	mg/L	-	< 3	< 3	14	21	< 3	< 3	< 3	< 3	< 3	4	< 3	<3	7	3
Turbidity	ntu	-	9	0.9	1.9	1.7	1	0.7	0.5	0.3	1.5	0.4	0.4	0.7	0.4	0.5
Hardness (CaCO3)	mg/L	-	201	164	213	204	160	199	192	134	199	200	156	193	164	163
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	0.06	0.03	0.05	0.01	< 0.01	0.04	0.04	< 0.01	0.04	0.04	0.01	0.02	0.04	0.03
Antimony	mg/L	0.02	0.0003	0.0002	0.0002	< 0.0001	0.0002	0.0005	< 0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	<0.0001	<0.0001
Arsenic	mg/L	0.005	0.0001	0.0002	0.0003	0.0002	0.0002	0.0004	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002
Barium	mg/L	-	0.04	0.035	0.057	0.039	0.019	0.036	0.024	0.016	0.039	0.029	0.021	0.038	0.026	0.022
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	0.2	0.01	0.006	0.012	0.006	0.005	0.01	0.008	< 0.005	< 0.005	< 0.005	0.006	0.007	0.007	0.009
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	0.001	< 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
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	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0001	0.0001
Copper	mg/L	0.005	0.0003	0.0002	0.0002	0.0009	0.0002	< 0.0001	< 0.0001	0.0002	< 0.0001	0.0002	0.0001	0.0003	0.0004	0.0005
Lead	mg/L	0.005	0.00006	< 0.00002	0.00012	0.0004	< 0.00002	0.00002	< 0.00002	0.00002	0.00002	0.00004	0.00004	0.00005	0.00005	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	0.0002	0.0022	0.0002	0.0002	0.0001	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	<0.0002	0.0005	0.0007
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	-	0.17	0.165	0.204	0.148	0.133	0.175	0.153	0.112	0.173	0.16	0.127	0.167	0.141	0.139
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	< 0.0001	0.0003	0.0002	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	<0.0001	0.0001	<0.0001
Zinc	mg/L	0.02	0.01	0.014	0.007	**0.021**	0.012	< 0.005	0.008	< 0.005	0.006	0.008	< 0.005	0.013	<0.005	0.01
Field pH	pH unit	-	7.98	7.84	7.56	7.85	7.15	6.96	8.1	8.26	7.7	8	7.9	7.28	7.68	8.14
Field Temp	deg C	-	9.8	5	28	7.5	5.8	23	6.2	6.3	25	9.8	10.4	17.7	11.6	7.8
Field Conductivity	us/cm	-	340	330	414	325	410	358	335	260	320	320	260	408	301	327
Dissolved Oxygen	mg/L	-	7.8	9.82	4.9	7.63	16.22	4.22	6.21	8.82	2.92	5.6	8.65	1.82	4.3	2.4

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW2 11-Jul-24	SW2 07-Oct-24	SW3 16-Apr-15	SW3 28-Jul-15	SW3 08-Oct-15	SW3 29-Apr-16	SW3 24-Aug-16	SW3 04-Oct-16	SW3 18-Apr-17	SW3 20-Jul-17	SW3 24-Oct-17	SW3 24-Apr-18	SW3 18-Jul-18	SW3 16-Oct-18
Total Alkalinity	mg/L	-	137	191	149	190	189	140	185	200	146	201	178	113	187	171
BOD	mg/L	-	<3	<3	< 2	< 3	< 3	< 3	< 3	< 3	< 3	< 3	4	< 3	< 2	3
Calcium	mg/L	-	48.8	70.4	63.2	79.8	75.6	57.5	74.7	82	53.7	77.5	70.8	45.8	81.1	70.1
Chloride	mg/L	-	6.2	10.8	11.3	11.4	11.4	10	10.4	12.6	12.5	8.7	11.4	8.5	14	13.5
COD	mg/L	-	54	24	26	25	5	26	28	28	31	61	129	19	17	22
Colour	colour unit	-	100	31	31	42	27	45	54	38	60	80	68	32	44	36
Specific Conductivity	umhos/cm	-	281	398	331	423	426	317	419	450	336	428	394	254	434	409
DOC	mg/L	-	19.8	10.7	12.8	10.5	5.4	11.3	14.7	8.8	14.2	22.3	22	7	8.5	9.4
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	< 0.1	< 0.1
Cyanide (free)	mg/L	0.005	<0.005	<0.005	< 0.005	< 0.005	< 0.005	< 5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Iron	mg/L	0.3	0.07	0.019	**0.403**	**0.464**	0.176	0.041	0.141	**0.461**	0.058	**0.772**	**0.401**	0.059	**0.6**	0.195
Magnesium	mg/L	-	3.58	5.71	3.96	6.62	5.85	4.21	5.62	6.33	3.55	6.11	5.93	3.23	6.28	7.12
Manganese	mg/L	-	0.026	0.014	0.044	0.279	0.064	0.011	0.062	0.21	0.007	0.509	0.122	0.015	0.26	0.035
Nitrate	mg/L	-	<0.05	0.25	0.1	0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.1	0.21	< 0.05	0.27
Nitrite	mg/L	-	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	7.08	8.07	8.04	8.08	8.13	8.02	8.08	7.95	7.95	8.05	7.79	8	8	8
Phenols	mg/L	0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	**0.002**	< 0.001	0.001	< 0.001	**0.006**	**0.005**	< 0.001	< 0.001	**0.002**
Total Phosphorus	mg/L	0.03	**0.04**	0.01	< 0.1	**0.2**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.1**	0.02	**0.08**	0.01
Potassium	mg/L	-	1	1.1	1.2	0.8	0.8	0.7	0.4	1	0.8	1	1.7	1	0.8	1.3
Sodium	mg/L	-	3.3	4.7	5.4	7.1	5.7	6.6	5.8	7	6.4	7.3	7.6	4.8	6.3	7.5
Sulphate	mg/L	-	1	7	2	9	13	7	17	10	9	2	4	3	7	10
Dissolved Solids	mg/L	-	147	217	177	230	228	170	225	239	174	219	209	137	229	212
Tot Kjel N	mg/L	-	0.7	1	0.7	0.5	0.4	0.5	0.7	0.6	0.6	0.9	1.1	0.4	0.7	0.4
Ammonia (NH3-N)	mg/L	-	<0.05	0.5	0.06	0.09	0.09	0.03	0.04	0.04	0.03	0.09	0.03	0.02	0.07	0.05
Total Suspended Solids	mg/L	-	4	<3	3	3	3	3	16	4	< 3	10	100	< 3	< 3	3
Turbidity	ntu	-	1.1	0.7	1.8	1.3	1.5	1	2.4	2.3	0.4	2.3	17.5	1.3	2.8	2.9
Hardness (CaCO3)	mg/L	-	137	199	174	227	213	161	210	232	172	219	192	128	229	205
Unionized Ammonia	mg/L	0.02	<0.01	<0.01	0.000798	0.002029	0.000518	0.000968	0.00025	0.000449	0.00007	0.0019	0.00008	0.0003	0.00007	0.000258
Aluminum	mg/L	0.075	0.03	0.05	0.02	0.07	0.03	0.02	0.03	0.03	0.04	0.03	0.05	0.04	0.06	0.05
Antimony	mg/L	0.02	0.0006	0.0004	0.0002	< 0.0005	0.0005	< 0.0001	0.0006	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0003	0.0002	< 0.0001	0.0021	0.0002	0.0002	0.0004	0.0003	0.0003	0.001	0.0005	0.0003	0.0006	0.0002
Barium	mg/L	-	0.023	0.033	0.067	0.059	0.036	0.019	0.04	0.046	0.019	0.052	0.073	0.018	0.052	0.045
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
Boron	mg/L	0.2	0.011	0.006	0.011	0.008	0.006	< 0.005	0.009	< 0.005	0.012	0.009	0.011	< 0.005	0.018	0.01
Cadmium	mg/L	0.0005	<0.000015	<0.000015	< 0.00002	< 0.0001	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.000014	< 0.000014	0.000014	< 0.000014	0.000107	0.000032
Chromium (total)	mg/L	0.001	<0.001	<0.001	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	0.0004	< 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	0.0002	0.0003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	0.0004	< 0.0001
Copper	mg/L	0.005	0.0003	<0.0001	< 0.0001	< 0.0005	0.0002	0.0002	0.0002	< 0.0001	< 0.0001	0.0002	0.0025	0.0006	0.0026	0.0041
Lead	mg/L	0.005	0.00004	<0.00002	< 0.00002	0.0001	0.00005	0.00002	0.00003	0.00014	< 0.00002	0.00006	0.00028	0.00009	0.00092	0.00025
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	0.0001	< 0.0001	0.0012	0.0002	0.0002	0.0002	< 0.0001	0.0003	0.0003	0.0001	0.0001	0.0002	0.0002
Nickel	mg/L	0.025	0.0006	<0.0002	< 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	< 0.005	< 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	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001
Strontium	mg/L	-	0.124	0.168	0.188	0.238	0.175	0.147	0.192	0.229	0.125	0.23	0.204	0.103	0.201	0.218
Thallium	mg/L	0.0003	<0.00005	<0.00005	< 0.00005	< 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	0.0013	0.0001	< 0.0001	< 0.0001	0.0002	0.0002	0.0003	0.0002	< 0.0001	0.0003	0.0001
Zinc	mg/L	0.02	<0.005	<0.005	< 0.005	**0.033**	< 0.005	< 0.005	0.011	< 0.005	< 0.005	**0.037**	**0.025**	0.009	**0.04**	0.016
Field pH	pH unit	-	7.65	7.74	7.92	7.7	7.55	8.39	7.18	7.64	7.24	7.7	7.06	8.17	6.36	7.55
Field Temp	deg C	-	20.1	14	8.2	22	8.3	6	20.6	14.3	6.1	21.5	14	3.7	21.5	7
Field Conductivity	us/cm	-	315	400	320	403.8	315	265	400.3	425	267	339	356	272	405	350
Dissolved Oxygen	mg/L	-	1.5	6.17	6.95	1.64	7.41	8.27	2.4	2.97	6.15	0.193	1.97	6.24	0.56	5.23

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW3 12-Apr-19	SW3 08-Jul-19	SW3 22-Oct-19	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
Total Alkalinity	mg/L	-	125	183	157	124	144	159	147	178	171	157	155	180	165	160
BOD	mg/L	-	< 3	< 3	< 3	< 3	4	< 3	< 3	< 6	< 6	< 3	< 3	< 3	< 3	< 3
Calcium	mg/L	-	54.8	80	66.9	64.2	84.6	78.4	60.7	74.3	76.8	60.2	58	70.1	64.6	61.8
Chloride	mg/L	-	11	11	13.2	13.5	11.4	15.8	15.7	12.5	19.9	17.3	16.4	13.5	25.5	12.9
COD	mg/L	-	32	45	28	28	36	31	37	63	56	21	28	38	38	156
Colour	colour unit	-	43	74	37	44	55	46	68	106	81	49	49	70	53	63
Specific Conductivity	umhos/cm	-	300	404	389	315	448	375	342	366	406	360	359	382	387	361
DOC	mg/L	-	10.8	16.4	9.4	10.9	13.3	14.6	18.2	25.3	23.9	14	13.7	19.7	18.3	16.9
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Iron	mg/L	0.3	0.177	0.298	0.229	0.149	**1.81**	**2.95**	0.188	**0.488**	**0.609**	0.093	0.1	0.169	0.17	0.066
Magnesium	mg/L	-	3.68	5.92	5.34	5.21	6.67	5.65	4.22	5.23	5.5	4.39	4.26	4.95	5.01	4.28
Manganese	mg/L	-	0.021	0.065	0.035	0.024	1.02	1.55	0.018	0.138	0.18	0.01	0.009	0.029	0.033	0.008
Nitrate	mg/L	-	0.06	0.14	0.29	0.19	12.9	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	0.06	< 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	7.98	7.97	7.99	7.84	7.46	7.91	8.02	7.98	7.61	7.58	7.59	7.97	8.04	7.88
Phenols	mg/L	0.001	< 0.002	< 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
Total Phosphorus	mg/L	0.03	0.02	**0.06**	**0.07**	**0.06**	**0.24**	0.02	**0.17**	**0.06**	**0.1**	**0.05**	0.03	0.03	0.02	< 0.01
Potassium	mg/L	-	1.4	0.7	2	0.8	1	1.6	0.8	0.5	2	1.3	1.2	0.4	0.9	1.3
Sodium	mg/L	-	6.7	6.2	5.7	8	6.1	6	7.8	7.3	9.1	7.3	7	7.1	7.6	7
Sulphate	mg/L	-	5	3	16	10	4	8	7	2	< 1	4	4	5	4	3
Dissolved Solids	mg/L	-	158	218	211	176	203	204	185	204	217	189	184	213	206	186
Tot Kjel N	mg/L	-	0.6	0.9	0.6	0.8	1.7	0.7	2.2	1	1.2	0.7	0.5	1.2	0.7	0.8
Ammonia (NH3-N)	mg/L	-	0.07	0.1	0.05	0.03	0.09	0.03	0.03	0.05	0.07	0.08	0.07	0.5	0.03	0.27
Total Suspended Solids	mg/L	-	< 3	4	104	9	8	13	< 3	18	17	33	6	3	5	< 3
Turbidity	ntu	-	0.8	2.4	2.9	2.1	5.7	1.8	1.7	5.1	1.4	1	0.7	1.7	1.4	1.2
Hardness (CaCO3)	mg/L	-	150	218	189	160	221	219	169	196	213	169	163	196	196	172
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	0.04	0.06	0.05	0.03	0.05	0.02	< 0.01	0.05	0.06	0.02	0.01	0.04	0.04	0.02
Antimony	mg/L	0.02	< 0.0001	0.0003	< 0.0001	0.0003	0.0002	0.0002	0.0003	0.0005	0.0004	0.0003	0.0002	0.0004	0.0002	0.0005
Arsenic	mg/L	0.005	0.0002	0.0005	0.0002	0.0002	0.0011	0.0008	0.0003	0.0007	0.0004	0.0002	0.0002	0.0004	0.0003	0.0002
Barium	mg/L	-	0.019	0.042	0.036	0.031	0.068	0.106	0.022	0.044	0.032	0.021	0.02	0.039	0.04	0.022
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	0.2	0.008	0.011	0.011	0.008	0.013	0.011	0.008	0.013	0.037	< 0.005	< 0.005	0.006	< 0.005	0.005
Cadmium	mg/L	0.0005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0.000023	< 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	< 0.001	**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	< 0.001	< 0.001
Cobalt	mg/L	0.0009	0.0002	0.0002	0.0002	< 0.0001	0.0003	0.0008	0.0003	0.0001	0.0002	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001
Copper	mg/L	0.005	0.0024	0.0003	0.0009	0.0004	0.0003	0.0016	0.0004	0.0005	0.0004	0.0005	0.0004	0.0002	0.0003	0.0004
Lead	mg/L	0.005	0.00088	0.00002	0.00029	0.00012	0.00026	0.00048	0.00008	0.00024	0.00011	0.00005	0.00005	0.00004	0.00002	0.00006
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	0.0004	0.0002	0.0001	0.0003	0.0002	0.0002	0.0016	0.0002	0.0001	0.0003	0.0002	0.0002	< 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	< 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	-	0.123	0.209	0.172	0.162	0.22	0.166	0.144	0.19	0.185	0.147	0.141	0.182	0.171	0.15
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	0.0001	0.0003	0.0002	0.0003	0.0009	0.0002	0.0002	0.0003	0.0001	0.0001	0.0002	< 0.0001	0.0001
Zinc	mg/L	0.02	0.009	0.011	0.008	0.013	0.007	0.008	0.009	**0.032**	0.015	0.009	< 0.005	0.006	0.017	< 0.005
Field pH	pH unit	-	7.46	7.48	7.85	7.73	7.56	7.89	7.1	6.7	7.95	8.36	8.36	7.4	7.88	7.85
Field Temp	deg C	-	2.5	19.1	9.8	3.6	23.6	7.8	7.3	21.5	6.6	7	7	26.1	10.2	8.4
Field Conductivity	us/cm	-	300	362	330	360	424	333	420	368	390	300	300	340	320	230
Dissolved Oxygen	mg/L	-	15.27	6.06	5.51	8.11	1.3	7.29	13.15	1.14	5.9	8.86	8.86	2.31	5.86	9.05

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW3 30-Aug-23	SW3 12-Oct-23	SW3 18-Apr-24	SW3 (DUP) 18-Apr-24	SW3 11-Jul-24	SW3 07-Oct-24	SW3 (DUP) 07-Oct-24	SW4 16-Apr-15	SW4 28-Jul-15	SW4 08-Oct-15	SW4 29-Apr-16	SW4 24-Aug-16	SW4 04-Oct-16	SW4 18-Apr-17
Total Alkalinity	mg/L	-	215	164	181	185	162	203	193	116	189	199	131	175	205	123
BOD	mg/L	-	<3	<3	<3		<3	<3	<3	< 2	< 3	< 3	< 3	< 3	< 3	< 3
Calcium	mg/L	-	70.6	55.5	71.2	65.8	63	68.1	77.1	47.2	76.1	75.4	51.3	71.1	84.7	45.5
Chloride	mg/L	-	13.3	12.9	14.8	14.8	10.4	13	12.8	8.9	9.8	13.2	10.5	9.6	12.9	11.4
COD	mg/L	-	54	58	33	35	56	48	44	30	47	14	30	54	44	31
Colour	colour unit	-	88	68	56		129	60	60	46	78	43	50	87	51	59
Specific Conductivity	umhos/cm	-	443	351	390	382	350	415	424	260	407	425	299	384	454	291
DOC	mg/L	-	24.8	23.1	13.8	14.4	16.9	17.4	15.2	12.4	19.1	13.5	12	20.7	15.9	13.7
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	<0.00 5	< 0.005	< 0.005	< 0.005
Iron	mg/L	0.3	**0.397**	0.121	0.086	0.079	**0.631**	**0.314**	**0.331**	0.046	**0.866**	**0.347**	0.05	0.183	0.21	0.049
Magnesium	mg/L	-	5.29	4.39	4.72	4.29	3.88	5.27	6.23	2.99	5.66	5.87	3.68	5.05	6.45	2.97
Manganese	mg/L	-	0.124	0.019	0.009	0.008	0.033	0.163	0.179	0.008	0.328	0.173	0.013	0.056	0.08	0.009
Nitrate	mg/L	-	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5	7.42	8.02	8.05	8.11	7.33	8	8.14	7.97	7.5	7.92	8	7.7	7.95	7.9
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	**0.003**	< 0.001	**0.003**	0.001
Total Phosphorus	mg/L	0.03	<0.1	<0.1	0.01	0.02	**0.08**	0.03	**0.04**	< 0.1	**0.2**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Potassium	mg/L	-	1.6	1.8	1.2	1.1	2.1	1.5	2	1.2	0.2	1.1	0.6	0.2	1.2	0.7
Sodium	mg/L	-	7	6	8.2	7.4	5.9	5.7	6.8	5.6	6.7	6.8	6.5	5.9	7.7	5.4
Sulphate	mg/L	-	3	4	4	4	<1	2	2	3	1	7	5	6	5	7
Dissolved Solids	mg/L	-	230	183	213	209	184	219	224	138	214	229	157	203	241	147
Tot Kjel N	mg/L	-	0.8	0.6	0.5	3.8	1	0.8	0.8	0.6	0.9	0.6	0.5	1	0.8	0.6
Ammonia (NH3-N)	mg/L	-	<0.05	0.09	0.05	3.76	<0.05	0.23	0.12	0.01	0.03	0.05	0.09	0.04	0.03	0.03
Total Suspended Solids	mg/L	-	<3	7	<3		3	104	<3	< 3	8	3	< 3	< 3	11	< 3
Turbidity	ntu	-	0.9	1.1	0.8		1.8	8.2		0.4	2.2	1.2	0.5	0.6	1.8	0.6
Hardness (CaCO3)	mg/L	-	198	157	197	182	173	192	218	130	214	213	143	199	237	145
Unionized Ammonia	mg/L	0.02	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	0.000159	0.000156	0.000135	0.002859	0.00012	0.0006	0.00008
Aluminum	mg/L	0.075	0.03	0.04	0.06	0.03	0.03	0.04	0.03	0.01	0.07	0.03	0.04	0.03	0.02	0.05
Antimony	mg/L	0.02	0.0004	<0.0001	<0.0001	<0.0001	0.0005	0.0003	<0.0001	0.0002	0.0019	< 0.0001	0.0002	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0007	0.0003	0.0002	0.0002	0.0006	0.0003	0.0004	0.0001	0.0021	0.0003	0.0005	0.0003	0.0002	0.0003
Barium	mg/L	-	0.04	0.024	0.026	0.024	0.027	0.034	0.038	0.018	0.069	0.043	0.047	0.051	0.016	0.019
Beryllium	mg/L	1.1	<0.0001	<0.0001	<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	0.2	0.007	0.008	0.005	<0.005	0.012	0.005	0.006	0.008	0.008	0.006	0.011	< 0.005	< 0.005	0.013
Cadmium	mg/L	0.0005	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	< 0.00002	< 0.0001	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.000014
Chromium (total)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.0002	< 0.001	< 0.0002	< 0.0002	0.0005	< 0.0002	< 0.001
Chromium (VI)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01							
Cobalt	mg/L	0.0009	0.0003	0.0002	0.0001	0.0001	0.0002	0.0003	0.0002	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.0001
Copper	mg/L	0.005	0.0001	0.0004	0.0006	0.0006	0.0008	0.0001	0.0001	0.0001	< 0.0005	0.0001	0.0004	< 0.0001	0.0001	< 0.0001
Lead	mg/L	0.005	0.00003	0.00009	0.00004	0.00003	0.00005	0.00005	0.00005	< 0.00002	0.0001	0.00002	0.00003	0.0001	< 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	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04	0.0001	0.0001	0.0002	0.0001	0.0002	<0.0001	<0.0001	< 0.0001	0.0006	0.0001	< 0.0001	< 0.0001	0.0001	0.0001
Nickel	mg/L	0.025	<0.0002	0.0009	0.0009	0.0009	0.0008	<0.0002	<0.0002	< 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	< 0.005	< 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	0.00003	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-	0.19	0.142	0.173	0.157	0.17	0.179	0.218	0.119	0.237	0.175	0.191	0.234	0.13	0.103
Thallium	mg/L	0.0003	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	< 0.00005	< 0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.006	<0.0001	0.0001	0.0001	0.0001	0.0004	0.0001	0.0002	0.0001	0.0005	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Zinc	mg/L	0.02	0.018	0.009	0.007	0.005	<0.005	<0.005	<0.005	< 0.005	**0.03**	< 0.005	**0.061**	< 0.005	< 0.005	< 0.005
Field pH	pH unit	-	7.29	7.7	8.18	8.18	7.46	7.82	7.82	7.89	7.09	7.06	8.39	6.86	7.89	7.25
Field Temp	deg C	-	17.8	10	7.8	8.8	19.4	12.9	12.9	11.4	20.9	13	5.8	20.6	15.5	7.5
Field Conductivity	us/cm	-	454	329	297	397	380	418	418	310	376.3	340	235	375.5	420	242
Dissolved Oxygen	mg/L	-	1.15	3.92	2.08	2.08	1.56	5.91	5.91	6.6	0.09	4.81	6.35	1.98	3.02	6.47

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW4 20-Jul-17	SW4 24-Oct-17	SW4 24-Apr-18	SW4 18-Jul-18	SW4 16-Oct-18	SW4 12-Apr-19	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
Total Alkalinity	mg/L	-	194	151	113	190	165	91	158	155	111	169	149	132	161	119
BOD	mg/L	-	< 3	4	< 3	< 2	3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	5	7
Calcium	mg/L	-	70.8	59.8	44.8	81.2	73.4	40.8	72.1	62.6	52	78.7	68.3	55	64.1	53.6
Chloride	mg/L	-	7.8	11.4	8.5	14	15.7	14.9	6.5	16.9	12	10.6	23.1	13.2	10.1	12.9
COD	mg/L	-	74	60	15	33	39	23	58	39	25	48	54	38	73	74
Colour	colour unit	-	125	66	31	70	52	36	130	44	47	62	92	67	150	109
Specific Conductivity	umhos/cm	-	406	347	233	438	395	243	334	393	275	376	368	310	331	282
DOC	mg/L	-	26.2	22	7.5	14.3	16	8.9	24.3	11.5	11.1	18	19.2	18.3	26.7	29.3
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	**0.331**	0.223	0.032	**0.465**	0.146	0.065	**0.876**	0.107	0.026	**0.472**	0.169	0.094	**1.19**	0.183
Magnesium	mg/L	-	3.24	5.24	2.33	6.51	6.88	2.51	5.06	4.9	3.63	6.73	4.46	3.86	4.17	3.11
Manganese	mg/L	-	0.356	0.049	0.038	0.473	0.018	0.014	0.288	0.023	0.007	0.213	0.053	0.013	0.312	0.023
Nitrate	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	0.06	< 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	7.91	7.89	7.87	7.86	7.95	7.84	7.67	7.98	7.2	7.84	7.83	7.99	7.69	7.04
Phenols	mg/L	0.001	**0.014**	**0.005**	< 0.001	< 0.001	**0.002**	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.001
Total Phosphorus	mg/L	0.03	< 0.1	< 0.1	0.02	**0.05**	0.01	0.02	0.02	**0.08**	0.01	**0.08**	0.01	**0.06**	**0.14**	**0.13**
Potassium	mg/L	-	1.1	1.2	1	0.5	1.4	1.3	0.2	2	0.7	0.4	2.6	0.8	0.7	1
Sodium	mg/L	-	4.6	7.3	4.4	7.2	8.8	7.9	5.2	7.2	6.3	6.3	8.4	7	5.3	5.1
Sulphate	mg/L	-	1	3	2	2	5	3	< 1	13	7	2	2	6	< 1	< 1
Dissolved Solids	mg/L	-	212	179	134	227	210	124	185	211	149	207	198	167	182	148
Tot Kjel N	mg/L	-	1.1	1	0.4	0.7	0.6	0.5	0.8	0.9	0.4	1.1	0.9	0.5	2.1	1.3
Ammonia (NH3-N)	mg/L	-	0.05	0.03	0.03	0.03	0.04	0.03	0.06	0.02	0.01	0.03	0.02	0.01	0.04	0.08
Total Suspended Solids	mg/L	-	10	< 3	< 3	4	< 3	< 3	6	10	< 3	12	7	< 3	6	43
Turbidity	ntu	-	1.3	0.5	0.5	1.2	2.7	0.8	1.4	2.6	1	4.1	1	0.9	8.6	0.8
Hardness (CaCO3)	mg/L	-	190	169	122	230	212	110	189	177	139	203	189	153	178	154
Unionized Ammonia	mg/L	0.02	0.001156	0.00008	0.000514	0.00009	0.000431	< 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	0.04	0.03	0.06	0.05	0.03	0.06	0.06	0.03	0.04	0.01	< 0.01	0.05	0.03
Antimony	mg/L	0.02	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0004	0.0001	0.0003	0.0002	0.0001	0.0003	0.0005	< 0.0001
Arsenic	mg/L	0.005	0.0011	0.0004	0.0003	0.0005	0.0003	0.0002	0.0006	0.0002	0.0002	0.0004	0.0004	0.0003	0.0007	0.0005
Barium	mg/L	-	0.028	0.044	0.013	0.065	0.046	0.015	0.077	0.035	0.019	0.064	0.029	0.023	0.048	0.017
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	0.2	0.008	0.011	< 0.005	0.016	0.01	0.007	0.011	0.007	0.005	0.016	0.018	0.006	0.011	0.009
Cadmium	mg/L	0.0005	< 0.000014	0.000018	< 0.000014	< 0.000015	0.000041	< 0.000015	< 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	0.001	< 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	0.0005	< 0.0001	< 0.0001	0.0003	< 0.0001	0.0002	0.0002	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001
Copper	mg/L	0.005	0.0001	0.0026	0.0002	< 0.0001	**0.0077**	0.0004	0.0003	0.0008	0.0002	0.0001	0.0005	0.0002	0.0007	0.0001
Lead	mg/L	0.005	0.00002	0.00021	< 0.00002	< 0.00002	0.00031	0.00008	0.00003	0.00015	< 0.00002	0.00004	0.00006	< 0.00002	0.00079	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	0.0001	0.0001	0.0001	< 0.0001	0.0001	0.0001	< 0.0001	0.0002	0.0002	< 0.0001	0.0001	0.0002	0.0003	< 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	< 0.00002	< 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	-	0.159	0.178	0.087	0.223	0.22	0.084	0.183	0.168	0.114	0.232	0.142	0.129	0.162	0.118
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	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0004	< 0.0001
Zinc	mg/L	0.02	< 0.005	0.018	< 0.005	**0.036**	**0.022**	0.008	**0.026**	0.006	< 0.005	0.01	< 0.005	0.01	**0.023**	0.01
Field pH	pH unit	-	7.68	7.02	8.16	6.83	7.84	7.48	7.34	7.55	7.83	7.03	8.87	7.05	6.54	8.15
Field Temp	deg C	-	23	15.1	4.6	22.8	7.9	4	19.7	10.3	5.7	20.8	7.7	6.8	22.2	6.2
Field Conductivity	us/cm	-	314	313	268	395	343	290	343	320	295	470	320	410	315	285
Dissolved Oxygen	mg/L	-	0.6	5.27	4.87	2.11	8.77	13.39	1.07	3.4	6.38	20.8	4.71	10.43	0.83	3.23

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW4 21-Apr-22	SW4 20-Jul-22	SW4 24-Oct-22	SW4 20-Apr-23	SW4 30-Aug-23	SW4 12-Oct-23	SW4 18-Apr-24	SW4 11-Jul-24	SW4 07-Oct-24	SW12 17-Apr-15	SW12 29-Apr-16	SW12 (10m) 18-Apr-17	SW12 (10m) 20-Jul-17	SW12 (10m) 23-Oct-17
Total Alkalinity	mg/L	-	140	152	145	139	207	152	125	107	173	227	134	122	210	180
BOD	mg/L	-	< 3	< 3	< 3	< 3	<3	<3	<3	<3	7	10	< 3	< 3	5	< 3
Calcium	mg/L	-	47.6	60.7	56.1	54.8	68.2	55.7	42.3	39.1	63.4	87.3	52	44	79.8	77.9
Chloride	mg/L	-	12.6	11.1	20	12	15	11.5	7.9	4.8	10.9	15.6	7.9	7.1	9.1	10.7
COD	mg/L	-	22	64	39	30	61	58	31	118	123	40	43	53	73	57
Colour	colour unit	-	46	114	64	58	91	79	52	62	71	51	72	112	120	80
Specific Conductivity	umhos/cm	-	309	319	341	319	426	326	258	232	358	483	292	266	442	388
DOC	mg/L	-	13.5	29.2	19.8	9.5	27.1	25.5	11.2	13.4	23.3	16.7	15.6	19.8	25.4	26
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	0.036	0.104	0.098	0.083	**0.753**	**0.357**	0.065	**1.06**	**1.24**	**5.82**	0.063	0.047	**2.96**	**3.21**
Magnesium	mg/L	-	3.59	3.61	4.3	3.73	4.86	4.38	3.24	2.28	4.77	5.82	3.31	2.67	5.61	5.92
Manganese	mg/L	-	0.004	0.019	0.009	0.009	0.363	0.105	0.004	0.062	0.061	0.301	0.02	0.004	0.36	0.153
Nitrate	mg/L	-	< 0.05	0.1	0.06	0.1	0.1	<0.05	<0.05	<0.05	<0.05	0.1	< 0.1	< 0.1	< 0.05	0.09
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	< 0.1	< 0.1	0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	7.37	8.13	7.93	7.65	7.06	7.75	7.75	6.83	7.79	7.93	7.7	7.82	7.84	7.86
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	**0.008**	**0.002**	**0.009**	**0.006**
Total Phosphorus	mg/L	0.03	0.02	0.03	0.01	0.01	<0.1	<0.1	0.02	**0.04**	**0.24**	**0.4**	<0.1	< 0.1	**0.2**	**0.4**
Potassium	mg/L	-	1	0.1	0.5	1.2	1.2	1.3	0.6	1.1	0.9	6.5	1.4	1.2	2.5	3.9
Sodium	mg/L	-	5.8	5.7	6.3	6.5	6.9	5.8	4.7	3.4	5.4	14.7	5.2	3.5	8.4	7.2
Sulphate	mg/L	-	3	1	3	3	<1	1	4	<1	<1	< 1	4	4	1	< 1
Dissolved Solids	mg/L	-	158	178	177	165	222	172	137	116	191	276	154	135	234	218
Tot Kjel N	mg/L	-	0.5	1.4	0.6	0.7	1	0.7	0.5	0.6	3.8	4.2	0.9	0.7	1.5	8
Ammonia (NH3-N)	mg/L	-	0.05	0.24	0.05	0.19	<0.05	0.06	0.06	<0.05	0.2	1.51	0.05	0.04	0.14	0.08
Total Suspended Solids	mg/L	-	< 3	10	40	< 3	6	6	<3	37	124	10	98	< 3	88	190
Turbidity	ntu	-	0.7	1.7	0.7	0.6	1.4	1.4	0.9	7.8	26.4	7.1	11.4	0.8	32.7	75.2
Hardness (CaCO3)	mg/L	-	134	167	175	154	190	157	119	107	178	242	144	144	222	193
Unionized Ammonia	mg/L	0.02	< 0.01	0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003868	0.005317	0.00011	0.001669	0.00028
Aluminum	mg/L	0.075	< 0.01	0.03	0.03	0.01	0.03	0.04	0.03	0.05	**0.1**	**0.14**	0.03	0.05	0.03	0.05
Antimony	mg/L	0.02	0.0003	0.0004	0.0004	0.0006	0.0004	<0.0001	<0.0001	0.0004	0.0003	0.0003	< 0.0001	< 0.0001	0.0002	< 0.0001
Arsenic	mg/L	0.005	0.0002	0.0005	0.0002	0.0002	0.0005	0.0002	0.0001	0.0002	0.0003	0.0014	0.0004	0.0004	0.0023	0.0014
Barium	mg/L	-	0.017	0.023	0.029	0.022	0.045	0.052	0.031	0.034	0.053	0.043	0.013	0.012	0.043	0.064
Beryllium	mg/L	1.1	< 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	0.2	< 0.005	< 0.005	< 0.005	0.006	0.007	0.008	<0.005	0.007	0.005	0.035	< 0.005	0.009	0.026	0.023
Cadmium	mg/L	0.0005	< 0.000015	< 0.000015	< 0.000015	< 0.000015	<0.000015	<0.000015	0.000015	<0.000015	0.000015	0.00019	< 0.00002	< 0.000014	0.00007	0.000191
Chromium (total)	mg/L	0.001	< 0.001	< 0.001	< 0.001	**0.002**	<0.001	<0.001	**0.004**	<0.001	<0.001	0.0007	<0.0002	< 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					
Cobalt	mg/L	0.0009	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0003	0.0002	<0.0001	0.0002	0.0004	< 0.005	< 0.005	< 0.0001	0.0009	0.0009
Copper	mg/L	0.005	0.0002	0.0001	0.0001	0.0003	0.0002	0.0003	0.0007	0.0007	0.0006	**0.006**	0.0003	< 0.0001	**0.0074**	**0.0079**
Lead	mg/L	0.005	0.00002	< 0.00002	< 0.00002	0.00005	0.00004	0.00005	0.00003	0.00015	0.00052	0.00162	0.00007	< 0.00002	0.00064	**0.0072**
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	0.00006
Molybdenum	mg/L	0.04	0.0001	< 0.0001	< 0.0001	0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	0.0001	0.0001	0.0002	0.0003	0.0003
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	<0.0002	0.0005	0.0007	0.0005	0.0003	< 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	**0.00018**	< 0.00002	< 0.00002	0.00004	< 0.00002
Strontium	mg/L	-	0.115	0.154	0.144	0.131	0.181	0.145	0.098	0.094	0.161	0.236	0.115	0.089	0.223	0.206
Thallium	mg/L	0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00015	< 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	0.0002	0.0004	0.0006	0.0001	0.0002	0.0006	0.0017
Zinc	mg/L	0.02	< 0.005	< 0.005	0.006	0.007	**0.04**	0.009	0.01	<0.005	0.005	**0.021**	<0.005	< 0.005	**0.03**	**0.073**
Field pH	pH unit	-	8	7.95	8.04	7.81	6.93	7.23	8.03	7.45	7.68	7.34	8.96	7.37	7.52	7.18
Field Temp	deg C	-	7.5	27.8	12.8	11.8	17.6	13.6	8.8	20.9	16.1	4.2	5.5	4.2	18.8	12.8
Field Conductivity	us/cm	-	265	280	290	230	429	320	252	282	355	590	250	218	407	343
Dissolved Oxygen	mg/L	-	6.23	1.93	2.85	7.81	0.4	1.64	1.97	0.44	5.27	5.2	5.96	4.93	0.99	3.4

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	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	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
Total Alkalinity	mg/L	-	227	108												
BOD	mg/L	-	< 3	< 3												
Calcium	mg/L	-	85.8	52.1												
Chloride	mg/L	-	13	5.3												
COD	mg/L	-	41	77												
Colour	colour unit	-	60	72												
Specific Conductivity	umhos/cm	-	476	243												
DOC	mg/L	-	13.8	13.6												
Fluoride	mg/L	-	< 0.1	< 0.1												
Cyanide (free)	mg/L	0.005	< 0.005	< 0.005												
Iron	mg/L	0.3	**2.79**	**0.903**												
Magnesium	mg/L	-	6.98	3.18												
Manganese	mg/L	-	0.294	0.135												
Nitrate	mg/L	-	< 0.05	< 0.05												
Nitrite	mg/L	-	< 0.05	< 0.05												
pH Lab	pH unit	6.5 - 8.5	7.87	7.93												
Phenols	mg/L	0.001	< 0.001	< 0.002												
Total Phosphorus	mg/L	0.03	**0.06**	**0.16**												
Potassium	mg/L	-	5.8	3.1												
Sodium	mg/L	-	13.7	3.9												
Sulphate	mg/L	-	< 1	1												
Dissolved Solids	mg/L	-	265	135												
Tot Kjel N	mg/L	-	2.1	1.1												
Ammonia (NH3-N)	mg/L	-	1.59	0.05												
Total Suspended Solids	mg/L	-	8	26												
Turbidity	ntu	-	12.6	9.1												
Hardness (CaCO3)	mg/L	-	243	121	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Unionized Ammonia	mg/L	0.02	0.015761	< 0.01												
Aluminum	mg/L	0.075	0.05	**0.36**												
Antimony	mg/L	0.02	< 0.0001	< 0.0001												
Arsenic	mg/L	0.005	0.0007	0.0006												
Barium	mg/L	-	0.046	0.024												
Beryllium	mg/L	1.1	< 0.002	< 0.002												
Boron	mg/L	0.2	0.054	0.019												
Cadmium	mg/L	0.0005	0.000014	0.000068												
Chromium (total)	mg/L	0.001	0.001	0.001												
Chromium (VI)	mg/L	0.001														
Cobalt	mg/L	0.0009	**0.001**	0.0007												
Copper	mg/L	0.005	0.0012	**0.0067**												
Lead	mg/L	0.005	0.00021	0.00146												
Mercury	mg/L	0.0002	< 0.00002	< 0.00002												
Molybdenum	mg/L	0.04	0.0002	0.0003												
Nickel	mg/L	0.025	< 0.01	< 0.01												
Selenium	mg/L	0.1	< 0.001	< 0.001												
Silver	mg/L	0.0001	< 0.00002	< 0.0001												
Strontium	mg/L	-	0.233	0.108												
Thallium	mg/L	0.0003	< 0.00005	< 0.00005												
Vanadium	mg/L	0.006	0.0004	0.0009												
Zinc	mg/L	0.02	**0.027**	0.009												
Field pH	pH unit	-	7.85	7.92												
Field Temp	deg C	-	6.5	1												
Field Conductivity	us/cm	-	471	230												
Dissolved Oxygen	mg/L	-	2.74	16.62												

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW12 (10m) 07-Oct-24	SW12 (15m) 21-May-15	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) 21-May-15	SW12 (25m) 24-Apr-18	SW12 (25m) 28-Apr-22	SW12 (30m) 02-May-17	SW12 (30m) 24-Apr-19
Total Alkalinity	mg/L	-		346	212	224	153	197	405	175	216	164	106	308	140	77
BOD	mg/L	-		5	< 3	< 3	< 3	< 3	4	< 3	< 3	< 3	< 3	10	< 3	< 3
Calcium	mg/L	-		174	79.5	80.2	55.7	74.3	130	66.7	89.3	64.4	48.2	101	52.5	32.1
Chloride	mg/L	-		28.3	10.5	9.8	7.7	11.2	14.6	7.6	17.9	8	5.1	16.3	7.3	3.9
COD	mg/L	-		124	43	60	35	52	64	61	48	52	551	40	46	55
Colour	colour unit	-		82	64	95	64	58	62	130	61	100	160	53	108	100
Specific Conductivity	umhos/cm	-		748	471	461	296	429	799	364	489	346	211	605	299	178
DOC	mg/L	-		26.4	10.4	20.8	11.8	18.4	22	21.2	17	22.2	13.9	19.8	11.9	18.2
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	< 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		**6.64**	**1.26**	**1.05**	**0.994**	**1.48**	**5.47**	**0.406**	**0.367**	**0.704**	**3.19**	**0.549**	0.237	0.081
Magnesium	mg/L	-		11.2	5.44	4.99	4.27	4.85	9.68	4.41	5.23	4.27	4.08	7.39	3.04	1.97
Manganese	mg/L	-		0.601	0.064	0.085	0.121	0.071	0.976	0.033	0.051	0.176	0.208	0.063	0.01	0.007
Nitrate	mg/L	-		0.1	0.2	0.08	0.09	< 0.05	0.06	< 0.05	0.22	0.1	0.05	0.37	< 0.1	< 0.05
Nitrite	mg/L	-		< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.1	< 0.05
pH Lab	pH unit	6.5 - 8.5		7.73	8	7.89	7.76	7.63	7.94	7.9	7.95	7.81	7.6	8	8.01	7.37
Phenols	mg/L	0.001		< 0.001	**0.005**	**0.009**	< 0.001	< 0.002	<0.001	**0.005**	< 0.002	< 0.001	< 0.001	< 0.001	**0.004**	< 0.002
Total Phosphorus	mg/L	0.03		**0.4**	< 0.1	< 0.1	**0.29**	**0.1**	**0.1**	< 0.1	**0.04**	**0.3**	**0.42**	**0.06**	< 0.1	0.03
Potassium	mg/L	-		9.2	4	2.9	2.8	4.3	8.6	1.6	3.4	2	2.5	5.6	1.4	1.7
Sodium	mg/L	-		27.4	11.1	10.1	6.4	9.8	17.3	6.5	13.3	6.2	4	15.9	4.7	2.6
Sulphate	mg/L	-		< 1	10	< 1	1	< 1	1	< 1	6	< 1	1	< 1	3	< 1
Dissolved Solids	mg/L	-		466	251	245	172	226	431	192	265	185	132	332	156	90
Tot Kjel N	mg/L	-		4.2	1.1	1	1.4	1.4	5.5	1.2	0.7	3.4	5.6	1.3	0.6	0.6
Ammonia (NH3-N)	mg/L	-		1.18	0.23	0.5	0.35	0.47	4.72	0.02	0.04	0.11	0.04	0.38	0.01	0.04
Total Suspended Solids	mg/L	-		1020	25	24	348	50	62	21	8	14	500	230	5	8
Turbidity	ntu	-		591	32.2	23.2	326	14.4	36.4	15.7	6.6	3.3	481	18.1	4.6	0.7
Hardness (CaCO3)	mg/L	-	Dry	482		246	157	205	364	198	245	179	137	283		90
Unionized Ammonia	mg/L	0.02		0.002287	--	0.002517	0.001175	< 0.01	**0.15**	0.000141	< 0.01	0.000399	0.000181	< 0.01	--	< 0.01
Aluminum	mg/L	0.075		**1.2**	0.06	**0.11**	**0.2**	0.05	**0.1**	0.06	0.04	**0.09**	**1.1**	0.04	0.04	0.03
Antimony	mg/L	0.02		< 0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0.0003	0.0001	0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001
Arsenic	mg/L	0.005		0.0014	0.0008	0.0013	0.0005	0.0009	0.0011	0.0011	0.0005	0.0005	0.0012	0.0004	0.0006	0.0005
Barium	mg/L	-		0.07	0.044	0.033	0.029	0.027	0.055	0.029	0.029	0.03	0.043	0.032	0.018	0.01
Beryllium	mg/L	1.1		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2		0.061	0.082	0.053	0.016	0.049	0.102	0.016	0.055	< 0.005	0.012	0.071	0.006	0.01
Cadmium	mg/L	0.0005		0.00013	0.000032	< 0.000014	0.000044	< 0.000015	0.000022	< 0.000014	< 0.000015	0.00002	0.000223	< 0.000015	< 0.000014	< 0.000015
Chromium (total)	mg/L	0.001		**0.0014**	0.001	< 0.001	< 0.001	0.001	<0.001	< 0.001	< 0.001	0.0003	**0.002**	< 0.001	< 0.001	0.001
Chromium (VI)	mg/L	0.001							<0.001					< 0.001		
Cobalt	mg/L	0.0009		< 0.005	0.0006	0.0004	0.0004	0.0005	**0.0032**	0.0001	0.0003	< 0.005	0.0009	0.0005	< 0.0001	< 0.0001
Copper	mg/L	0.005		0.0037	0.0021	0.0006	**0.0084**	0.0012	0.001	0.0003	0.001	0.001	**0.0089**	0.0006	0.0005	0.001
Lead	mg/L	0.005		0.00493	0.0008	0.00033	0.00142	0.00019	0.00016	0.00023	0.00019	0.00084	**0.00729**	0.00016	0.00017	0.00021
Mercury	mg/L	0.0002		<0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002	<0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04		< 0.0001	0.0003	0.0003	0.0002	0.0003	0.0002	0.0002	0.0004	< 0.0001	0.0002	0.0002	0.0002	0.0002
Nickel	mg/L	0.025		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0033	< 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	< 0.0001	<0.0001	< 0.00002	< 0.0001	< 0.00002	0.00002	< 0.0001	< 0.00002	< 0.0001
Strontium	mg/L	-		0.424	0.209	0.218	0.141	0.179	0.379	0.17	0.196	0.151	0.122	0.256	0.113	0.067
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		0.0015	0.0014	0.0007	0.0005	0.0004	0.0004	0.0004	0.0003	0.0001	0.0025	0.0002	0.0004	0.0001
Zinc	mg/L	0.02		**0.159**	0.011	0.009	0.019	0.011	<0.005	**0.033**	**0.026**	0.014	**0.048**	< 0.005	< 0.005	0.013
Field pH	pH unit	-		6.99	--	7.22	7.54	8.14	8.35	7.36	7.2	7.26	7.72	7.88	--	8.23
Field Temp	deg C	-		10.8	--	16.4	1.9	1.9	6.9	16.6	5.2	10.9	0.5	5.8	--	2.4
Field Conductivity	us/cm	-		581	--	362	330.3	460	728	297	441	244	240.8	496	--	175
Dissolved Oxygen	mg/L	-		2.26	--	2.22	4.31	4	3.25	2.85	4.01	2.24	12.51	5.11	--	4.13

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW12 (30m) 11-May-20	SW12 (30m) 26-Apr-21	SW12 (30m) 28-Apr-22	SW12 (30m) 18-Apr-24	SW13 17-Apr-15	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
Total Alkalinity	mg/L	-	129	251	205	180	196				159	172	120	69	162	
BOD	mg/L	-	4	10	< 3	<3	4				< 3	< 3	< 3	< 3	< 3	
Calcium	mg/L	-	54.2	99	71	62.1	79.7				62.5	67.3	50.1	29.1	60.4	
Chloride	mg/L	-	9.4	17.1	11.9	10.4	13.2				6	10.2	6	3.6	9.1	
COD	mg/L	-	123	121	38	49	63				58	73	70	59	47	
Colour	colour unit	-	69	70	66	102	74				135	92	74	115	75	
Specific Conductivity	umhos/cm	-	293	514	416	390	417				338	374	241	159	359	
DOC	mg/L	-	16.5	20.3	19.1	18.1	17.2				23.5	23	11.9	16.6	17.6	
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	0.16	**1.72**	**0.4**	0.187	**4.46**				0.162	0.161	**0.911**	0.247	**1.23**	
Magnesium	mg/L	-	3.12	6.15	4.63	4.56	5.18				4.61	5.2	3.71	1.91	3.53	
Manganese	mg/L	-	0.035	0.155	0.041	0.006	0.354				0.072	0.035	0.107	0.054	0.079	
Nitrate	mg/L	-	< 0.05	0.1	0.22	0.48	< 0.1				< 0.05	0.08	0.05	< 0.05	< 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	
pH Lab	pH unit	6.5 - 8.5	7.76	8.09	7.93	7.79	7.8				7.8	7.93	7.73	7.59	7.63	
Phenols	mg/L	0.001	< 0.002	< 0.002	0.001	<0.001	< 0.001				**0.01**	**0.005**	<0.001	< 0.002	< 0.002	
Total Phosphorus	mg/L	0.03	**0.09**	**0.24**	0.03	0.02	**0.4**				< 0.1	< 0.1	**0.05**	**0.08**	**0.14**	
Potassium	mg/L	-	1.4	3.9	3.3	4.9	6.3				1.9	3.1	2.2	1.6	3.1	
Sodium	mg/L	-	5.1	14.1	9.6	9.2	13				5.2	7	5.5	2.3	6.6	
Sulphate	mg/L	-	2	2	1	4	1				< 1	1	1	1	< 1	
Dissolved Solids	mg/L	-	157	294	226	206	243				175	197	135	82	183	
Tot Kjel N	mg/L	-	1.9	2.8	1	0.9	4.3				1.2	1.1	0.6	0.7	1.4	
Ammonia (NH3-N)	mg/L	-	0.03	0.05	0.68	0.19	1.62				0.06	0.03	0.13	0.03	0.35	
Total Suspended Solids	mg/L	-	85	390	25	4	18				14	< 3	5	6	7	
Turbidity	ntu	-	31.9	214	1	1	4.8				2.1	1.1	4.6	6.9	3.3	
Hardness (CaCO3)	mg/L	-	148	265	196	174	220	Dry	Dry	Dry	175	184	140	81	173	Dry
Unionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	<0.01	0.006556				0.001831	0.000364	0.002469	< 0.01	0.01	
Aluminum	mg/L	0.075	0.03	0.06	0.03	0.04	0.07				0.02	0.05	0.03	0.03	0.06	
Antimony	mg/L	0.02	< 0.0001	0.0004	0.0003	0.0003	0.0004				0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	
Arsenic	mg/L	0.005	0.0005	0.0007	0.0004	0.0003	0.0011				0.0011	0.0006	0.0006	0.0003	0.0008	
Barium	mg/L	-	0.017	0.037	0.022	0.022	0.037				0.031	0.036	0.029	0.01	0.024	
Beryllium	mg/L	1.1	< 0.002	< 0.002	< 0.002	<0.0001	< 0.002				< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	
Boron	mg/L	0.2	< 0.005	0.051	0.026	0.083	0.022				0.01	0.01	0.009	0.007	0.025	
Cadmium	mg/L	0.0005	0.000016	0.000046	< 0.000015	<0.000015	**0.00064**				0.000094	0.000018	0.000086	0.000023	< 0.000015	
Chromium (total)	mg/L	0.001	< 0.001	0.001	< 0.001	<0.001	0.0006				< 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	0.0001	0.0007	0.0003	0.0003	< 0.005				0.0002	< 0.0001	0.0003	0.0002	0.0005	
Copper	mg/L	0.005	0.0013	0.0014	0.0004	0.0008	**0.01**				**0.0143**	0.0027	**0.015**	0.003	0.0012	
Lead	mg/L	0.005	0.00052	0.00185	0.00014	0.00008	0.00325				0.0006	0.00048	0.004	0.00098	0.00023	
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	0.0004	0.0002	0.0003	<0.0001	0.0001				0.0003	0.0001	0.0005	0.0002	0.0003	
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	0.0008	< 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	**0.00018**				0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	
Strontium	mg/L	-	0.11	0.234	0.157	0.157	0.2				0.17	0.176	0.121	0.06	0.127	
Thallium	mg/L	0.0003	< 0.00005	< 0.00005	< 0.00005	<0.00005	**0.00036**				< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	
Vanadium	mg/L	0.006	0.0004	0.0011	0.0002	<0.0001	0.0005				0.0001	0.0001	0.0004	0.0002	0.0004	
Zinc	mg/L	0.02	0.008	**0.025**	< 0.005	<0.005	**0.038**				**0.027**	**0.033**	**0.074**	0.013	0.013	
Field pH	pH unit	-	7.33	7.12	7.96	7.58	7.6				7.93	7.73	8.26	8.2	8.51	
Field Temp	deg C	-	4.7	4.2	5.4	7.2	2.5				19	12.6	3	0.6	1.9	
Field Conductivity	us/cm	-	283	467	357	376	620				264	284	314	160	451	
Dissolved Oxygen	mg/L	-	5.7	4.51	6.12	5.36	8.1				1.41	3.82	2	12.65	3.34	

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW13 (10m) 23-Apr-20	SW13 (10m) 11-May-20	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
Total Alkalinity	mg/L	-		668			396	473			341	442			275	
BOD	mg/L	-		6			19	11			4	19			8	
Calcium	mg/L	-		261			359	282			113	149			90.6	
Chloride	mg/L	-		76.9			32.8	46.2			32.7	32.8			19.5	
COD	mg/L	-		114			830	456			92	187			105	
Colour	colour unit	-		53			101	58			51	59			91	
Specific Conductivity	umhos/cm	-		1480			837	1000			767	877			613	
DOC	mg/L	-		23.5			41.6	22.7			18.1	49.7			27.8	
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		**9.72**			**125**	**77.1**			**6.2**	**51.9**			**4.8**	
Magnesium	mg/L	-		19.1			15.9	14.7			8.63	10.4			5.78	
Manganese	mg/L	-		0.611			3.95	2.43			0.362	0.542			0.177	
Nitrate	mg/L	-		0.18			< 0.05	0.19			0.16	0.09			0.24	
Nitrite	mg/L	-		< 0.05			< 0.05	< 0.05			< 0.05	< 0.05			< 0.05	
pH Lab	pH unit	6.5 - 8.5		7.84			7.97	7.9			7.95	7.9			7.86	
Phenols	mg/L	0.001		< 0.002			< 0.002	**0.002**			< 0.001	< 0.001			< 0.001	
Total Phosphorus	mg/L	0.03		**0.58**			**3.26**	**1.23**			**0.12**	**0.64**			**0.21**	
Potassium	mg/L	-		19.2			13	10.5			8.1	10.6			5.7	
Sodium	mg/L	-		76.9			30.2	33.2			23.1	31.4			13.6	
Sulphate	mg/L	-		17			< 1	2			< 1	< 1			< 1	
Dissolved Solids	mg/L	-		850			457	751			401	557			305	
Tot Kjel N	mg/L	-		13.4			29.2	13.4			3.6	7.2			3.3	
Ammonia (NH3-N)	mg/L	-		8.79			1.81	2.33			3.57	4.4			1.41	
Total Suspended Solids	mg/L	-		140			440	285			24	1760			103	
Turbidity	ntu	-		88.2			4630	1170			24.7	466			6.8	
Hardness (CaCO3)	mg/L	-	Dry	731	Dry	Dry	963	487	Dry	Dry	317	415	Dry	Dry	274	Dry
Unionized Ammonia	mg/L	0.02		0.01			< 0.01	< 0.01			0.02	**0.03**			0.01	
Aluminum	mg/L	0.075		**0.1**			0.04	**0.1**			0.04	0.05			0.03	
Antimony	mg/L	0.02		0.0002			< 0.001	< 0.001			0.0003	0.0003			0.0005	
Arsenic	mg/L	0.005		0.0013			**0.0152**	**0.0106**			0.0015	**0.006**			0.0009	
Barium	mg/L	-		0.12			0.478	0.288			0.047	0.164			0.042	
Beryllium	mg/L	1.1		< 0.002			< 0.002	< 0.002			< 0.002	< 0.002			< 0.002	
Boron	mg/L	0.2		**0.332**			**0.215**	0.18			0.047	0.095			0.041	
Cadmium	mg/L	0.0005		0.000075			**0.00275**	**0.00129**			< 0.000015	0.000029			0.000027	
Chromium (total)	mg/L	0.001		0.001			**0.017**	**0.011**			< 0.001	< 0.001			< 0.001	
Chromium (VI)	mg/L	0.001									< 0.001	< 0.001			< 0.001	
Cobalt	mg/L	0.0009		**0.0017**			**0.0137**	**0.0084**			**0.0012**	**0.0021**			0.0007	
Copper	mg/L	0.005		0.0019			**0.0396**	**0.0239**			0.0007	0.0015			0.001	
Lead	mg/L	0.005		0.00191			**0.0499**	**0.038**			0.00018	0.00127			0.00111	
Mercury	mg/L	0.0002		< 0.00002			**0.00032**	0.00005			< 0.00002	< 0.00002			< 0.00002	
Molybdenum	mg/L	0.04		0.0002			< 0.001	< 0.001			0.0001	0.0002			< 0.0001	
Nickel	mg/L	0.025		< 0.01			0.02	0.01			< 0.01	< 0.01			< 0.01	
Selenium	mg/L	0.1		< 0.001			< 0.01	< 0.01			< 0.001	< 0.001			< 0.001	
Silver	mg/L	0.0001		< 0.0001			< 0.0002	< 0.0002			< 0.0001	< 0.0001			< 0.0001	
Strontium	mg/L	-		0.784			0.793	0.672			0.303	0.413			0.224	
Thallium	mg/L	0.0003		< 0.00005			< 0.0005	< 0.0005			< 0.00005	< 0.00005			< 0.00005	
Vanadium	mg/L	0.006		0.0011			**0.0218**	**0.015**			0.0003	0.0012			0.0005	
Zinc	mg/L	0.02		**0.055**			**0.95**	**0.449**			0.009	**0.024**			0.013	
Field pH	pH unit	-		6.91			7.12	6.59			8	7.66			7.76	
Field Temp	deg C	-		8.1			5.2	3.1			5.1	9			10.2	
Field Conductivity	us/cm	-		1038			1150	827			230	725			395	
Dissolved Oxygen	mg/L	-		2.25			14.53	4.5			5.6	1.97			8.33	

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW13 (10m) 12-Oct-23	SW13 (10m) 18-Apr-24	SW13 (10m) 18-Apr-24	SW13 (10m) 11-Jul-24	SW13 (10m) 07-Oct-24	SW13 (15m) 21-May-15	SW13 (15m) 02-May-17	SW13 (15m) 21-Jun-17	SW13 (15m) 24-Apr-18	SW13 (15m) 11-May-20	SW13 (25m) 21-May-15	SW13 (30m) 17-Apr-15	SW13 (30m) 29-Apr-16	SW13 (30m) 18-Apr-17
Total Alkalinity	mg/L	-		141	188	288		402	145	159	169	181	159	109	157	144
BOD	mg/L	-		5	<3	<3		15	< 3	< 3	< 3	7	3	2	< 3	< 3
Calcium	mg/L	-		56.1	66.8	157		231	50.9	63.9	54.2	72	60.7	48.1	60.9	49.1
Chloride	mg/L	-		6.4	11.1	22.2		38.4	7.9	6.4	9	13.7	7.6	5.6	10.1	8.1
COD	mg/L	-		114	51	181		230	41	125	39	50	67	38	44	43
Colour	colour unit	-		104	107	80		70	101	105	62	69	92	70	68	105
Specific Conductivity	umhos/cm	-		281	405	643		871	315	336	339	405	336	235	349	308
DOC	mg/L	-		15	19.4	18.2		22.3	7.9	21.4	12	17.6	17.1	13.9	15.6	19.6
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		**0.598**	**0.385**	**13.3**		**21.7**	0.225	**0.544**	**1.25**	**0.402**	**0.717**	0.201	0.11	0.149
Magnesium	mg/L	-		3.53	4.94	12.8		13.1	2.95	4.24	4.14	4.07	3.91	2.92	3.78	2.87
Manganese	mg/L	-		0.04	0.018	0.498		0.469	0.008	0.112	0.123	0.044	0.06	0.028	0.008	0.007
Nitrate	mg/L	-		0.1	0.48	0.06		0.1	< 0.1	< 0.05	< 0.05	0.29	< 0.1	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	-		<0.05	<0.05	0.05		< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5		7.88	7.76	7.6		7.83	7.98	7.77	7.75	7.99	7.84	7.88	7.97	7.97
Phenols	mg/L	0.001		<0.001	<0.001	<0.001		< 0.001	**0.003**	**0.003**	< 0.001	< 0.002	< 0.001	< 0.001	**0.006**	**0.014**
Total Phosphorus	mg/L	0.03		**0.19**	0.03	**0.2**		**1.7**	< 0.1	**0.1**	**0.15**	**0.04**	**0.3**	< 0.1	< 0.1	< 0.1
Potassium	mg/L	-		2.5	5.5	13.1		10.1	1.4	1.2	2.8	2.3	1.4	2.1	1.9	1.4
Sodium	mg/L	-		4.8	10.3	42.7		38.3	4.9	5.4	6.8	9	5.5	4.2	7.1	4.3
Sulphate	mg/L	-		2	5	13		< 1	4	< 1	1	3	< 1	2	3	4
Dissolved Solids	mg/L	-		162	219	341		595	159	177	182	218	176	130	181	156
Tot Kjel N	mg/L	-		3.8	1	3.8		3.9	0.6	4.5	2.2	0.8	5.8	1.4	0.7	0.6
Ammonia (NH3-N)	mg/L	-		1.81	0.27	0.99		1.51	< 0.01	0.02	0.5	0.06	0.07	0.03	0.04	0.03
Total Suspended Solids	mg/L	-		44	5	19		1710	4	28	42	260	104	< 3	< 3	7
Turbidity	ntu	-		2.3	2.8	14.3		967	5.1	8.9	75.1	14.9	15.3	0.4	1.1	3.1
Hardness (CaCO3)	mg/L	-	Dry	155	187	444	Dry	630		181	153	197	168	132	168	168
Unionized Ammonia	mg/L	0.02		0.02	<0.01	<0.01		0.003282	--	0.00008	0.001243	< 0.01	0.000196	0.000196	0.003553	0.00008
Aluminum	mg/L	0.075		0.06	0.06	**0.28**		**1.61**	0.03	0.02	**0.08**	0.05	**0.11**	0.06	0.03	0.07
Antimony	mg/L	0.02		<0.0001	0.0004	0.0006		0.0001	0.0004	0.0001	< 0.0001	0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001
Arsenic	mg/L	0.005		0.0004	0.0003	0.0016		0.0019	0.0006	0.0011	0.0008	0.0005	0.0005	0.0004	0.0004	0.0005
Barium	mg/L	-		0.02	0.026	0.118		0.104	0.017	0.033	0.028	0.024	0.027	0.018	0.015	0.015
Beryllium	mg/L	1.1		<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	0.2		0.024	0.093	**0.37**		0.047	0.006	0.01	0.016	0.012	< 0.005	0.009	< 0.005	0.016
Cadmium	mg/L	0.0005		<0.000015	<0.000015	0.000055		0.00014	< 0.000014	0.000082	0.000031	< 0.000015	0.00004	0.00016	< 0.00002	< 0.000014
Chromium (total)	mg/L	0.001		<0.001	<0.001	<0.001		**0.0017**	< 0.001	< 0.001	< 0.001	0.001	0.0003	0.0004	< 0.0002	< 0.001
Chromium (VI)	mg/L	0.001		<0.001	<0.001	<0.001										
Cobalt	mg/L	0.0009		0.0002	0.0004	**0.0031**		< 0.005	0.0001	0.0002	0.0004	0.0002	< 0.005	< 0.005	< 0.005	< 0.0001
Copper	mg/L	0.005		0.0008	0.0007	0.0027		0.0045	0.0006	0.004	**0.0081**	0.0009	0.0016	**0.0054**	0.0003	< 0.0001
Lead	mg/L	0.005		0.00024	0.00009	0.00094		**0.00502**	0.00015	0.00392	0.00167	0.00057	0.00143	0.00126	0.00008	0.00004
Mercury	mg/L	0.0002		<0.00002	<0.00002	<0.00002		0.00003	0.00003	< 0.00002	< 0.00002	< 0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002
Molybdenum	mg/L	0.04		<0.0001	0.0001	0.0002		< 0.0001	0.0002	0.0002	0.0002	0.0002	< 0.0001	< 0.0001	0.0001	0.0002
Nickel	mg/L	0.025		0.0018	0.0009	0.0058		< 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
Silver	mg/L	0.0001		<0.0001	<0.0001	<0.0001		< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.00002	**0.00019**	< 0.00002	< 0.00002
Strontium	mg/L	-		0.127	0.171	0.604		0.52	0.11	0.164	0.135	0.147	0.141	0.11	0.137	0.1
Thallium	mg/L	0.0003		<0.00005	<0.00005	<0.00005		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00009	< 0.00005	< 0.00005
Vanadium	mg/L	0.006		0.0002	0.0001	0.0008		0.0019	0.0004	0.0004	0.0004	0.0003	0.0001	0.0003	0.0001	0.0003
Zinc	mg/L	0.02		0.009	<0.005	0.02		**0.082**	**0.192**	**0.037**	0.017	**0.045**	**0.033**	0.015	< 0.005	< 0.005
Field pH	pH unit	-		7.83	7.98	7.18		7.05	--	7.14	7.42	7.28	7.15	7.65	8.87	7.38
Field Temp	deg C	-		7.8	7.2	19.4		10.5	--	16.2	1.6	5.6	10.8	7	5.6	4.8
Field Conductivity	us/cm	-		263	395	667		640	--	275	537	402	242.5	270	285	250
Dissolved Oxygen	mg/L	-		1.17	5.31	0.9		0.35	--	2.43	3.48	1.77	0.55	7.81	6.2	6.21

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW13 (30m) 02-May-17	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
Total Alkalinity	mg/L	-	120	167	165	161	88	89	69	78	183		137	206	140	151
BOD	mg/L	-	< 3	< 3	6	4	< 3	< 3	< 3	< 3	3		< 3	15	3	6
Calcium	mg/L	-	49	62.9	64.3	68.3	38.9	32.8	30.8	32.5	72.4		61.1	88.7	58.8	61.3
Chloride	mg/L	-	6.6	9.9	6	10.2	4.1	4.1	3.7	3.9	8.2		10.2	19.2	7.8	8.8
COD	mg/L	-	52	77	94	565	96	37	53	47	331		38	194	95	94
Colour	colour unit	-	101	145	120	86	100	85	121	101	140		63	104	77	78
Specific Conductivity	umhos/cm	-	260	359	337	350	190	183	160	180	340		320	422	298	318
DOC	mg/L	-	10.2	33.8	25.3	26.5	13	11.8	17.1	18.9	26.5		14.1	35.9	20.4	19.8
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		< 0.005	< 0.005	< 0.005	< 0.005
Iron	mg/L	0.3	0.093	0.078	0.271	**0.733**	0.246	0.062	0.16	0.035	0.246		0.047	**1.79**	**0.392**	**0.552**
Magnesium	mg/L	-	3.46	3.41	4.58	4.83	3.3	2.16	2.01	2.14	4.32		3.6	5.13	3.36	3.67
Manganese	mg/L	-	0.039	0.015	0.543	0.184	0.035	0.006	0.06	0.004	0.209		0.006	1.03	0.096	0.123
Nitrate	mg/L	-	< 0.1	< 0.05	< 0.05	0.27	< 0.05	< 0.05	< 0.05	< 0.05	0.08		0.14	< 0.05	< 0.05	< 0.05
Nitrite	mg/L	-	< 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	7.89	7.83	8.09	8	7.87	7.67	7.61	7.37	7.78		7.91	7.83	7.93	7.87
Phenols	mg/L	0.001	**0.003**	**0.004**	**0.01**	**0.006**	<0.001	< 0.001	< 0.002	< 0.002	< 0.002		< 0.002	< 0.001	< 0.002	< 0.002
Total Phosphorus	mg/L	0.03	< 0.1	**0.2**	**0.2**	**0.2**	**0.17**	0.02	**0.1**	**0.04**	**0.46**		0.01	**0.27**	**0.2**	**0.19**
Potassium	mg/L	-	1.3	0.7	1.6	2.2	1.4	1.3	1.7	1.8	0.7		1.9	3	1.7	1.8
Sodium	mg/L	-	4.2	5.4	5.1	6.3	3.6	2.5	2.5	2.5	5.5		6.3	8.5	5.3	5.9
Sulphate	mg/L	-	3	< 1	1	1	2	1	1	< 1	< 1		6	3	1	2
Dissolved Solids	mg/L	-	140	183	180	190	103	98	84	90	202		171	246	159	175
Tot Kjel N	mg/L	-	0.9	1.1	1.6	6.5	2.2	0.4	1.1	0.6	4.7		0.5	3.8	1.6	2.1
Ammonia (NH3-N)	mg/L	-	< 0.01	0.01	0.05	0.06	0.04	0.02	0.09	0.04	0.09		0.01	0.01	0.04	0.04
Total Suspended Solids	mg/L	-	7	4	64	40	10	< 3	15	4	92		6	2240	14	76
Turbidity	ntu	-	2.4	1.9	6.2	16.3	5.8	0.7	7.2	0.9	64.8		1.4	620	21.4	105
Hardness (CaCO3)	mg/L	-		198	179	179	111	91	83	90	190	Dry	163	243	161	169
Unionized Ammonia	mg/L	0.02	--	0.000475	0.000588	0.000461	0.000373	0.00004	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01
Aluminum	mg/L	0.075	0.02	0.03	0.02	0.05	0.04	0.03	0.06	0.03	0.06		0.03	0.02	< 0.01	0.05
Antimony	mg/L	0.02	0.0003	0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0003		0.0002	0.0001	0.0003	0.0003
Arsenic	mg/L	0.005	0.0005	0.0019	0.0013	0.001	0.0003	0.0003	0.0004	0.0004	0.0008		0.0003	0.0009	0.0005	0.0006
Barium	mg/L	-	0.019	0.021	0.036	0.044	0.026	0.008	0.01	0.008	0.028		0.016	0.045	0.02	0.022
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	0.2	< 0.005	0.007	0.011	0.018	0.005	< 0.005	0.01	0.005	0.009		0.015	0.022	0.01	0.011
Cadmium	mg/L	0.0005	< 0.000014	0.00005	0.000079	0.000074	0.000074	< 0.000015	< 0.000015	< 0.000015	< 0.000015		< 0.000015	0.000119	0.000025	0.000033
Chromium (total)	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	0.001
Chromium (VI)	mg/L	0.001														
Cobalt	mg/L	0.0009	< 0.0001	< 0.0001	0.0005	0.0002	< 0.0001	< 0.0001	0.0001	0.0001	0.0003		< 0.0001	**0.001**	0.0002	0.0002
Copper	mg/L	0.005	0.0002	0.0029	**0.006**	0.0031	**0.0092**	0.0002	0.0009	0.0003	0.0003		0.0004	0.0027	0.0006	0.0007
Lead	mg/L	0.005	0.00021	0.00119	0.00115	0.00312	0.00261	0.00003	0.00023	0.00009	0.00027		0.00006	**0.00597**	0.00123	0.0015
Mercury	mg/L	0.0002	0.00008	< 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	0.0002	0.0003	0.0003	0.0002	0.0002	0.0001	0.0002	0.0001	< 0.0001		0.0002	0.0002	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
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	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.116	0.151	0.18	0.178	0.105	0.067	0.063	0.069	0.164		0.121	0.171	0.118	0.133
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	0.0002	0.0002	0.0003	0.0003	0.0001	0.0001	0.0001	0.0001		0.0002	0.0008	0.0003	0.0004
Zinc	mg/L	0.02	**0.056**	0.008	**0.026**	**0.027**	**0.027**	< 0.005	0.015	< 0.005	0.013		< 0.005	**0.03**	0.018	**0.022**
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
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
Field Conductivity	us/cm	-	--	293	272	325	205	221.8	170	165	309		365	470	390	285
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

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW13 (30m) 19-Jul-21	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	SW14 16-Apr-15
Total Alkalinity	mg/L	-	210	159	120	130	185		122		216	121	121	128	211	102
BOD	mg/L	-	< 6	6	< 3	< 3	4		< 3		13	<3	<3	<3	18	< 2
Calcium	mg/L	-	76.5	72.3	41.3	49.3	76.4		46.5		79.2	53.5	41.6	51	83	43
Chloride	mg/L	-	12.2	13.1	6.8	7.2	12		5.3		15.7	5.3	5.4	16.3	14.9	5.2
COD	mg/L	-	61	143	42	56	93		51		242	132	56	57	394	37
Colour	colour unit	-	118	78	85	79	105		95		92	89	100	106	78	76
Specific Conductivity	umhos/cm	-	428	360	259	269	387		263		447	245	248	297	431	218
DOC	mg/L	-	26.1	21.8	20.7	18.3	28		11.8		50.2	20.2	16.4	15	30	13.9
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
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	<0.008	< 0.005
Iron	mg/L	0.3	0.107	**0.838**	0.122	0.197	**1.52**		**0.527**		**8.79**	**0.95**	0.102	**0.889**	**2.97**	0.154
Magnesium	mg/L	-	4.42	4.27	2.69	3.18	4.19		2.79		5.15	3.11	2.72	2.98	5.19	2.66
Manganese	mg/L	-	0.068	0.09	0.024	0.04	0.471		0.081		0.349	0.33	0.017	0.102	0.114	0.087
Nitrate	mg/L	-	0.12	< 0.05	< 0.05	< 0.05	0.08		0.06		0.06	<0.05	<0.05	<0.05	<0.05	0.1
Nitrite	mg/L	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05		0.06	<0.05	<0.05	<0.05	<0.05	< 0.1
pH Lab	pH unit	6.5 - 8.5	8	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	< 0.002	< 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	**0.05**	**0.37**	0.03	**0.05**	**0.18**		**0.05**		**1.1**	**0.14**	**0.06**	**0.1**	**0.59**	< 0.1
Potassium	mg/L	-	1.8	2.2	1.6	1.8	1.4		1.8		6.4	1.6	1.6	4.4	4.8	2
Sodium	mg/L	-	6.8	5.8	3.8	4.8	5.9		3.8		7	3.5	3.7	3.8	7.4	3.6
Sulphate	mg/L	-	< 1	< 1	2	2	1		< 1		2	2	2	<1	<1	2
Dissolved Solids	mg/L	-	236	194	130	146	214		134		254	143	130	157	245	120
Tot Kjel N	mg/L	-	1	5.8	0.6	2.6	2.5		0.8		6.3	2.3	1.1	1.1	9.6	1
Ammonia (NH3-N)	mg/L	-	0.08	0.09	0.06	2.55	0.53		0.06		0.29	0.27	0.16	0.08	0.26	< 0.01
Total Suspended Solids	mg/L	-	15	29	7	52	21		16		360	108	12	19	2680	22
Turbidity	ntu	-	8.3	25.1	4.5	6.5	37.2		10.2		34.1	56.1	3.5	4.4	568	4.3
Hardness (CaCO3)	mg/L	-	228	197	114	136	208	Dry	130	Dry	219	147	115	140	229	118
Unionized Ammonia	mg/L	0.02	< 0.01	< 0.01	< 0.01	**0.04**	< 0.01		< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001
Aluminum	mg/L	0.075	0.05	0.06	0.01	0.02	0.05		0.02		0.06	**0.17**	0.04	**0.14**	**0.26**	0.06
Antimony	mg/L	0.02	0.0006	0.0004	0.0003	0.0003	0.0006		0.0006		0.0001	0.0001	0.0006	0.0004	0.0004	0.0002
Arsenic	mg/L	0.005	0.0017	0.0006	0.0003	0.0003	0.0009		0.0004		0.002	0.0004	0.0003	0.0007	0.0008	0.0003
Barium	mg/L	-	0.027	0.025	0.013	0.015	0.033		0.015		0.068	0.025	0.012	0.023	0.037	0.018
Beryllium	mg/L	1.1	< 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	0.2	0.023	0.013	0.005	0.008	0.007		0.007		0.026	0.005	<0.005	0.024	0.02	0.009
Cadmium	mg/L	0.0005	< 0.000015	0.000029	< 0.000015	< 0.000015	0.000016		< 0.000015		0.000099	0.000077	<0.000015	<0.000015	0.000128	0.0001
Chromium (total)	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	0.0003
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	0.0003	0.0001	0.0001	0.0008		0.0002		**0.001**	0.0004	0.0003	0.0004	0.0007	< 0.005
Copper	mg/L	0.005	0.0002	0.0012	0.0003	0.0007	0.0011		0.0003		0.0025	0.0013	0.0005	0.0008	0.0029	0.0044
Lead	mg/L	0.005	0.00012	0.00216	0.00017	0.00055	0.00109		0.00024		0.00445	0.00397	0.00019	0.00049	0.00374	0.00084
Mercury	mg/L	0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002		0.00004	0.00003	<0.00002	<0.00002	0.00009	<0.00002
Molybdenum	mg/L	0.04	0.0003	< 0.0001	0.0001	< 0.0001	< 0.0001		< 0.0001		0.0002	0.0001	<0.0001	0.0001	0.0003	< 0.0001
Nickel	mg/L	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01		0.002	0.0009	0.0006	0.0008	0.0011	< 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		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.00012**
Strontium	mg/L	-	0.179	0.151	0.09	0.104	0.177		0.1		0.191	0.118	0.095	0.14	0.196	0.105
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	0.0001	0.0005	0.0002	0.0002	0.0003		0.0002		0.0011	0.0003	<0.0001	0.0003	0.001	0.0003
Zinc	mg/L	0.02	0.013	**0.023**	< 0.005	0.006	0.019		0.007		**0.037**	0.015	0.008	0.01	**0.029**	0.013
Field pH	pH unit	-	6.97	8.23	8	8.05	7.3		7.84		7.53	8.09	7.97	7.33	7.06	7.44
Field Temp	deg C	-	19.7	5.6	5.1	5.9	21.6		10.6		8.7	7.3	7.7	19.4	12.1	12
Field Conductivity	us/cm	-	403	350	230	243	325		240		328	241	241	512	456	250
Dissolved Oxygen	mg/L	-	1.55	6.43	5.6	2.82	4.05		7.85		2.69	1.84	5.82	0.9	2.2	4.44

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW14 29-Apr-16	SW14 24-Aug-16	SW14 04-Oct-16	SW14 18-Apr-17	SW14 20-Jul-17	SW14 23-Oct-17	SW14 24-Apr-18	SW14 12-Apr-19	SW14 24-Apr-19	SW14 08-Jul-19	SW14 22-Oct-19	SW14 23-Apr-20	SW14 27-Apr-20	SW14 20-Jul-20
Total Alkalinity	mg/L	-	128			115	159	164	92	64	91	209		104	118	
BOD	mg/L	-	< 3			< 3	< 3	6	< 3	< 3	< 3	< 3		< 3	< 3	
Calcium	mg/L	-	51.4			39.7	76.4	67.9	40.1	29.4	38.7	93.8		52.3	59.6	
Chloride	mg/L	-	6.8			7	5.5	9.5	4	3.2	5.6	10.2		7.1	11.9	
COD	mg/L	-	50			58	602	561	39	51	51	65		52	39	
Colour	colour unit	-	84			134	140	88	140	143	144	143		115	102	
Specific Conductivity	umhos/cm	-	278			254	332	360	196	147	210	445		239	292	
DOC	mg/L	-	15.8			21.3	24.9	25.1	8.9	17.1	18.7	31.9		17.6	16.9	
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	**4.08**	**0.356**	0.253	0.233	0.27	**1.22**		0.142	0.185	
Magnesium	mg/L	-	3.31			2.53	4.91	5.12	3.22	1.88	2.26	5.53		4.14	3.43	
Manganese	mg/L	-	0.008			0.013	2.69	0.159	0.032	0.043	0.137	1.32		0.053	0.044	
Nitrate	mg/L	-	0.1			< 0.1	< 0.05	0.13	0.08	< 0.05	< 0.05	0.06		0.05	0.05	
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	8.14	7.96	7.95	7.61	7.83	7.92		7.73	7.9	
Phenols	mg/L	0.001	**0.008**			**0.004**	**0.013**	**0.028**	< 0.001	< 0.002	< 0.002	< 0.002		< 0.002	< 0.002	
Total Phosphorus	mg/L	0.03	< 0.1			< 0.1	**0.6**	**0.1**	0.03	**0.05**	**0.04**	**0.09**		0.03	**0.05**	
Potassium	mg/L	-	1.6			1.2	1.8	3	1.4	1.5	1.9	2.5		1.4	1.7	
Sodium	mg/L	-	4.8			3.3	4.8	6.7	3.5	2.1	3.7	6.7		5.2	6.3	
Sulphate	mg/L	-	4			4	< 1	1	2	1	1	< 1		4	5	
Dissolved Solids	mg/L	-	149			127	180	193	107	78	107	247		137	156	
Tot Kjel N	mg/L	-	0.6			0.7	29.9	4.8	0.5	0.7	0.7	1		0.7	0.5	
Ammonia (NH3-N)	mg/L	-	0.04			0.02	0.18	0.05	0.04	0.04	0.09	0.17		0.01	0.03	
Total Suspended Solids	mg/L	-	< 3			< 3	38	320	9	< 3	< 3	16		< 3	28	
Turbidity	ntu	-	0.5			1	7.7	154	4.4	0.8	2.4	36.6		0.7	46.7	
Hardness (CaCO3)	mg/L	-	142	Dry	Dry	140	211	178	113	78	106	247	Dry	122	163	Dry
Unionized Ammonia	mg/L	0.02	0.001271			0.00005	0.013753	0.000179	0.001107	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	
Aluminum	mg/L	0.075	0.03			0.04	0.03	0.04	0.04	0.05	0.04	0.05		0.04	0.03	
Antimony	mg/L	0.02	<0.0001			< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0003		0.0002	< 0.0001	
Arsenic	mg/L	0.005	0.0004			0.0005	0.0033	0.0008	0.0002	0.0004	0.0005	0.0028		0.0003	0.0004	
Barium	mg/L	-	0.012			0.011	0.072	0.041	0.023	0.01	0.015	0.041		0.025	0.019	
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	0.2	< 0.005			0.012	0.019	0.016	< 0.005	0.008	0.009	0.008		0.007	0.01	
Cadmium	mg/L	0.0005	< 0.00002			< 0.000014	0.000423	0.000096	0.000041	< 0.000015	< 0.000015	< 0.000015		< 0.000015	< 0.000015	
Chromium (total)	mg/L	0.001	< 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	**0.0027**	0.0002	0.0001	0.0001	0.0003	**0.0013**		< 0.0001	0.0002	
Copper	mg/L	0.005	0.0002			< 0.0001	0.0039	0.0049	**0.0062**	0.0011	0.0005	0.0009		0.0003	0.0009	
Lead	mg/L	0.005	0.00006			0.00002	**0.0135**	0.00223	0.00126	0.00036	0.00014	0.00036		0.00015	0.00013	
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	0.0004	0.0002	0.0002	0.0001	0.0001	0.0003		< 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	
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	0.00004	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001		< 0.0001	< 0.0001	
Strontium	mg/L	-	0.118			0.083	0.209	0.18	0.104	0.06	0.081	0.214		0.129	0.121	
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	0.0027	0.0004	0.0004	0.0002	0.0004	0.0006		0.0002	0.0002	
Zinc	mg/L	0.02	< 0.005			< 0.005	**0.107**	**0.048**	0.018	0.013	0.015	0.013		0.012	0.015	
Field pH	pH unit	-	8.39			7.38	8.34	7.18	8.29	8.19	7.98	7.31		7.93	7.3	
Field Temp	deg C	-	5.8			4.8	19.3	13.1	6.9	1	2.9	16.8		3.6	9.2	
Field Conductivity	us/cm	-	235			250	307	271	1930	170	194	396		260	274.4	
Dissolved Oxygen	mg/L	-	6.35			5.52	2.65	1.79	5.18	15.1	6.16	3.14		6.44	6.38	

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	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	SW14 18-Apr-24	SW14 11-Jul-24	SW14 (DUP) 11-Jul-24
Total Alkalinity	mg/L	-		132	132	169	174	106	124	164	108			118	139	145
BOD	mg/L	-		< 3	< 3	3	< 3	< 3	< 3	4	< 3			<3	<3	4
Calcium	mg/L	-		52.5	53	71	75.1	42.6	45.7	66.9	40.4			45.3	51.6	58.2
Chloride	mg/L	-		7.1	7.5	12.3	14.1	6.3	6.7	11.5	4.6			4.9	5.6	5.6
COD	mg/L	-		71	70	59	52	74	42	55	53			70	60	103
Colour	colour unit	-		102	103	109	89	146	120	135	142			132	104	114
Specific Conductivity	umhos/cm	-		271	280	349	389	243	257	344	235			237	285	284
DOC	mg/L	-		21.4	20.8	24.6	21.6	20.3	21.8	27.3	15			20.8	17.8	19.4
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		**0.723**	**0.706**	0.216	0.244	0.243	0.122	**1.1**	0.139			0.272	**0.341**	**2.04**
Magnesium	mg/L	-		3.26	3.31	4.17	4.81	2.96	3.05	3.92	2.5			2.9	3.08	3.36
Manganese	mg/L	-		0.895	0.901	0.246	0.229	0.153	0.026	0.262	0.02			0.064	0.06	0.29
Nitrate	mg/L	-		< 0.05	< 0.05	0.07	< 0.05	0.12	< 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	< 0.05			<0.05	<0.05	<0.05
pH Lab	pH unit	6.5 - 8.5		7.92	7.92	8.02	7.48	7.1	7.75	7.75	7.37			7.85	7.18	7.03
Phenols	mg/L	0.001		< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001			<0.001	<0.001	<0.001
Total Phosphorus	mg/L	0.03		**0.16**	**0.09**	**0.04**	0.03	0.03	0.02	**0.06**	0.01			**0.04**	**0.08**	**0.22**
Potassium	mg/L	-		1.6	1.6	1.9	3.4	1.7	1.8	1.5	1.7			1.5	1.8	2
Sodium	mg/L	-		4.6	4.9	5.8	6.1	3.8	4.3	5.6	3.3			3.3	3.9	4
Sulphate	mg/L	-		2	3	< 1	< 1	2	2	1	< 1			2	<1	<1
Dissolved Solids	mg/L	-		150	153	193	208	124	142	193	117			131	150	163
Tot Kjel N	mg/L	-		1.2	1.3	0.9	0.8	0.6	3.9	1.6	1			0.9	1.1	1.7
Ammonia (NH3-N)	mg/L	-		0.04	0.02	0.03	0.04	0.02	3.08	0.7	0.81			0.06	0.32	0.07
Total Suspended Solids	mg/L	-		18	24	18	22	4	13	62	< 3			22	27	143
Turbidity	ntu	-		15.7	30.3	3.7	5.7	11.2	1	6.1	1.4			3.5	2.8	45.9
Hardness (CaCO3)	mg/L	-	Dry	145	147	185	209	119	127	183	118	Dry	Dry	125	142	159
Unionized Ammonia	mg/L	0.02		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	**0.06**	< 0.01	0.02			<0.01	<0.01	<0.01
Aluminum	mg/L	0.075		0.01	0.04	0.04	0.06	0.02	0.02	0.04	0.03			0.06	0.06	**0.26**
Antimony	mg/L	0.02		0.0003	0.0004	0.0003	0.0006	0.0004	0.0003	0.0002	0.0005			0.0002	0.0005	0.0005
Arsenic	mg/L	0.005		0.0006	0.0006	0.0012	0.0006	0.0003	0.0003	0.0009	0.0003			0.0003	0.0005	0.0007
Barium	mg/L	-		0.022	0.023	0.027	0.021	0.012	0.012	0.029	0.011			0.012	0.02	0.033
Beryllium	mg/L	1.1		< 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	0.2		0.006	0.007	0.01	0.009	< 0.005	0.007	0.006	< 0.005			<0.005	0.008	0.012
Cadmium	mg/L	0.0005		0.000021	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015	< 0.000015			<0.000015	<0.000015	0.000078
Chromium (total)	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
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		0.0007	0.0006	0.0002	0.0002	0.0002	< 0.0001	0.0003	0.0001			0.0002	0.0003	0.0007
Copper	mg/L	0.005		0.0006	0.0005	0.0002	0.0002	0.0004	0.0004	0.0006	0.0003			0.0007	0.0005	0.0014
Lead	mg/L	0.005		0.00061	0.00055	0.00008	0.00011	0.00021	0.0001	0.00096	0.00005			0.0003	0.00018	0.00185
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
Molybdenum	mg/L	0.04		0.0002	0.0002	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	< 0.01	< 0.01	< 0.01	< 0.01			0.0007	0.0007	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
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
Strontium	mg/L	-		0.11	0.121	0.171	0.168	0.095	0.098	0.165	0.089			0.101	0.129	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
Vanadium	mg/L	0.006		0.0005	0.0004	0.0001	< 0.0001	0.0002	0.0001	0.0002	0.0001			0.0001	0.0002	0.0006
Zinc	mg/L	0.02		**0.023**	**0.024**	0.012	0.012	< 0.005	< 0.005	0.01	< 0.005			0.013	0.006	**0.022**
Field pH	pH unit	-		7.46	6.96	6.98	8.29	8.48	8.15	7.15	8.15			7.99	7.46	7.96
Field Temp	deg C	-		6.6	10.3	21.7	6.1	6.6	6.5	23.3	11.3			8	19.4	19.4
Field Conductivity	us/cm	-		350	229	334	370	215	233	250	205			232	329	329
Dissolved Oxygen	mg/L	-		11.09	5.01	1.69	5.11	6.5	4.69	3.21	8.3			1.98	1.53	1.53

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW14	SW15	SW15	SW15	SW15	SW15 (10m)	SW15 (10m)	SW15 (10m)	SW15 (10m)	SW15 (10m)	SW15 (10m)	SW15 (10m)	SW15 (10m)	SW15 (10m)
			07-Oct-24	17-Apr-15	29-Apr-16	24-Aug-16	04-Oct-16	24-Apr-18	12-Apr-19	22-Oct-19	27-Apr-20	20-Jul-20	20-Oct-20	20-Apr-21	19-Jul-21	28-Oct-21
Total Alkalinity	mg/L	-	179	288				478	334							
BOD	mg/L	-	17	16				< 3	16							
Calcium	mg/L	-	452	103				144	116							
Chloride	mg/L	-	10.6	21				20.3	16.2							
COD	mg/L	-	7150	153				79	168							
Colour	colour unit	-	67	156				80	63							
Specific Conductivity	umhos/cm	-	406	615				935	751							
DOC	mg/L	-	24.9	28.2				19.9	28.4							
Fluoride	mg/L	-	<0.1	< 0.1				< 0.1	< 0.1							
Cyanide (free)	mg/L	0.005	<0.170	< 0.005				< 0.005	< 0.005							
Iron	mg/L	0.3	**105**	**0.892**				**1.68**	**2.19**							
Magnesium	mg/L	-	18.8	12.9				21.3	17.2							
Manganese	mg/L	-	3.73	0.563				0.945	0.884							
Nitrate	mg/L	-	<0.05	< 0.1				< 0.05	< 0.05							
Nitrite	mg/L	-	<0.05	< 0.1				< 0.05	< 0.05							
pH Lab	pH unit	6.5 - 8.5	7.7	7.92				7.85	7.94							
Phenols	mg/L	0.001	**0.003**	< 0.001				< 0.001	< 0.002							
Total Phosphorus	mg/L	0.03	**8.14**	**0.9**				**0.45**	**0.76**							
Potassium	mg/L	-	8.5	31.8				24.5	28.5							
Sodium	mg/L	-	5.5	23.6				24.1	26							
Sulphate	mg/L	-	<1	1				3	20							
Dissolved Solids	mg/L	-	204	368				539	429							
Tot Kjel N	mg/L	-	16.4	6.3				6.3	6.4							
Ammonia (NH3-N)	mg/L	-	0.72	0.31				4.41	1.3							
Total Suspended Solids	mg/L	-	4240	68				46	395							
Turbidity	ntu	-	6250	9.9				26.1	71.4							
Hardness (CaCO3)	mg/L	-	1210	310	Dry	Dry	Dry	448	330	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Unionized Ammonia	mg/L	0.02	<0.01	0.003813				**0.062362**	< 0.01							
Aluminum	mg/L	0.075	**18.1**	**0.19**				0.07	0.06							
Antimony	mg/L	0.02	0.0012	0.0005				0.0001	0.0002							
Arsenic	mg/L	0.005	**0.0203**	0.0019				0.0013	0.0013							
Barium	mg/L	-	0.773	0.047				0.073	0.076							
Beryllium	mg/L	1.1	0.001	< 0.002				< 0.002	< 0.002							
Boron	mg/L	0.2	**0.216**	0.137				**0.277**	**0.269**							
Cadmium	mg/L	0.0005	**0.00458**	0.00022				0.000072	0.000086							
Chromium (total)	mg/L	0.001	**0.032**	0.0005				< 0.001	0.001							
Chromium (VI)	mg/L	0.001	<0.001													
Cobalt	mg/L	0.0009	**0.0213**	< 0.005				**0.0014**	**0.0017**							
Copper	mg/L	0.005	**0.114**	**0.0066**				**0.0107**	0.0027							
Lead	mg/L	0.005	**0.169**	0.00275				0.00223	0.00216							
Mercury	mg/L	0.0002	**0.00048**	<0.00002				< 0.00002	0.00003							
Molybdenum	mg/L	0.04	0.0054	0.0005				0.0006	0.0014							
Nickel	mg/L	0.025	**0.0365**	< 0.01				< 0.01	< 0.01							
Selenium	mg/L	0.1	0.008	< 0.001				< 0.001	< 0.001							
Silver	mg/L	0.0001	**0.0006**	**0.00022**				< 0.00002	< 0.0001							
Strontium	mg/L	-	1.05	0.34				0.466	0.365							
Thallium	mg/L	0.0003	**0.00077**	0.0001				< 0.00005	< 0.00005							
Vanadium	mg/L	0.006	**0.0536**	0.0006				0.0004	0.0011							
Zinc	mg/L	0.02	**1.6**	**0.038**				**0.029**	**0.033**							
Field pH	pH unit	-	7.42	7.91				8.08	7.3							
Field Temp	deg C	-	15.3	7.5				4.4	2.9							
Field Conductivity	us/cm	-	574	550				865	780							
Dissolved Oxygen	mg/L	-	1.63	4.15				5.56	13.4							

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	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	WP4 (15m) 18-Apr-24	SW15 (10m) 18-Apr-24	SW15 (10m) 11-Jul-24	SW15 (10m) 07-Oct-24	SW15 (15m) 24-Apr-18	SW15 (20m) 02-May-17	SW15 (20m) 24-Apr-18
Total Alkalinity	mg/L	-								290	383			23	355	287
BOD	mg/L	-								<3	6			< 3	10	< 3
Calcium	mg/L	-								104	120			10.9	113	117
Chloride	mg/L	-								2.5	8.9			1.6	23.4	15.5
COD	mg/L	-								50	107			51	91	686
Colour	colour unit	-								76	81			65	116	49
Specific Conductivity	umhos/cm	-								547	738			48	850	568
DOC	mg/L	-								17.4	33			10.9	24.3	18.7
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								**0.436**	**0.593**			0.22	0.299	**3.47**
Magnesium	mg/L	-								9.42	14.3			1.98	17.5	9.42
Manganese	mg/L	-								0.059	0.271			0.085	0.121	0.763
Nitrate	mg/L	-								0.06	0.05			0.05	< 0.1	0.32
Nitrite	mg/L	-								<0.05	<0.05			< 0.05	< 0.1	< 0.05
pH Lab	pH unit	6.5 - 8.5								8.09	7.99			6.95	8.17	7.84
Phenols	mg/L	0.001								<0.001	<0.001			**0.006**	**0.002**	< 0.001
Total Phosphorus	mg/L	0.03								**0.1**	**0.13**			**0.38**	**0.1**	**1.55**
Potassium	mg/L	-								5.7	10.2			2.4	33.4	10.4
Sodium	mg/L	-								4.6	12			1.3	30.4	15.7
Sulphate	mg/L	-								2	<1			< 1	34	2
Dissolved Solids	mg/L	-								302	397			33	464	348
Tot Kjel N	mg/L	-								1.6	2.1			2.2	2.3	19
Ammonia (NH3-N)	mg/L	-								0.41	0.3			0.38	0.04	1.77
Total Suspended Solids	mg/L	-								66	720			24	60	410
Turbidity	ntu	-								19.4	59.4			10.2	20.4	990
Hardness (CaCO3)	mg/L	-	Dry	Dry	Dry	Dry	Dry	Dry	Dry	298	358	Dry	Dry	35	353	331
Unionized Ammonia	mg/L	0.02								<0.01	<0.01			0.004044	--	0.003845
Aluminum	mg/L	0.075								0.06	**0.09**			**0.08**	0.05	**1.48**
Antimony	mg/L	0.02								0.0006	0.0004			< 0.0001	0.0003	0.0002
Arsenic	mg/L	0.005								0.0005	0.001			< 0.0001	0.0015	0.0015
Barium	mg/L	-								0.047	0.048			0.016	0.053	0.064
Beryllium	mg/L	1.1								<0.0001	<0.0001			< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2								0.156	**0.267**			0.02	**0.273**	0.13
Cadmium	mg/L	0.0005								0.000051	0.000034			0.000043	0.000024	0.000216
Chromium (total)	mg/L	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								0.0005	0.0009			0.0002	0.0009	**0.0016**
Copper	mg/L	0.005								0.0038	0.0017			**0.0058**	0.0016	**0.0134**
Lead	mg/L	0.005								0.00089	0.00113			0.00102	0.00021	**0.00907**
Mercury	mg/L	0.0002								<0.00002	<0.00002			< 0.00002	0.00003	0.00012
Molybdenum	mg/L	0.04								0.0009	0.0004			0.0001	0.0017	0.0004
Nickel	mg/L	0.025								0.0018	0.0027			< 0.01	< 0.01	< 0.01
Selenium	mg/L	0.1								<0.001	<0.001			< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001								<0.0001	<0.0001			< 0.00002	< 0.00002	0.00003
Strontium	mg/L	-								0.32	0.398			0.046	0.389	0.317
Thallium	mg/L	0.0003								<0.00005	<0.00005			< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.006								0.0007	0.0005			0.0002	0.0004	0.0026
Zinc	mg/L	0.02								**0.021**	0.013			**0.04**	**0.042**	**0.061**
Field pH	pH unit	-								7.96	7.84			8.03	--	7.24
Field Temp	deg C	-								7.7	8.1			2.3	--	5
Field Conductivity	us/cm	-								620	703			48.1	--	684.6
Dissolved Oxygen	mg/L	-								6.21	8.54			3.87	--	0.71

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW15 (20m) 24-Apr-19	SW15 (30m) 17-Apr-15	SW15 (30m) 26-Apr-16	SW15 (30m) 02-May-17	SW15 (30m) 21-Jun-17	SW15 (30m) 24-Apr-18	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
Total Alkalinity	mg/L	-	295	472	373	331	392	346	308	250						
BOD	mg/L	-	16	6	12	4	32	< 3	10	< 3						
Calcium	mg/L	-	97.7	158	114	93.4	114	122	95.3	75.8						
Chloride	mg/L	-	10.7	72.2	39.3	22.1	16.6	16.3	11.1	10						
COD	mg/L	-	221	99	248	107	147	223	111	164						
Colour	colour unit	-	85	74	110	120	185	70	97	67						
Specific Conductivity	umhos/cm	-	645	1110	842	774	797	706	626	505						
DOC	mg/L	-	22.3	25	36.2	21.4	50.4	22.9	28	26						
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	**1.3**	**0.331**	**0.522**	0.135	**4.41**	**1.42**	**0.326**	**1.03**						
Magnesium	mg/L	-	14.1	18.8	15.8	14	12.4	13.8	12.3	9.1						
Manganese	mg/L	-	0.387	0.578	0.444	0.031	0.331	0.678	0.875	0.326						
Nitrate	mg/L	-	0.23	0.1	0.2	< 0.1	0.07	0.08	< 0.05	< 0.05						
Nitrite	mg/L	-	< 0.05	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05						
pH Lab	pH unit	6.5 - 8.5	8.12	8.03	7.85	8.24	7.84	7.77	7.88	8.01						
Phenols	mg/L	0.001	< 0.002	< 0.001	**0.014**	**0.002**	**0.011**	**0.013**	< 0.002	< 0.002						
Total Phosphorus	mg/L	0.03	**0.66**	**0.3**	**0.4**	**0.1**	**0.8**	**1.07**	**0.5**	**0.49**						
Potassium	mg/L	-	22.6	46.8	37.8	32.4	27.1	17.7	22.5	20.1						
Sodium	mg/L	-	15.2	54.2	34.1	29.6	30.5	23.8	18.4	16.8						
Sulphate	mg/L	-	13	27	17	23	2	2	9	9						
Dissolved Solids	mg/L	-	350	663	483	414	443	403	356	287						
Tot Kjel N	mg/L	-	5.4	2.8	10.8	1.5	8.6	13.2	3.8	3.5						
Ammonia (NH3-N)	mg/L	-	0.59	0.46	0.15	0.03	0.07	0.7	1.15	0.06						
Total Suspended Solids	mg/L	-	340	42	480	30	340	980	150	110						
Turbidity	ntu	-	42.3	10.8	142	3.9	110	346	36.7	111						
Hardness (CaCO3)	mg/L	-	302	472	350	320	371	362	283	227	Dry	Dry	Dry	Dry	Dry	Dry
Unionized Ammonia	mg/L	0.02	< 0.01	0.003136	0.004983	--	0.0004	0.011995	< 0.01	< 0.01						
Aluminum	mg/L	0.075	0.06	**0.09**	**0.12**	0.05	0.06	**0.08**	0.06	0.06						
Antimony	mg/L	0.02	0.0003	0.0004	0.0002	0.0003	0.0004	0.0001	0.0002	0.0002						
Arsenic	mg/L	0.005	0.0013	0.0011	0.0011	0.0012	0.0027	0.0007	0.001	0.0012						
Barium	mg/L	-	0.048	0.057	0.053	0.035	0.074	0.067	0.056	0.039						
Beryllium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002						
Boron	mg/L	0.2	**0.259**	0.141	0.166	0.195	0.102	**0.224**	0.144	0.104						
Cadmium	mg/L	0.0005	0.000126	0.00027	0.0001	< 0.000014	0.000138	0.000339	0.000046	0.000103						
Chromium (total)	mg/L	0.001	< 0.001	0.0006	0.0004	< 0.001	< 0.001	0.001	< 0.001	< 0.001						
Chromium (VI)	mg/L	0.001														
Cobalt	mg/L	0.0009	**0.001**	< 0.005	< 0.005	0.0005	**0.0013**	0.0007	0.0009	0.0009						
Copper	mg/L	0.005	0.0034	**0.006**	0.0034	0.001	0.0045	**0.0083**	0.0017	0.0025						
Lead	mg/L	0.005	0.0031	0.00193	0.00127	0.00004	0.00296	**0.0106**	0.00112	0.00317						
Mercury	mg/L	0.0002	0.00002	<0.00002	< 0.00002	0.00003	< 0.00002	0.00006	0.00003	0.00003						
Molybdenum	mg/L	0.04	0.0014	0.0002	0.0006	0.0015	0.0009	0.0003	0.0006	0.0006						
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	< 0.0001	**0.00013**	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.0001	< 0.0001						
Strontium	mg/L	-	0.329	0.466	0.381	0.303	0.351	0.369	0.248	0.207						
Thallium	mg/L	0.0003	< 0.00005	0.00016	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005						
Vanadium	mg/L	0.006	0.0012	0.0004	0.0004	0.0003	0.002	0.0012	0.0003	0.0018						
Zinc	mg/L	0.02	**0.041**	**0.021**	**0.028**	< 0.005	**0.065**	**0.07**	0.017	**0.053**						
Field pH	pH unit	-	7.57	7.7	8.47	--	7.22	8.14	7.33	7.58						
Field Temp	deg C	-	4.5	6.1	4.1	--	18.1	5.1	1.8	4						
Field Conductivity	us/cm	-	558	1230	620	--	643	637	630	446						
Dissolved Oxygen	mg/L	-	10.3	3.89	4.33	--	1.9	5.45	9.62	9.9						

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	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	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	SW16 16-Apr-15	SW16 29-Apr-16	SW16 18-Apr-17
Total Alkalinity	mg/L	-		304							389	179		210	210	192
BOD	mg/L	-		13							5	4		< 2	< 3	< 3
Calcium	mg/L	-		98.5							125	57.4		87.5	82.9	66.9
Chloride	mg/L	-		6.4							12.9	2.1		8.4	7.3	6.2
COD	mg/L	-		94							92	113		18	19	26
Colour	colour unit	-		127							102	154		33	30	39
Specific Conductivity	umhos/cm	-		625							753	356		432	431	387
DOC	mg/L	-		34.1							34.4	28.2		11.2	8.2	10.6
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		**0.394**							0.12	0.093		0.033	0.019	0.026
Magnesium	mg/L	-		13.9							14.5	5.96		4.76	4.66	3.65
Manganese	mg/L	-		0.288							0.171	0.021		0.01	0.005	0.005
Nitrate	mg/L	-		0.07							<0.05	<0.05		0.1	0.1	0.1
Nitrite	mg/L	-		< 0.05							<0.05	<0.05		< 0.1	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5		8.08							8.05	7.52		8.29	8.13	8.16
Phenols	mg/L	0.001		< 0.001							<0.001	<0.001		< 0.001	**0.006**	**0.006**
Total Phosphorus	mg/L	0.03		**0.7**							**0.14**	**0.19**		< 0.1	< 0.1	< 0.1
Potassium	mg/L	-		18.8							11.9	12.5		1.4	0.7	0.7
Sodium	mg/L	-		11.6							16.4	6.3		4.8	4.8	3.3
Sulphate	mg/L	-		< 1							<1	1		6	5	5
Dissolved Solids	mg/L	-		333							416	193		240	232	201
Tot Kjel N	mg/L	-		3.2							2.2	2		0.8	0.5	0.6
Ammonia (NH3-N)	mg/L	-		0.09							0.26	0.09		< 0.01	0.04	0.02
Total Suspended Solids	mg/L	-		188							165	124		< 3	< 3	< 3
Turbidity	ntu	-		28.4							11.3	42		0.3	0.3	0.7
Hardness (CaCO3)	mg/L	-	Dry	303	Dry	Dry	Dry	Dry	Dry	Dry	373	168	Dry	238	226	219
Unionized Ammonia	mg/L	0.02		< 0.01							<0.01	<0.01		<0.0002	0.00173	0.00006
Aluminum	mg/L	0.075		0.03							**0.09**	0.06		0.03	0.03	0.05
Antimony	mg/L	0.02		0.0004							0.0004	0.0004		0.0004	< 0.0001	< 0.0001
Arsenic	mg/L	0.005		0.0011							0.0009	0.0009		0.0001	0.0002	0.0002
Barium	mg/L	-		0.037							0.041	0.027		0.026	0.022	0.021
Beryllium	mg/L	1.1		< 0.002							<0.0001	<0.0001		< 0.002	< 0.002	< 0.002
Boron	mg/L	0.2		0.136							**0.245**	0.138		0.01	< 0.005	0.01
Cadmium	mg/L	0.0005		< 0.000015							<0.000015	0.000016		< 0.00002	< 0.00002	< 0.000014
Chromium (total)	mg/L	0.001		< 0.001							<0.001	<0.001		< 0.0002	< 0.0002	< 0.001
Chromium (VI)	mg/L	0.001		< 0.001							<0.001	<0.001				
Cobalt	mg/L	0.0009		0.0005							0.0007	0.0003		< 0.005	< 0.005	< 0.0001
Copper	mg/L	0.005		0.0008							0.0008	0.0018		0.0006	0.0006	0.0012
Lead	mg/L	0.005		0.00018							0.00021	0.00022		< 0.00002	< 0.00002	< 0.00002
Mercury	mg/L	0.0002		< 0.00002							<0.00002	<0.00002		<0.00002	< 0.00002	--
Molybdenum	mg/L	0.04		0.0009							0.0004	0.0006		< 0.0001	0.0001	0.0001
Nickel	mg/L	0.025		< 0.01							0.002	0.0007		< 0.01	< 0.01	< 0.01
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		< 0.00002	< 0.00002	< 0.00002
Strontium	mg/L	-		0.308							0.42	0.162		0.231	0.218	0.159
Thallium	mg/L	0.0003		< 0.00005							<0.00005	<0.00005		< 0.00005	< 0.00005	< 0.00005
Vanadium	mg/L	0.006		0.0004							0.0001	0.0005		0.0004	0.0003	0.0003
Zinc	mg/L	0.02		0.006							0.006	0.009		< 0.005	< 0.005	< 0.005
Field pH	pH unit	-		7.78							8.01	7.37		7.93	8.47	7.32
Field Temp	deg C	-		6.7							7.2	19.8		15.3	7.5	7.2
Field Conductivity	us/cm	-		515							704	384		480	355	318
Dissolved Oxygen	mg/L	-		7.18							5.56	4.97		10.18	11.2	13.12

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	SW16 24-Oct-17	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
Total Alkalinity	mg/L	-	275	162	163	Dry	182	Dry	Dry	234	Dry	272	223	339	Dry	221
BOD	mg/L	-	< 3	< 3	< 3		< 3			< 3		< 3	< 3	< 3		< 3
Calcium	mg/L	-	102	63.3	70.4		83.5			99.3		130	86.1	120		89.1
Chloride	mg/L	-	10.9	5.5	7.2		12.2			12.8		18.1	18.1	14.3		13
COD	mg/L	-	45	17	18		20			21		9	14	< 5		15
Colour	colour unit	-	43	22	26		31			32		16	27	24		36
Specific Conductivity	umhos/cm	-	571	343	364		408			519		658	497	678		500
DOC	mg/L	-	15.1	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		< 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	0.046	0.05	0.04		0.031			0.061		0.043	0.058	0.17		0.043
Magnesium	mg/L	-	6.16	3.52	3.81		4.58			6.21		8.57	5.74	11.2		5.36
Manganese	mg/L	-	0.013	0.011	0.004		0.015			0.015		0.017	0.007	0.24		0.011
Nitrate	mg/L	-	0.15	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		< 0.05
pH Lab	pH unit	6.5 - 8.5	8.08	8.21	8.08		8.05			8.17		7.88	8.09	8.08		8.11
Phenols	mg/L	0.001	**0.006**	< 0.001	< 0.002		< 0.002			< 0.002		< 0.001	< 0.001	< 0.001		< 0.001
Total Phosphorus	mg/L	0.03	< 0.1	0.01	0.02		0.01			**0.05**		0.02	0.02	**0.06**		0.01
Potassium	mg/L	-	2.9	1.4	1.2		1			1.4		1.3	1.9	0.6		1.5
Sodium	mg/L	-	5.5	3.4	3.9		5			5.7		5.7	5.6	19.7		5
Sulphate	mg/L	-	6	3	5		6			10		18	8	18		9
Dissolved Solids	mg/L	-	298	185	190		222			278		345	260	390		255
Tot Kjel N	mg/L	-	0.8	0.3	0.5		0.5			0.6		0.7	0.7	0.9		2
Ammonia (NH3-N)	mg/L	-	0.04	0.04	0.04		0.01			0.02		0.04	0.12	0.22		1.8
Total Suspended Solids	mg/L	-	< 3	3	< 3		< 3			< 3		< 3	< 3	14		< 3
Turbidity	ntu	-	1	0.6	0.7		0.8			1.2		0.6	0.9	3.9		0.6
Hardness (CaCO3)	mg/L	-	305	173	195		224			274		369	239	346		255
Unionized Ammonia	mg/L	0.02	0.000298	0.002657	< 0.01		< 0.01			< 0.01		< 0.01	< 0.01	< 0.01		**0.03**
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	0.2		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	0.001		< 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		< 0.0001	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	-	7.52	8.5	7.27		7.87			7.23		7.83	8.14	7.58		7.75
Field Temp	deg C	-	12.5	12.4	5.9		6			6.2		8.7	7.9	21.1		11.2
Field Conductivity	us/cm	-	318	355	500		430			610		600	415	525		400
Dissolved Oxygen	mg/L	-	4.45	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 30-Aug-23	SW16 12-Oct-23	SW16 18-Apr-24	SW16 11-Jul-24	SW16 07-Oct-24	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	SW17 20-Oct-20	SW17 20-Apr-21
Total Alkalinity	mg/L	-	Dry	291	226	151	Dry	166	177	95	88					
BOD	mg/L	-		<3	<3	<3		< 3	4	< 3	< 3					
Calcium	mg/L	-		112	87.1	55.2		79	66.1	40.3	38.1					
Chloride	mg/L	-		23.8	11.7	7.1		7.1	9.6	4	5.3					
COD	mg/L	-		16	21	34		155	65	46	42					
Colour	colour unit	-		19	32	65		145	88	135	132					
Specific Conductivity	umhos/cm	-		675	463	306		349	382	192	201					
DOC	mg/L	-		8.9	9.2	10.6		24	21.4	9.8	19.4					
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		< 0.005	< 0.005	< 0.005	< 0.005					
Iron	mg/L	0.3		0.064	0.044	0.2		**3.86**	0.139	**0.388**	0.298					
Magnesium	mg/L	-		8.08	4.55	3.08		5.35	4.88	3.22	2.27					
Manganese	mg/L	-		0.021	0.005	0.029		2.05	0.052	0.077	0.146					
Nitrate	mg/L	-		2.19	0.34	0.08		< 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					
pH Lab	pH unit	6.5 - 8.5		8.08	8.25	7.22		8.26	8.04	7.88	7.77					
Phenols	mg/L	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**		**0.3**	< 0.1	**0.06**	**0.04**					
Potassium	mg/L	-		2.8	1.1	3.2		2	3.2	1.4	2					
Sodium	mg/L	-		13.4	4.3	3		6	6.6	3.4	3.7					
Sulphate	mg/L	-		33	7	3		2	1	2	1					
Dissolved Solids	mg/L	-		377	253	166		191	198	109	106					
Tot Kjel N	mg/L	-		0.5	0.5	0.8		1.1	0.8	0.7	0.7					
Ammonia (NH3-N)	mg/L	-		0.06	<0.05	0.1		0.07	0.03	0.03	0.09					
Total Suspended Solids	mg/L	-		8	<3	7		10	12	10	7					
Turbidity	ntu	-		1.4	0.8	2.2		3.8	2.6	4.5	1.4					
Hardness (CaCO3)	mg/L	-		312	236	151		219	188	114	99	Dry	Dry	Dry	Dry	Dry
Unionized Ammonia	mg/L	0.02		<0.01	<0.01	<0.01		0.00122	0.00009	0.002859	< 0.01					
Aluminum	mg/L	0.075		**0.09**	0.06	0.07		0.05	0.04	0.04	0.04					
Antimony	mg/L	0.02		<0.0001	0.0001	0.0005		0.0002	0.0001	0.0003	0.0002					
Arsenic	mg/L	0.005		0.0002	0.0002	0.0003		0.0033	0.0007	0.0004	0.0005					
Barium	mg/L	-		0.043	0.029	0.024		0.06	0.037	0.024	0.015					
Beryllium	mg/L	1.1		<0.0001	<0.0001	<0.0001		< 0.002	< 0.002	< 0.002	< 0.002					
Boron	mg/L	0.2		0.014	0.005	0.025		0.013	0.012	< 0.005	< 0.005					
Cadmium	mg/L	0.0005		<0.000015	<0.000015	0.000019		0.000165	< 0.000014	< 0.000014	< 0.000015					
Chromium (total)	mg/L	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										
Cobalt	mg/L	0.0009		0.0003	0.0002	0.0003		**0.0035**	< 0.0001	0.0002	0.0002					
Copper	mg/L	0.005		0.0014	0.001	0.002		**0.0119**	0.0005	0.0008	0.0013					
Lead	mg/L	0.005		0.00008	0.00003	0.00008		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					
Molybdenum	mg/L	0.04		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		< 0.01	< 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					
Silver	mg/L	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		0.207	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					
Vanadium	mg/L	0.006		0.0005	0.0002	0.0007		0.0025	0.0003	0.0005	0.0004					
Zinc	mg/L	0.02		0.006	0.006	<0.005		**0.034**	**0.021**	**0.021**	0.011					
Field pH	pH unit	-		8.1	8.55	7.49		7.7	7.12	8.9						
Field Temp	deg C	-		9.6	8.3	19.9		18.4	13.5	5.7						
Field Conductivity	us/cm	-		673	471	337		770	345	205						
Dissolved Oxygen	mg/L	-		3.35	4.06	1.56		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 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 (DUP) 18-Apr-24	SW17 11-Jul-24	SW17 07-Oct-24	WP2 (10m) 24-Apr-19	WP2 (10m) 11-May-20
Total Alkalinity	mg/L	-	188							209	125	123	129	204	211	161
BOD	mg/L	-	< 6							<3	<3		<3	<3	< 3	< 3
Calcium	mg/L	-	74.8							75.2	42.8	44	59.8	78	74.5	67.6
Chloride	mg/L	-	12.9							15	5.2	5.1	24.8	12.4	12	10.9
COD	mg/L	-	58							71	48	48	56	227	53	45
Colour	colour unit	-	110							89	109		72	85	54	71
Specific Conductivity	umhos/cm	-	383							433	254	253	327	414	459	363
DOC	mg/L	-	24.1							25.8	15.5	18.2	15.4	22.3	19.3	17.3
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
Iron	mg/L	0.3	**0.549**							**0.552**	0.099	0.094	**1.4**	**1.89**	**1.84**	0.251
Magnesium	mg/L	-	4.29							4.58	2.64	2.7	2.98	5.09	4.96	3.79
Manganese	mg/L	-	0.54							0.12	0.011	0.007	0.054	0.201	0.17	0.034
Nitrate	mg/L	-	0.07							<0.05	<0.05	<0.05	<0.05	0.09	< 0.05	0.32
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	8.04							7.91	7.73	7.79	7.09	7.94	7.66	7.61
Phenols	mg/L	0.001	< 0.002							<0.001	<0.001	<0.001	<0.001	<0.001	< 0.002	< 0.002
Total Phosphorus	mg/L	0.03	**0.05**							<0.1	0.03	**0.05**	**0.19**	**0.36**	**0.11**	**0.08**
Potassium	mg/L	-	2							5.5	1.3	1.4	5.1	5.2	4.3	2
Sodium	mg/L	-	5.6							5	3	3.1	4.2	4.6	10.2	7.3
Sulphate	mg/L	-	< 1							1	2	2	2	<1	< 1	3
Dissolved Solids	mg/L	-	213							233	132	132	178	230	236	192
Tot Kjel N	mg/L	-	0.9							1.3	0.7	2.1	1	4.3	1.6	1.4
Ammonia (NH3-N)	mg/L	-	0.05							0.34	0.09	1.63	0.07	0.12	0.55	0.07
Total Suspended Solids	mg/L	-	47							15	<3		65	34	8	68
Turbidity	ntu	-	22.7							11.2	1.9		64.3	14.4	4.4	10.5
Hardness (CaCO3)	mg/L	-	205	Dry	Dry	Dry	Dry	Dry	Dry	207	118	121	162	216	220	185
Unionized Ammonia	mg/L	0.02	< 0.01							<0.01	<0.01		<0.01	<0.01	< 0.01	< 0.01
Aluminum	mg/L	0.075	0.05							0.06	0.04	0.04	**0.96**	**0.95**	0.04	0.05
Antimony	mg/L	0.02	0.0004							0.0001	<0.0001	<0.0001	0.0006	0.0004	< 0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0016							0.0007	0.0003	0.0003	0.0007	0.0008	0.001	0.0005
Barium	mg/L	-	0.033							0.026	0.011	0.011	0.03	0.033	0.028	0.021
Beryllium	mg/L	1.1	< 0.002							<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.002	< 0.002
Boron	mg/L	0.2	0.011							0.008	<0.005	<0.005	0.02	0.008	0.051	< 0.005
Cadmium	mg/L	0.0005	< 0.000015							<0.000015	<0.000015	<0.000015	0.000019	0.000053	< 0.000015	< 0.000015
Chromium (total)	mg/L	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		
Cobalt	mg/L	0.0009	0.0008							0.0004	0.0001	0.0001	0.0008	0.0009	0.0007	0.0001
Copper	mg/L	0.005	0.001							0.0012	0.0006	0.0007	0.0025	0.0042	0.0011	0.0008
Lead	mg/L	0.005	0.00031							0.00034	0.00009	0.00008	0.00134	0.00232	0.00018	0.00028
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	0.0005							0.0001	<0.0001	<0.0001	0.0002	0.0001	0.0003	0.0002
Nickel	mg/L	0.025	< 0.01							0.0012	0.0007	0.0011	0.001	0.0016	< 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	<0.0001	<0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.196							0.171	0.094	0.096	0.216	0.181	0.183	0.136
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	0.0006							0.0004	0.0001	0.0001	0.0011	0.0023	0.0003	0.0003
Zinc	mg/L	0.02	0.019							0.006	0.008	0.009	0.011	**0.021**	0.016	0.012
Field pH	pH unit	-	6.98							7.39	8.03	8.03	7.49	7.84	8.01	7.23
Field Temp	deg C	-	21.8							7.9	7.4	7.4	10.4	17.1	2.3	5.5
Field Conductivity	us/cm	-	365							403	240	240	331	424	468	356
Dissolved Oxygen	mg/L	-	2.19							2.74	1.58	1.58	0.48	2.99	4.5	1.23

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	WP2 (10m) 28-Apr-22	WP2 (10m) 18-Apr-24	WP2 (15m) 21-May-15	WP2 (15m) 02-May-17	WP2 (15m) 21-Jun-17	WP2 (15m) 24-Apr-18	WP2 (15m) 26-Apr-21	WP2 (30m) 21-May-15	WP2 (30m) 02-May-17	WP2 (30m) 21-Jun-17	WP2 (30m) 24-Apr-18	WP2 (30m) 24-Apr-19	WP2 (30m) 11-May-20	WP2 (30m) 26-Apr-21
Total Alkalinity	mg/L	-	177	127	186	127	173	145	169	158	120	165	93	84	110	134
BOD	mg/L	-	< 3	<3	47	< 3	< 3	< 3	14	< 3	< 3	4	< 3	< 3	< 3	7
Calcium	mg/L	-	62.8	46.4	77	47.9	68.7	52.5	69.6	62.4	44.9	60.9	37.7	34.3	45.4	61.4
Chloride	mg/L	-	9.5	5.5	8.1	7	7.8	7.8	9	7	6.7	6.8	4	4.2	8.1	7.9
COD	mg/L	-	59	56	390	42	59	57	183	76	48	119	34	55	46	238
Colour	colour unit	-	82	116	90	102	115	66	73	92	100	115	90	101	73	81
Specific Conductivity	umhos/cm	-	361	259	390	275	367	293	349	331	260	344	190	191	261	281
DOC	mg/L	-	19.8	19	18.4	15.5	21	12	23.3	21.4	15.1	21.4	12	18.2	17.5	20.4
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	< 0.1	< 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	**1.64**	0.249	**1.43**	0.055	**0.45**	**1.07**	**4.41**	**0.45**	0.022	0.184	0.107	0.193	0.036	**1.8**
Magnesium	mg/L	-	4.05	2.95	4.86	2.95	4.53	4.14	4.47	3.97	2.82	4.07	3.32	2.08	2.67	3.62
Manganese	mg/L	-	0.525	0.08	0.182	0.005	0.07	0.115	0.492	0.082	0.004	0.103	0.031	0.03	0.015	1.27
Nitrate	mg/L	-	< 0.05	<0.05	< 0.1	< 0.1	< 0.05	0.13	0.08	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	0.1	< 0.05
Nitrite	mg/L	-	< 0.05	<0.05	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
pH Lab	pH unit	6.5 - 8.5	7.88	7.36	7.6	7.9	7.73	7.7	7.97	7.73	7.96	7.7	7.67	7.34	7.63	7.89
Phenols	mg/L	0.001	< 0.001	<0.001	< 0.001	**0.002**	**0.011**	< 0.001	< 0.002	< 0.001	**0.003**	**0.004**	< 0.001	< 0.002	< 0.002	< 0.002
Total Phosphorus	mg/L	0.03	**0.07**	**0.04**	**0.5**	< 0.1	< 0.1	**0.19**	**0.52**	**0.2**	< 0.1	< 0.1	0.03	**0.08**	**0.11**	**0.47**
Potassium	mg/L	-	2.7	1.6	2.5	1.4	1.7	2.6	2.2	1.1	1.2	1.4	1.5	1.9	0.8	1.7
Sodium	mg/L	-	7	3.8	7.6	4.1	6.6	6	6.4	5.7	3.8	5.4	3.7	2.9	4.3	5.1
Sulphate	mg/L	-	2	2	< 1	3	< 1	2	2	< 1	3	< 1	1	< 1	3	2
Dissolved Solids	mg/L	-	197	139	214	143	194	163	200	176	135	178	107	97	133	165
Tot Kjel N	mg/L	-	1.2	0.8	2.6	0.6	0.8	2.1	2.3	3.5	0.6	1.2	0.5	0.9	1.5	6.4
Ammonia (NH3-N)	mg/L	-	0.8	0.06	0.07	< 0.01	0.03	0.31	0.06	0.06	< 0.01	0.01	0.02	0.07	0.03	0.04
Total Suspended Solids	mg/L	-	52	10	410	< 3	12	4	260	82	3	70	12	9	85	190
Turbidity	ntu	-	10.8	1.6	73.8	0.6	5.2	35.4	193	10.8	0.7	32.4	2.7	6.8	6.2	156
Hardness (CaCO3)	mg/L	-	174	128	212	140	197	148	187	172	131	188	108	94	124	153
Unionized Ammonia	mg/L	0.02	0.01	<0.01	0.000332	--	0.000135	0.00154	< 0.01	0.000109	--	0.00004	0.00008	< 0.01	< 0.01	< 0.01
Aluminum	mg/L	0.075	0.02	0.04	**0.25**	0.02	0.06	**0.09**	0.06	**0.08**	0.02	0.06	0.05	0.05	0.03	0.04
Antimony	mg/L	0.02	0.0003	0.0001	0.0002	< 0.0001	0.0001	< 0.0001	0.0003	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0005
Arsenic	mg/L	0.005	0.0006	0.0003	0.0008	0.0005	0.001	0.0007	0.0012	0.0004	0.0005	0.001	0.0004	0.0006	0.0004	0.0011
Barium	mg/L	-	0.027	0.014	0.034	0.014	0.033	0.028	0.04	0.026	0.013	0.027	0.021	0.011	0.013	0.039
Beryllium	mg/L	1.1	< 0.002	<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	0.2	0.019	0.007	< 0.005	< 0.005	0.015	0.013	0.015	< 0.005	< 0.005	0.008	< 0.005	0.012	< 0.005	0.011
Cadmium	mg/L	0.0005	< 0.000015	<0.000015	0.00014	< 0.000014	0.000046	0.000041	0.000045	0.00005	< 0.000014	< 0.000014	0.000044	0.00002	< 0.000015	0.000196
Chromium (total)	mg/L	0.001	< 0.001	<0.001	0.0006	< 0.001	< 0.001	< 0.001	**0.002**	**0.0011**	< 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	**0.0012**	0.0003	< 0.005	< 0.0001	0.0002	0.0003	**0.0015**	< 0.005	< 0.0001	0.0001	0.0004	0.0002	< 0.0001	**0.0015**
Copper	mg/L	0.005	0.0011	0.0032	**0.0063**	0.0003	0.0028	**0.0062**	0.0027	0.0015	0.0002	0.0003	**0.0082**	0.001	0.0006	0.0035
Lead	mg/L	0.005	0.00049	0.00047	0.0036	0.00003	0.00133	0.00121	0.00193	0.00099	0.00003	0.00012	0.00099	0.00045	0.00022	**0.00835**
Mercury	mg/L	0.0002	< 0.00002	<0.00002	0.00003	0.00005	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003
Molybdenum	mg/L	0.04	< 0.0001	<0.0001	< 0.0001	0.0002	0.0002	0.0002	0.0002	< 0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0004
Nickel	mg/L	0.025	< 0.01	0.0006	< 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	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001
Strontium	mg/L	-	0.132	0.103	0.174	0.106	0.176	0.136	0.148	0.143	0.1	0.154	0.102	0.071	0.092	0.135
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	0.0007	0.0002	0.0006	< 0.0001	0.0004	0.0004	0.0027	0.0001	< 0.0001	0.0002	0.0002	0.0002	< 0.0001	0.0012
Zinc	mg/L	0.02	0.006	<0.005	**0.053**	< 0.005	**0.029**	**0.024**	**0.04**	0.015	< 0.005	**0.025**	**0.021**	0.012	0.006	**0.058**
Field pH	pH unit	-	8.23	8	7.38	--	7.18	7.74	6.89	6.96	--	7.23	7.73	8.13	7.27	7.14
Field Temp	deg C	-	3.3	7.2	10.8	--	16.1	1.1	3.4	10.8	--	16	-0.2	1.5	5.2	3.3
Field Conductivity	us/cm	-	317	287	274.8	--	296	377.2	319	235.2	--	279	230.2	175	218	250
Dissolved Oxygen	mg/L	-	4.55	5.58	1.5	--	1.47	2.61	7.4	1.24	--	1.83	5.95	3.36	6.61	7.1

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	WP2 (30m) 28-Apr-22	WP2 (30m) 18-Apr-24	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 (15m) 21-May-15	WP3 (15m) 21-Jun-17	WP3 (15m) 24-Apr-18	WP3 (15m) 27-Apr-20	WP3 (15m) 26-Apr-21	WP3 (20m) 21-Jun-17	WP3 (25m) 21-May-15
Total Alkalinity	mg/L	-	123	117	161	183	188	378	120	165	155	117	180	297	153	141
BOD	mg/L	-	< 3	<3	< 3	< 3	< 3	13	<3	30	< 3	< 3	< 3	5	< 3	3
Calcium	mg/L	-	42.9	45.2	58.9	72.3	66.5	118	46.2	68.5	58.6	47.4	81.4	110	56.6	55.4
Chloride	mg/L	-	6.7	5.1	8.4	10.5	10.3	23.8	5.7	8.7	5.5	5.6	14.2	23.9	6.8	9.1
COD	mg/L	-	39	48	40	52	40	71	39	890	79	37	36	99	79	51
Colour	colour unit	-	84	95	97	60	67	76	85	88	145	75	60	59	155	230
Specific Conductivity	umhos/cm	-	255	243	350	410	381	794	254	353	320	236	424	633	324	309
DOC	mg/L	-	18.8	19.4	11.8	5.2	18.3	29.8	17.7	23.1	23	11.5	14.8	20	28.6	24
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	0.029	0.034	**0.519**	**0.708**	0.072	**0.72**	0.05	**1.01**	0.132	0.274	0.07	**0.69**	0.141	**0.745**
Magnesium	mg/L	-	2.91	2.95	3.72	4.77	4.41	10.3	2.97	4.51	3.94	4.08	4.82	7.93	3.42	3.76
Manganese	mg/L	-	0.009	0.003	0.017	0.054	0.004	0.137	0.004	0.055	0.012	0.047	0.015	0.099	0.011	0.067
Nitrate	mg/L	-	< 0.05	<0.05	0.2	0.08	0.2	1.22	<0.05	< 0.1	< 0.05	< 0.05	0.28	0.66	< 0.05	< 0.1
Nitrite	mg/L	-	< 0.05	<0.05	< 0.1	< 0.05	< 0.05	<0.05	<0.05	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1
pH Lab	pH unit	6.5 - 8.5	7.78	7.28	8.06	7.97	8	8.04	7.39	7.78	7.87	7.76	7.9	8.14	7.78	7.72
Phenols	mg/L	0.001	< 0.001	<0.001	**0.005**	< 0.002	< 0.001	<0.001	<0.001	< 0.001	**0.006**	< 0.001	< 0.002	< 0.002	**0.006**	< 0.001
Total Phosphorus	mg/L	0.03	< 0.01	0.02	< 0.1	**0.1**	0.01	**0.09**	0.02	**0.4**	< 0.1	**0.04**	0.02	**0.12**	< 0.1	**0.1**
Potassium	mg/L	-	1.5	1.6	2.3	5	3.3	13.7	1.6	2.7	0.9	2.3	3.8	8.1	0.7	1.8
Sodium	mg/L	-	4.2	3.8	6.6	9.7	8.6	26.6	4	7.3	5.1	5.6	11.2	22.4	4.6	5.5
Sulphate	mg/L	-	1	2	5	1	1	4	2	< 1	< 1	1	8	4	< 1	< 1
Dissolved Solids	mg/L	-	134	131	183	211	208	430	134	192	167	137	231	355	164	161
Tot Kjel N	mg/L	-	3	0.6	0.7	2.1	0.6	4.1	0.6	3.1	0.8	0.8	0.6	2.1	1	1.8
Ammonia (NH3-N)	mg/L	-	1.99	<0.05	0.1	1.12	0.15	2.54	<0.05	0.07	< 0.01	0.36	0.03	0.07	0.02	0.07
Total Suspended Solids	mg/L	-	< 3	14	8	< 3	3	68	<3	200	< 3	3	7	110	< 3	32
Turbidity	ntu	-	1.4	2.6	15.6	2	1.3	34.5	1.4	68.9	0.9	1.7	6.1	67.2	0.5	3.5
Hardness (CaCO3)	mg/L	-	119	125	169	200	184	338	128	190	178	135	223	308	181	154
Unionized Ammonia	mg/L	0.02	**0.04**	<0.01	--	< 0.01	< 0.01	**0.06**	<0.01	0.00037	--	0.001211	< 0.01	< 0.01	0.000182	0.000251
Aluminum	mg/L	0.075	0.02	0.03	0.05	0.05	0.02	**0.09**	0.03	**0.15**	0.04	0.05	0.05	0.07	0.05	0.05
Antimony	mg/L	0.02	0.0001	0.0003	< 0.0001	0.0001	0.0003	0.0004	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001
Arsenic	mg/L	0.005	0.0003	0.0002	0.0006	0.0007	0.0003	0.0005	0.0002	0.0005	0.0011	0.0005	0.0004	0.0006	0.0015	0.0005
Barium	mg/L	-	0.011	0.012	0.026	0.027	0.019	0.042	0.013	0.033	0.026	0.026	0.025	0.039	0.02	0.027
Beryllium	mg/L	1.1	< 0.002	<0.0001	< 0.002	< 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	0.2	0.006	<0.005	0.026	0.053	0.026	**0.204**	0.006	< 0.005	0.009	0.012	0.067	0.104	0.006	< 0.005
Cadmium	mg/L	0.0005	< 0.000015	<0.000015	< 0.000014	< 0.000015	< 0.000015	<0.000015	<0.000015	0.00002	< 0.000014	< 0.000015	< 0.000015	0.000036	< 0.000014	0.00003
Chromium (total)	mg/L	0.001	< 0.001	<0.001	0.001	< 0.001	< 0.001	<0.001	<0.001	0.0003	< 0.001	< 0.001	0.001	0.001	< 0.001	0.0002
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	0.0002	0.0005	0.0002	0.0009	0.0002	< 0.005	< 0.0001	0.0004	0.0003	0.0006	< 0.0001	< 0.005
Copper	mg/L	0.005	0.0002	0.0003	0.0009	0.0012	0.0006	0.001	0.0005	0.0012	0.0002	0.0003	0.0009	0.0011	< 0.0001	0.0009
Lead	mg/L	0.005	0.00006	0.00004	0.00039	0.00034	0.00004	0.00036	0.00005	0.00088	0.00004	0.0001	0.0001	0.00118	0.00004	0.00096
Mercury	mg/L	0.0002	< 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	< 0.00002
Molybdenum	mg/L	0.04	< 0.0001	<0.0001	0.0003	0.0003	0.0001	0.0001	<0.0001	< 0.0001	0.0001	0.0001	0.0003	0.0002	0.0002	< 0.0001
Nickel	mg/L	0.025	< 0.01	0.0006	< 0.01	< 0.01	< 0.01	0.0025	0.0005	< 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	< 0.002	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	<0.0001	< 0.00002	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.00002	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.00002	< 0.00002
Strontium	mg/L	-	0.091	0.101	0.137	0.172	0.149	0.348	0.103	0.164	0.152	0.127	0.177	0.278	0.141	0.133
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	< 0.0001	< 0.00005	< 0.00005
Vanadium	mg/L	0.006	< 0.0001	<0.0001	0.0008	0.0003	0.0001	0.0002	<0.0001	0.0002	0.0002	0.0002	0.0002	0.0006	0.0002	< 0.0001
Zinc	mg/L	0.02	< 0.005	<0.005	0.007	0.019	< 0.005	0.006	<0.005	**0.021**	**0.031**	**0.028**	0.007	**0.024**	0.007	0.014
Field pH	pH unit	-	8.2	7.98	--	7.75	7.98	8.17	8.06	7.39	7.44	7.61	7.56	7.29	7.47	7.23
Field Temp	deg C	-	4.3	7.6	--	1.7	5.9	7.3	7.7	11.9	16.8	0	8.7	5.9	16.7	11.6
Field Conductivity	us/cm	-	232	238	--	470	369	570	249	261	264	272.2	491	456	264	255.6
Dissolved Oxygen	mg/L	-	3.85	6.17	--	6.36	5.66	8.81	6.66	1.54	0.7	72.1	8	7.9	1.82	1.06

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	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	WP4 (10m) 26-Oct-17	WP4 (20m) 02-May-17	WP4 (20m) 24-Apr-18	WP4 (25m) 21-May-15	WP4 (25m) 24-Apr-18	WP4 (25m) 28-Apr-22	WP4 (30m) 17-Apr-15	WP4 (30m) 29-Apr-16
Total Alkalinity	mg/L	-	111	80	92	111	152	121	1130	311	151	352	346	409	306	307
BOD	mg/L	-	< 3	< 3	< 3	< 3	< 3	< 3	8	< 3	< 3	123	< 3	9	< 2	< 3
Calcium	mg/L	-	42.7	32.8	37.3	53.3	62.1	42	245	101	45.2	208	97.2	138	119	107
Chloride	mg/L	-	6.9	4.2	4.3	9	9.6	6.7	215	19.1	5	31	14.8	15.9	30.6	30.4
COD	mg/L	-	48	49	40	37	42	44	279	48	60	< 5	88	314	76	66
Colour	colour unit	-	105	89	104	70	66	76	65	61	80	135	70	53	56	56
Specific Conductivity	umhos/cm	-	245	181	191	264	322	251	3040	683	303	765	673	775	663	675
DOC	mg/L	-	16.6	18	12	14.8	18.5	18.5	30.7	14.6	15.4	30.9	9.2	26	21.3	17.8
Fluoride	mg/L	-	< 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
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	0.038	0.105	0.104	0.058	**0.533**	0.053	0.005	**0.434**	0.146	**14.7**	0.244	**17.4**	**0.906**	**0.502**
Magnesium	mg/L	-	2.65	2.11	3.04	3.21	3.72	2.75	47	8.83	6.31	11.9	12.4	11.6	9.29	8.76
Manganese	mg/L	-	0.008	0.008	0.032	0.012	0.066	0.011	0.106	0.066	0.165	1.74	0.668	0.516	0.421	0.317
Nitrate	mg/L	-	< 0.1	< 0.05	< 0.05	0.09	0.08	< 0.05	< 0.05	1.1	< 0.05	< 0.1	0.07	< 0.05	0.1	0.2
Nitrite	mg/L	-	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.3	< 0.05	< 0.1	< 0.05	< 0.05	< 0.1	< 0.1
pH Lab	pH unit	6.5 - 8.5	7.9	7.75	7.64	7.66	8.02	7.82	7.66	8.12	7.8	7.55	7.84	7.89	8.02	7.95
Phenols	mg/L	0.001	**0.005**	< 0.002	< 0.001	< 0.002	< 0.002	< 0.001	**0.01**	**0.006**	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	**0.008**
Total Phosphorus	mg/L	0.03	< 0.1	**0.05**	0.03	0.01	**0.04**	0.02	< 0.1	< 0.1	**0.58**	**2.5**	**0.33**	**0.76**	**0.3**	< 0.1
Potassium	mg/L	-	0.9	1.7	1.5	1.5	1.9	1.5	139	11.5	10.8	11.7	18.3	11.6	11.5	10
Sodium	mg/L	-	3.7	2.9	3.3	5.2	6.3	4.1	164	24.9	6	24.3	21.7	22.2	25.8	25.7
Sulphate	mg/L	-	3	< 1	2	5	2	1	20	6	< 1	< 1	2	< 1	< 1	4
Dissolved Solids	mg/L	-	127	92	106	141	177	131	1592	367	165	515	376	467	384	372
Tot Kjel N	mg/L	-	1	0.8	0.4	0.5	0.7	0.8	82.2	3	4.1	19.1	2.8	8.7	6.2	1.8
Ammonia (NH3-N)	mg/L	-	< 0.01	0.08	0.02	0.02	0.03	0.16	66.6	2.12	0.67	0.76	0.47	2.99	1.46	0.27
Total Suspended Solids	mg/L	-	< 3	< 3	4	6	6	3	90	22	88	8900	150	340	20	108
Turbidity	ntu	-	0.4	0.8	0.8	0.8	20.2	0.3	83.1	10.9	78.8	2960	97.7	143	5	7.5
Hardness (CaCO3)	mg/L	-	126	91	106	146	170	116	806	291	139	568	294	394	336	305
Unionized Ammonia	mg/L	0.02	--	< 0.01	0.00008	< 0.01	< 0.01	< 0.01	**0.1161**	--	< 0.01	0.003367	< 0.01	0.02	0.009652	0.008302
Aluminum	mg/L	0.075	0.03	0.03	0.05	0.03	0.05	0.02	**0.1**	0.04	0.07	**0.19**	**0.08**	0.04	**3.7**	**0.1**
Antimony	mg/L	0.02	0.0004	0.0003	< 0.0001	< 0.0001	0.0003	0.0003	0.0002	0.0002	< 0.0001	0.0005	0.0001	0.0004	< 0.0001	0.0002
Arsenic	mg/L	0.005	0.0005	0.0005	0.0004	0.0004	0.0005	0.0003	0.0011	0.0006	0.0009	0.0013	0.001	0.002	0.0031	0.0007
Barium	mg/L	-	0.013	0.011	0.018	0.016	0.021	0.012	0.734	0.049	0.025	0.05	0.043	0.08	0.185	0.045
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	0.2	< 0.005	0.009	< 0.005	0.015	0.015	0.005	**0.596**	0.176	0.122	0.097	0.185	0.191	0.145	0.077
Cadmium	mg/L	0.0005	< 0.000014	< 0.000015	< 0.000015	< 0.000015	0.000074	< 0.000015	0.000032	< 0.000014	0.000052	0.00027	0.00006	0.000095	**0.00059**	0.00017
Chromium (total)	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.001	< 0.001	**0.002**	0.0007	0.001	< 0.001	**0.003**	0.0005
Chromium (VI)	mg/L	0.001						< 0.001						< 0.001		
Cobalt	mg/L	0.0009	< 0.0001	0.0001	< 0.0001	0.0001	0.0002	< 0.0001	< 0.005	0.0007	0.0002	< 0.005	0.0006	**0.0014**	**0.006**	< 0.005
Copper	mg/L	0.005	0.0002	0.0002	0.0002	0.0007	0.0007	0.0002	0.0016	0.0012	**0.01**	**0.0068**	**0.0081**	0.0019	**0.0087**	0.0038
Lead	mg/L	0.005	0.00003	0.0001	0.00012	0.00013	0.00251	0.00011	0.00131	0.00024	0.00274	0.00351	0.00235	0.00277	**0.021**	0.00089
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	0.00018	< 0.00002
Molybdenum	mg/L	0.04	0.0002	0.0002	< 0.0001	0.0002	0.0002	< 0.0001	< 0.0001	0.0005	0.0005	0.0002	0.0004	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	< 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	< 0.00002	< 0.0001	< 0.0001	< 0.0001	0.00002	< 0.00002	< 0.00002	**0.00012**	< 0.00002	< 0.0001	0.00003	0.00004
Strontium	mg/L	-	0.095	0.071	0.094	0.109	0.138	0.09	0.615	0.297	0.15	0.367	0.296	0.398	0.518	0.315
Thallium	mg/L	0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00011	< 0.00005	< 0.00005	0.00006	0.00006
Vanadium	mg/L	0.006	< 0.0001	0.0001	0.0002	0.0001	0.0003	< 0.0001	0.0034	0.0004	0.0002	0.0006	0.0002	0.0009	0.0045	0.0004
Zinc	mg/L	0.02	0.005	0.013	**0.021**	0.008	**0.023**	< 0.005	**4.93**	< 0.005	**0.028**	**0.03**	**0.03**	**0.03**	**0.412**	**0.022**
Field pH	pH unit	-	--	8	7.71	7.45	6.84	8	6.89	--	7.63	7.21	7.06	7.61	7.75	8.4
Field Temp	deg C	-	--	1.6	-0.3	9.1	5.6	6.2	12.4	--	6.2	15	3.8	7.6	4.3	5.1
Field Conductivity	us/cm	-	--	164	199.5	253	294	226	1304	--	268.6	509	783.7	626	720	530
Dissolved Oxygen	mg/L	-	--	4	6.49	5.33	0.97	3.11	--	--	3.93	5.5	0.39	3.29	--	7.01

PWQO - Provincial Water Quality Objectives

Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	WP4 (30m) 02-May-17	WP4 (30m) 24-Apr-18	WP4 (30m) 12-Apr-19	WP 4 (35m) 24-Apr-19	WP4 (30m) 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	WP4 (30m) 21-Apr-22	WP4 (30m) 28-Apr-22	WP4 (30m) 20-Jul-22
Total Alkalinity	mg/L	-	227	143	126	100	126		195			356		308	417	
BOD	mg/L	-	3	< 3	< 3	< 3	< 3		5			12		12	13	
Calcium	mg/L	-	74	53.2	51	38.9	48.2		93.8			293		96.7	129	
Chloride	mg/L	-	13	8.7	8.2	5.2	6.7		19.6			24.9		16.6	16.5	
COD	mg/L	-	55	56	41	50	41		121			285		117	177	
Colour	colour unit	-	76	60	56	70	53		49			67		59	53	
Specific Conductivity	umhos/cm	-	500	295	289	226	282		478			765		656	787	
DOC	mg/L	-	13	10.4	13.2	15.5	15.6		14.8			25.4		30.2	24.6	
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	0.281	**0.844**	0.188	0.14	0.18		**1.45**			**18.7**		**4.16**	**5.21**	
Magnesium	mg/L	-	5.56	4.37	3.32	2.48	3.06		7.33			13.6		8.44	10.7	
Manganese	mg/L	-	0.056	0.126	0.068	0.011	0.011		0.46			5.36		2.87	2.05	
Nitrate	mg/L	-	0.4	0.06	< 0.05	0.07	0.1		0.63			< 0.05		0.12	< 0.05	
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	8.18	7.83	7.72	7.86	7.93		7.77			7.97		7.94	7.93	
Phenols	mg/L	0.001	**0.006**	< 0.001	< 0.002	< 0.002	< 0.002		< 0.002			< 0.002		< 0.001	< 0.001	
Total Phosphorus	mg/L	0.03	< 0.1	**0.2**	**0.09**	**0.07**	**0.06**		**0.2**			**0.67**		**0.45**	**0.5**	
Potassium	mg/L	-	6.8	3.3	3.2	2.2	2.9		6.2			13.3		10.6	11.5	
Sodium	mg/L	-	15.7	8	6.7	4	5.5		17.4			28.5		17.6	21.5	
Sulphate	mg/L	-	6	< 1	1	1	< 1		13			12		< 1	< 1	
Dissolved Solids	mg/L	-	261	166	150	116	144		276			434		343	450	
Tot Kjel N	mg/L	-	1.6	2.6	1.3	0.9	1		2.1			6		5.4	6.7	
Ammonia (NH3-N)	mg/L	-	0.45	0.84	0.4	0.12	0.3		0.06			0.1		1.32	2.78	
Total Suspended Solids	mg/L	-	10	18	10	7	4		120			130		128	240	
Turbidity	ntu	-	7.8	2.4	18.9	1.1	0.7		184			243		63.4	98.8	
Hardness (CaCO3)	mg/L	-	224	151	140	107	133	Dry	231	Dry	Dry	788	Dry	277	366	Dry
Unionized Ammonia	mg/L	0.02	--	0.0184	< 0.01	< 0.01	< 0.01		< 0.01			< 0.01		< 0.01	**0.03**	
Aluminum	mg/L	0.075	0.03	0.04	0.04	0.03	0.03		0.05			0.02		0.02	0.04	
Antimony	mg/L	0.02	0.0004	0.0003	0.0003	< 0.0001	< 0.0001		0.0003			< 0.0005		0.0004	0.0004	
Arsenic	mg/L	0.005	0.0006	0.0005	0.0004	0.0005	0.0005		0.0007			**0.0056**		0.0016	0.0016	
Barium	mg/L	-	0.027	0.029	0.017	0.013	0.016		0.053			0.279		0.073	0.079	
Beryllium	mg/L	1.1	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002			< 0.002		< 0.002	< 0.002	
Boron	mg/L	0.2	0.095	0.02	0.028	0.018	0.028		0.094			**0.302**		0.12	0.15	
Cadmium	mg/L	0.0005	< 0.000014	0.000018	< 0.000015	0.000019	< 0.000015		0.000067			**0.00136**		0.000017	0.000035	
Chromium (total)	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		0.001			**0.004**		< 0.001	< 0.001	
Chromium (VI)	mg/L	0.001												< 0.001	< 0.001	
Cobalt	mg/L	0.0009	0.0004	0.0003	0.0003	0.0002	0.0002		0.0007			**0.0087**		**0.0031**	**0.0023**	
Copper	mg/L	0.005	0.001	0.0008	0.0004	0.001	0.0009		0.0016			**0.011**		0.0012	0.0009	
Lead	mg/L	0.005	0.0003	0.00067	0.00032	0.00024	0.00014		0.00235			**0.022**		0.00074	0.0011	
Mercury	mg/L	0.0002	0.00005	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002			< 0.00002		< 0.00002	< 0.00002	
Molybdenum	mg/L	0.04	0.0004	0.0001	0.0002	0.0002	0.0003		0.0004			< 0.0005		0.0003	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	
Selenium	mg/L	0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001			< 0.005		< 0.001	< 0.001	
Silver	mg/L	0.0001	< 0.00002	< 0.00002	< 0.0001	< 0.0001	< 0.0001		< 0.0001			< 0.0001		< 0.0001	< 0.0001	
Strontium	mg/L	-	0.205	0.139	0.112	0.089	0.111		0.24			0.699		0.293	0.377	
Thallium	mg/L	0.0003	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005		< 0.00005			< 0.0003		< 0.00005	< 0.00005	
Vanadium	mg/L	0.006	0.0003	0.0003	0.0001	0.0002	0.0002		0.0006			**0.0079**		0.0005	0.0005	
Zinc	mg/L	0.02	0.007	0.02	0.012	0.018	0.019		**0.043**			**0.346**		0.009	0.014	
Field pH	pH unit	-	--	8.36	7.91	7.88	7.72		7.61			6.9		7.7	7.69	
Field Temp	deg C	-	--	2	1.4	1.4	1.2		1			5.3		4.7	11.1	
Field Conductivity	us/cm	-	--	316	300	210	332		505			750		555	616	
Dissolved Oxygen	mg/L	-	--	4.26	13.2	7.6	7.58		5.7					5.5	2.87	

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance

Surface Water Quality - General Parameters

Parameters	Units	PWQO	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 (30m) 18-Apr-24	WP4 (30m) 11-Jul-24	WP4 (30m) 07-Oct-24
Total Alkalinity	mg/L	-						316	185	
BOD	mg/L	-						4	<3	
Calcium	mg/L	-						103	59.6	
Chloride	mg/L	-						2.7	2.1	
COD	mg/L	-						119	106	
Colour	colour unit	-						101	180	
Specific Conductivity	umhos/cm	-						598	359	
DOC	mg/L	-						25.4	30.8	
Fluoride	mg/L	-						<0.1	<0.1	
Cyanide (free)	mg/L	0.005						<0.005	<0.005	
Iron	mg/L	0.3						**0.535**	0.292	
Magnesium	mg/L	-						12.6	5.83	
Manganese	mg/L	-						0.272	0.082	
Nitrate	mg/L	-						<0.05	<0.05	
Nitrite	mg/L	-						<0.05	<0.05	
pH Lab	pH unit	6.5 - 8.5						8.14	7.31	
Phenols	mg/L	0.001						<0.001	<0.001	
Total Phosphorus	mg/L	0.03						**0.14**	**0.15**	
Potassium	mg/L	-						15.2	12.9	
Sodium	mg/L	-						9.5	6.7	
Sulphate	mg/L	-						1	1	
Dissolved Solids	mg/L	-						335	200	
Tot Kjel N	mg/L	-						2.2	1.8	
Ammonia (NH3-N)	mg/L	-						0.08	0.08	
Total Suspended Solids	mg/L	-						58	70	
Turbidity	ntu	-						35.2	12.5	
Hardness (CaCO3)	mg/L	-	Dry	Dry	Dry	Dry	Dry	309	173	Dry
Unionized Ammonia	mg/L	0.02						<0.01	<0.01	
Aluminum	mg/L	0.075						0.07	**0.11**	
Antimony	mg/L	0.02						0.0005	0.0006	
Arsenic	mg/L	0.005						0.0009	0.0014	
Barium	mg/L	-						0.045	0.026	
Beryllium	mg/L	1.1						<0.0001	<0.0001	
Boron	mg/L	0.2						0.192	0.116	
Cadmium	mg/L	0.0005						0.000065	0.000023	
Chromium (total)	mg/L	0.001						<0.001	<0.001	
Chromium (VI)	mg/L	0.001						<0.001	<0.001	
Cobalt	mg/L	0.0009						0.0007	0.0004	
Copper	mg/L	0.005						0.0016	0.0015	
Lead	mg/L	0.005						0.00144	0.0005	
Mercury	mg/L	0.0002						0.00002	<0.00002	
Molybdenum	mg/L	0.04						0.0005	0.0007	
Nickel	mg/L	0.025						0.0017	0.0008	
Selenium	mg/L	0.1						<0.001	<0.001	
Silver	mg/L	0.0001						<0.0001	<0.0001	
Strontium	mg/L	-						0.318	0.163	
Thallium	mg/L	0.0003						<0.00005	<0.00005	
Vanadium	mg/L	0.006						0.0006	0.0008	
Zinc	mg/L	0.02						0.016	0.009	
Field pH	pH unit	-						8.17	7.31	
Field Temp	deg C	-						8.5	20.1	
Field Conductivity	us/cm	-						620	327	
Dissolved Oxygen	mg/L	-						6.86	0.77	

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	MW12 17-Apr-17	MW12 23-Oct-17
Methyl Chloride	µg/L		< 0.3	< 0.3	--	< 2	< 2	< 5	< 5	< 5	<5	< 0.3	< 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	< 0.3	< 0.3
Chloroethane	µg/L		< 0.1	**22.8**	--	**7**	**19**	**12**				< 0.1	< 0.1
Trichloro-fluromethane	µg/L		< 0.1	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5	<5	< 0.1	< 0.1
1,1-Dichloroethene	µg/L	14	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	<0.5	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L			< 1	< 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	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.1
Chloroform	µg/L		< 0.3	< 0.3	< 1	< 1	< 1	< 1	< 1	< 1	<1	< 0.3	< 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	< 0.1	< 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	**3.6**	**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	< 0.1	< 0.1
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	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2	<2	< 0.1	< 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	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.1
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	< 2	< 2	< 2	< 2	< 2	< 2	<2	< 0.1	< 0.1
Chlorobenzene	µg/L		**12.3**	**17.8**	< 0.5	**11.9**	**18**	**16.4**	**19.8**	**18**	**19.5**	< 0.2	< 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	< 0.1	< 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	< 0.1	< 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	< 0.4	< 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	< 0.1	< 0.1
1,4-Dichlorobenzene	µg/L	5	< 0.2	< 0.2	< 0.5	**1.4**	**1.6**	**1.6**	**2**	**1.7**	**2**	< 0.2	< 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**	< 0.1	< 0.1
m/p-Xylene	µg/L		**12.8**	**31**	**36.8**	**19.5**	**24.6**	**25**	**27.8**	**23.1**	**22**	< 0.4	< 0.4
o-Xylene	µg/L		**3.7**	**4.5**	**5.6**	**3**	**4.4**	**3.7**	**2.9**	**2.7**	**1.9**	< 0.1	< 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	< 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	< 0.2	< 0.2
Acetone	µg/L		**21**	**12**	**40**	< 30	**60**	**40**	< 30	< 30	<30	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.1	< 0.1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		< 0.1	< 0.1
Methyl ethyl ketone	µg/L		**3**	**4**	< 20	< 20	< 20	< 20	< 20	< 20	<2	< 1	< 1
Methyl Isobutyl Ketone	µg/L		< 1	< 1	< 20	< 20	< 20	< 20	< 20	< 20	<20	< 1	< 1
Dichloromethane	µg/L	50		< 0.3	< 5	< 5	< 5	< 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	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	MW12 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
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	< 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		< 2	< 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	MW12 12-Oct-23	MW12 17-Apr-24	MW12 7-Oct-24	MW14 15-Apr-15	MW14 7-Oct-15	MW14 3-Oct-16	MW14 17-Apr-17	MW14 23-Oct-17	MW14 25-Apr-18	MW14 15-Oct-18	MW14 11-Apr-19
Methyl Chloride	µg/L		< 5	<5	<5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.06	< 2
Vinyl Chloride	µg/L	2	< 0.2	<0.2	<0.2			< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.2
Bromomethane	µg/L		< 0.5	<0.5	<0.5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.5	< 0.5
Chloroethane	µg/L					< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.08	< 3
Trichloro-fluromethane	µg/L		< 5	<5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5
1,1-Dichloroethene	µg/L	14		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Methyl tert-Butyl Ether	µg/L		< 2	<2	<2	< 1	< 1	< 1			< 1	< 2	< 2
Trans 1,2-Dichloroethene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
1,1-Dichloro-ethane	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Cis 1,2-Dichloroethene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Chloroform	µg/L		< 1	<1	<1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 1	< 1
1,1,1-Trichloroethane	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 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	< 0.1	< 0.1	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	--			< 0.1	< 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	< 0.5	< 0.5
Bromodichloromethane	µg/L		< 2	<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2
Cis 1,3-Dichloropropene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
T1,3-Dichloropropene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 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	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Tetrachloroethene	µg/L	80	< 0.5	<0.5	<0.5	< 0.2	< 0.2	--	--	--	< 0.2	< 0.5	< 0.5
Dibromochloromethane	µg/L		< 2	<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2
Chlorobenzene	µg/L		< 0.5	<0.5	<0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 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	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5
1,1,2,2 Tetrachloroethane	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	200	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
m/p-Xylene	µg/L		< 1.0	<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0
o-Xylene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Total Xylene	µg/L	0.3	< 1.1			< 0.4	< 0.4	< 0.4	< 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	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5
Acetone	µg/L		< 30	<30	<30	< 2	< 2	< 2	< 2	< 2	< 2	< 30	< 30
1,2-Dibromoethane	µg/L		< 0.2			--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2
Methyl ethyl ketone	µg/L		< 20	<2	<2	--	--	< 1	< 1	< 1	< 1	< 20	< 20
Methyl Isobutyl Ketone	µg/L		< 20	<20	<20	--	--	< 1	< 1	< 1	< 1	< 20	< 20
Dichloromethane	µg/L	50				--	--	--	--	--	< 0.3	< 0.3	< 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	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	MW14 7-Oct-24
Methyl Chloride	µg/L		< 2	< 2	< 2	< 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	< 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	<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		
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		
Methyl ethyl ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	<2	<2
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	<20	<20
Dichloromethane	µg/L	50	< 5	< 5	< 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	MW15 15-Apr-15	MW15 7-Oct-15	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		< 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	< 0.5	< 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	< 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	< 0.1	--			< 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		< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	µg/L	80	< 0.2	< 0.2	--			< 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	< 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		< 0.1	< 0.1	< 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	< 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		--	--	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L		--	--	< 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	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	MW15A 15-Apr-15	MW15A 7-Oct-15	MW15A 3-Oct-16
Methyl Chloride	µg/L		< 5	< 5	< 5	< 5	< 5	< 5	<5	<5	< 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
Bromomethane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.3	< 0.3	< 0.3
Chloroethane	µg/L		< 3	< 3							< 0.1	< 0.1	< 0.1
Trichloro-fluromethane	µg/L		< 5	< 5	< 5	< 5	< 5	< 5	<5	<5	< 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
Methyl tert-Butyl Ether	µg/L		< 2	< 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	<0.5	< 0.1	< 0.1	< 0.1
1,1-Dichloro-ethane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	**0.5**
Cis 1,2-Dichloroethene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	0.8	0.6	**0.5**
Chloroform	µg/L		< 1	< 1	< 1	< 1	< 1	< 1	<1	<1	< 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	<0.5	< 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	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 0.1	< 0.1	--
1,2-Dichloropropane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 2	< 2	< 2	< 2	< 2	< 2	<2	<2	< 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	<0.5	< 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	<0.5	< 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	0.8	< 0.5
1,1,2-Trichloroethane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.4	< 0.4	< 0.1
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	--
Dibromochloromethane	µg/L		< 2	< 2	< 2	< 2	< 2	< 2	<2	<2	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 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	< 5	< 5	< 5	<5	<5	< 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	<0.5	< 0.1	< 0.1	< 0.4
1,3-Dichlorobenzene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 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	<0.5	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 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	< 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	< 0.2	< 0.2	< 0.2
Acetone	µg/L		< 30	< 30	< 30	< 30	< 30	< 30	<30	<30	< 2	< 2	< 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	--	--	< 1
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	<20	<20	--	--	< 1
Dichloromethane	µg/L	50	< 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	MW15A 17-Apr-17	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
Methyl Chloride	µg/L		< 0.3	< 0.3	< 0.3	< 0.06	< 2	< 2	< 2	< 2	< 5	< 5	< 5
Vinyl Chloride	µg/L	2	**0.4**	**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	
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		**0.4**	**0.6**	< 0.1	< 0.5	< 0.5	**0.6**	**0.7**	**0.6**	< 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	< 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	< 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	< 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	MW15A 26-Oct-22	MW15A 19-Apr-23	MW15A 12-Oct-23	MW15A 17-Apr-24	MW15A 7-Oct-24	MW15B 15-Apr-15	MW15B 7-Oct-15	MW15B 3-Oct-16	MW15B 17-Apr-17	MW15B 23-Oct-17	MW15B 8-May-18
Methyl Chloride	µg/L		< 5	< 5	< 5	<5	<5	< 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	**0.3**	< 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	
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	< 0.1	< 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		**0.6**	< 0.5	< 0.5	<0.5	<0.5	0.2	< 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	< 0.1				< 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	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.5
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	--	--	--	< 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	< 0.1	< 0.1	< 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	< 1.0	< 1.0	<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	< 1.1	< 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	< 2	< 30
1,2-Dibromoethane	µg/L		< 0.2	< 0.2	< 0.2			--	--	< 0.1	< 0.1	< 0.1	< 0.2
Methyl ethyl ketone	µg/L		< 20	< 20	< 20	<2	<2	--	--	< 1	< 1	< 1	< 20
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	<20	<20	--	--	< 1	< 1	< 1	< 20
Dichloromethane	µg/L	50						--	--	--	--	--	< 5
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 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 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	< 0.5	< 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	
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	< 1.0
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	MW15B 17-Apr-24	MW15B 7-Oct-24	MW26 15-Apr-15	MW26 7-Oct-15	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
Methyl Chloride	µg/L		<5	<5	< 0.3	< 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	--	--	**0.3**	**0.3**	< 0.2	< 0.2	< 0.2	< 0.2	**0.2**
Bromomethane	µg/L		<0.5	<0.5	< 0.3	< 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	< 0.1
Trichloro-fluromethane	µg/L		<5	<5	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L		<2	<2	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Trans 1,2-Dichloroethene	µg/L		<0.5	<0.5	< 0.1	< 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	< 0.1	< 0.1	**1.5**	**1.5**	< 0.1	**1**	**1**	< 0.1	< 0.1
Cis 1,2-Dichloroethene	µg/L		<0.5	<0.5	**1.8**	**1.4**	**1.5**	**1.5**	< 0.1	**1**	**1**	< 0.1	**1.4**
Chloroform	µg/L		<1	<1	< 0.3	< 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	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.1	--	--	--	--	--		--
1,2-Dichloropropane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		<2	<2	< 0.1	< 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	< 0.1	< 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	< 0.1	< 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	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	<0.5	<0.5	< 0.2	< 0.2	--	--	--	--	--	--	--
Dibromochloromethane	µg/L		<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		<0.5	<0.5	< 0.2	< 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	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1,3-Dichlorobenzene	µg/L		<0.5	<0.5	< 0.1	< 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	< 0.2	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		<0.5	<0.5	< 0.1	< 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	< 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	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Acetone	µg/L		<30	<30	< 2	< 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
Methyl ethyl ketone	µg/L		<2	<2	--	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		<20	<20	--	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	50			--	--	--	--	--	--	--	--	--
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	MW16 23-Oct-17	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
Methyl Chloride	µg/L		< 0.3	< 0.3	< 0.3	< 0.3	< 0.06	< 0.06	< 2	< 2	< 2	< 2	< 2
Vinyl Chloride	µg/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 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	< 0.08	< 0.08	< 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	**1.1**	< 0.1	**0.9**	< 0.5	< 0.5	< 0.5	**1.1**	**1.2**	< 0.5	**3.3**
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	< 0.1	< 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	< 0.1	< 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	< 0.2	< 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	< 0.3	< 0.3	< 0.3	< 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	MW16	MW26	MW26	MW26	MW16	MW26	MW26	MW16	MW16	MW26	MW16
			19-Oct-20	19-Oct-20	19-Apr-21	27-Oct-21	20-Apr-22	20-Apr-22	24-Oct-22	26-Oct-22	19-Apr-23	19-Apr-23	12-Oct-23
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	
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	**1.1**	**1**	**0.8**	< 0.5	**0.6**	**0.7**	< 0.5	< 0.5	**0.6**	< 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	< 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	MW26 12-Oct-23	MW26 17-Apr-24	MW26 7-Oct-24	MW26-I 15-Apr-15	MW26-I 15-Apr-15	MW26-I 7-Oct-15	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
Methyl Chloride	µg/L		< 5	<5	<5	< 0.3	< 0.5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Vinyl Chloride	µg/L	2	< 0.2	<0.2	<0.2	--	--	--	**0.6**	**0.4**	**0.5**	**0.2**	**0.5**
Bromomethane	µg/L		< 0.5	<0.5	<0.5	< 0.3	< 0.5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Chloroethane	µg/L					< 0.1	< 5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Trichloro-fluromethane	µg/L		< 5	<5	<5	< 0.1	< 5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethene	µg/L	14		<0.5	<0.5	< 0.1	< 0.5	< 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	< 0.5	< 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	< 0.5	< 0.1	**3.5**	**3**	< 0.1	< 0.1	< 0.1
Cis 1,2-Dichloroethene	µg/L		**1.2**	**0.5**	<0.5	**4.1**	-	**2.9**	**3.5**	**3**	**3.2**	**2.9**	**4.3**
Chloroform	µg/L		< 1	<1	<1	< 0.3	< 0.5	< 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	< 0.5	< 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	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene	µg/L	5	< 0.5	<0.5	<0.5	< 0.1	< 0.5	< 0.1	--	--	--	--	< 0.1
1,2-Dichloropropane	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 2	<2	<2	< 0.1	< 0.5	< 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	< 0.5	< 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	< 0.5	< 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	< 0.4	< 0.5	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	< 0.5	<0.5	<0.5	< 0.2	< 0.5	< 0.2	--	--	--	--	< 0.2
Dibromochloromethane	µg/L		< 2	<2	<2	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.5	<0.5	<0.5	< 0.2	< 0.5	< 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	< 0.5	< 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	< 0.5	< 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	< 0.1	< 0.5	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1,3-Dichlorobenzene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.5	< 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	< 0.5	< 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	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 1.0	<1	<1	< 0.4	< 0.5	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	<0.5	<0.5	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Xylene	µg/L	0.3	< 1.1			< 0.4	< 0.5	< 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
Acetone	µg/L		< 30	<30	<30	< 2	--	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.2			--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L		< 20	<2	<2	--	--	--	< 1	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		< 20	<20	<20	--	--	--	< 1	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	50				--	--	--	--	--	--	--	< 0.3
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-I 15-Oct-18	MW26-I 11-Apr-19	MW26-I 21-Oct-19	MW26-I 22-Apr-20	MW26-I 19-Oct-20	MW26-I 19-Apr-21	MW26-I 27-Oct-21	MW26-I 20-Apr-22	MW26-I 24-Oct-22	MW26-I 19-Apr-23	MW26-I 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	< 0.5	< 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	< 0.5
Cis 1,2-Dichloroethene	µg/L		**3.3**	**3.2**	**3.3**	**3.2**	**3**	**2**	**2.2**	**1.5**	**1.8**	**1.6**	**3.2**
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	< 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	MW26-I 17-Apr-24	MW26-I 7-Oct-24	MW26-II 15-Apr-15	MW26-II 7-Oct-15	MW26-II 27-Apr-16	MW26-II 3-Oct-16	MW26-II 17-Apr-17	MW26-II 23-Oct-17	MW26-II 15-Oct-18	MW26-II 11-Apr-19	MW26-II 21-Oct-19
Methyl Chloride	µg/L		<5	<5	< 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	--	--	**0.7**	**0.5**	**0.6**	**0.4**	< 0.5	< 0.2	< 0.2
Bromomethane	µg/L		<0.5	<0.5	< 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	< 0.08	< 3	< 3
Trichloro-fluromethane	µg/L		<5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 5
1,1-Dichloroethene	µg/L	14	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	µg/L		<2	<2	< 1	< 1	< 1	< 1			< 2	< 2	< 2
Trans 1,2-Dichloroethene	µg/L		<0.5	<0.5	**2.6**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
1,1-Dichloro-ethane	µg/L		<0.5	<0.5	< 0.1	< 0.1	**2.4**	**2.2**	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
Cis 1,2-Dichloroethene	µg/L		**1.6**	**1.8**	< 0.1	**2.2**	**2.4**	**2.2**	**2.3**	**2.3**	**2.4**	**2.2**	**2.6**
Chloroform	µg/L		<1	<1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 1	< 1	< 1
1,1,1-Trichloroethane	µg/L		<0.5	<0.5	< 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	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	5	<0.5	<0.5	< 0.1	< 0.1	--	--	--	--	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L		<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2	< 2
Cis 1,3-Dichloropropene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
T1,3-Dichloropropene	µg/L		<0.5	<0.5	< 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		<0.5	<0.5	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
Tetrachloroethene	µg/L	80	<0.5	<0.5	< 0.2	< 0.2	--	--	--	--	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L		<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2	< 2
Chlorobenzene	µg/L		<0.5	<0.5	< 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		<0.5	<0.5	< 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		<5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 5
1,1,2,2 Tetrachloroethane	µg/L		<0.5	<0.5	**2.6**	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	5	<0.5	<0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	200	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5
m/p-Xylene	µg/L		<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0
o-Xylene	µg/L		<0.5	<0.5	< 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	< 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	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5
Acetone	µg/L		<30	<30	< 2	< 2	< 2	< 2	< 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	--	--	< 1	< 1	< 1	< 1	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L		<20	<20	--	--	< 1	< 1	< 1	< 1	< 20	< 20	< 20
Dichloromethane	µg/L	50			--	--	--	--	--	--	< 0.3	< 5	< 5
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	MW26-II 22-Apr-20	MW26-II 19-Oct-20	MW26-II 19-Apr-21	MW26-II 27-Oct-21	MW26-II 20-Apr-22	MW26-II 24-Oct-22	MW26-II 19-Apr-23	MW26-II 12-Oct-23	MW26-II 17-Apr-24	MW26-II 7-Oct-24	MW26-II (DUP) 7-Oct-24
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	**0.4**	<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		**1.6**	**2.8**	**1.9**	**1.9**	**1.6**	**2.2**	**1.6**	**3.2**	**1.4**	**1.8**	**1.9**
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	MW27-I 15-Apr-15	MW27-I 7-Oct-15	MW27-I 9-Nov-15	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
Methyl Chloride	µg/L		< 0.3	< 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	< 0.5
Bromomethane	µg/L		< 0.3	< 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	< 0.1	< 0.08
Trichloro-fluromethane	µg/L		< 0.1	< 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	< 0.1	< 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		< 1	< 1	< 1	< 1	< 1	< 1				< 1	< 2
Trans 1,2-Dichloroethene	µg/L		< 0.1	< 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		< 0.1	< 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		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5
Chloroform	µg/L		< 0.3	< 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		< 0.1	< 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	**1.4**	**2.8**	< 0.5	**20.2**	< 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	< 0.1	< 0.1	< 0.5
1,1-Dichloroethylene	µg/L	5	< 0.1	< 0.1	< 0.1	--	--	--	--			< 0.1	< 0.5
1,2-Dichloropropane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5
Bromodichloromethane	µg/L		< 0.1	< 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		< 0.1	< 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		< 0.1	< 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	**0.6**	< 0.5	**1**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L		< 0.4	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5
Tetrachloroethene	µg/L	80	< 0.2	< 0.2	< 0.2	--	--	--	--			< 0.2	< 0.5
Dibromochloromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2
Chlorobenzene	µg/L		< 0.2	< 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		< 0.1	< 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	**1**	< 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	< 0.1	< 0.1	< 5
1,1,2,2 Tetrachloroethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.5
1,3-Dichlorobenzene	µg/L		< 0.1	< 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	< 0.2	< 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	< 0.1	< 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		< 0.4	< 0.4	< 0.4	**0.7**	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 1.0
o-Xylene	µg/L		< 0.1	< 0.1	< 0.1	**0.2**	< 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	**0.9**	< 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		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5
Acetone	µg/L		**3**	< 2	< 2	**13**	< 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	< 0.2
Methyl ethyl ketone	µg/L		--	--	--	**4**	< 1	< 1	< 1	< 1	< 1	< 1	< 20
Methyl Isobutyl Ketone	µg/L		--	--	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 20
Dichloromethane	µg/L	50	--	--	--	--	--	--	--	--	--	< 0.3	< 0.3
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 11-Apr-19	MW27-I 21-Oct-19	MW27-I 22-Apr-20	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
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	**0.6**	**0.8**	< 0.5	**3.5**	**0.9**	**1.3**	< 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	MW27-I	MW27-II	MW27-II	MW27-II	MW27-II	MW27-II	MW27-II	MW27-II	MW27-II	MW27-II	MW27-II
			7-Oct-24	15-Apr-15	7-Oct-15	10-Nov-15	27-Apr-16	7-Jul-16	3-Oct-16	22-Feb-17	17-Apr-17	20-Jul-17	23-Oct-17
Methyl Chloride	µg/L		<5	< 0.3	< 0.3	< 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
Bromomethane	µg/L		<0.5	< 0.3	< 0.3	< 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	< 0.1	< 0.1
Trichloro-fluromethane	µg/L		<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethene	µg/L	14	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L		<2	< 1	< 1	< 1	< 1	< 1	< 1				
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	< 0.1
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	< 0.1
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	< 0.1
Chloroform	µg/L		<1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,1,1-Trichloroethane	µg/L		<0.5	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene	µg/L	5	<0.5	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--	--
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	< 0.1
Bromodichloromethane	µg/L		<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,3-Dichloropropene	µg/L		<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
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	< 0.1
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	< 0.4	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	<0.5	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--
Dibromochloromethane	µg/L		<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		<0.5	< 0.2	< 0.2	< 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	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
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	< 0.1
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	< 0.2
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	< 0.1
m/p-Xylene	µg/L		<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Xylene	µg/L	0.3		< 0.4	< 0.4	< 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	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Acetone	µg/L		<30	< 2	< 2	< 2	< 2	< 2	< 2	< 2	**4**	< 2	< 2
1,2-Dibromoethane	µg/L			--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L		<2	--	--	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		<20	--	--	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	50		--	--	--	--	--	--	--	--	--	--
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	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	MW27-II 27-Oct-21	MW27-II 20-Apr-22	MW27-II 26-Oct-22	MW27-II 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		**5**	< 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	MW27-II 12-Oct-23	MW27-II 17-Apr-24	MW27-III 15-Apr-15	MW27-III 7-Oct-15	MW27-III 9-Nov-15	MW27-III 21-Jan-16	MW27-III 27-Apr-16	MW27-III 7-Jul-16	MW27-III 3-Oct-16	MW27-III 22-Feb-17	MW27-III 17-Apr-17
Methyl Chloride	µg/L		< 5	<5	< 0.3	< 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
Bromomethane	µg/L		< 0.5	<0.5	< 0.3	< 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	< 0.1
Trichloro-fluromethane	µg/L		< 5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethene	µg/L	14		<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L		< 2	<2	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
Trans 1,2-Dichloroethene	µg/L		< 0.5	<0.5	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 1	<1	< 0.3	< 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	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--
1,2-Dichloropropane	µg/L		< 0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 2	<2	< 0.1	< 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	< 0.1	< 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	< 0.1	< 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	< 0.4	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	< 0.5	<0.5	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--
Dibromochloromethane	µg/L		< 2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.5	<0.5	< 0.2	< 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	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1,3-Dichlorobenzene	µg/L		< 0.5	<0.5	< 0.1	< 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	< 0.2	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 1.0	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Xylene	µg/L	0.3	< 1.1		< 0.4	< 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	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Acetone	µg/L		< 30	<30	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.2		--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L		< 20	<2	--	--	--	< 1	< 1	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		< 20	<20	--	--	--	< 1	< 1	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	50			--	--	--	--	--	--	--	--	--
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	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 27-Oct-21	MW27-III 20-Apr-22	MW27-III 26-Oct-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		
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	
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	< 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	< 5	< 5	< 5	< 5	< 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	MW27-III 19-Apr-23	MW27-III 12-Oct-23	MW27-III 17-Apr-24	MW27-III 7-Oct-24	MW28-I 15-Apr-15	MW28-I 7-Oct-15	MW28-I 9-Nov-15	MW28-I 21-Jan-16	MW28-I 27-Apr-16	MW28-I 7-Jul-16	MW28-I 3-Oct-16
Methyl Chloride	µg/L		< 5	< 5	<5	<5	< 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
Bromomethane	µg/L		< 0.5	< 0.5	<0.5	<0.5	< 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
Trichloro-fluromethane	µg/L		< 5	< 5	<5	<5	< 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
Methyl tert-Butyl Ether	µg/L		< 2	< 2	<2	<2	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trans 1,2-Dichloroethene	µg/L		< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 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	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 1	< 1	<1	<1	< 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	<0.5	< 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	<0.5	< 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	<0.5	< 0.1	< 0.1	< 0.1	--	--	--	--
1,2-Dichloropropane	µg/L		< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 2	< 2	<2	<2	< 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	<0.5	< 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	<0.5	< 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	<0.5	< 0.4	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	< 0.2	--	--	--	--
Dibromochloromethane	µg/L		< 2	< 2	<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 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	<5	< 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	<0.5	< 0.1	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4
1,3-Dichlorobenzene	µg/L		< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 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	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 1.0	< 1.0	<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Xylene	µg/L	0.3	< 1.1	< 1.1			< 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	<0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Acetone	µg/L		< 30	< 30	<30	<30	3	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.2	< 0.2			--	--	--	< 0.1	< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L		< 20	< 20	<2	<2	--	--	--	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		< 20	< 20	<20	<20	--	--	--	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	50					--	--	--	--	--	--	--
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	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	MW28-I 22-Apr-20	MW28-I 19-Oct-20	MW28-I 19-Apr-21
Methyl Chloride	µg/L		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.06	< 2	< 2	< 2	< 2	< 5
Vinyl Chloride	µg/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane	µg/L		< 0.3	< 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	< 0.1	< 0.08	< 3	< 3	< 3	< 3	< 3
Trichloro-fluromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	µg/L	14	< 0.1	< 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						< 1	< 2	< 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	< 0.5
1,1-Dichloro-ethane	µg/L		< 0.1	< 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		< 0.1	< 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	< 0.3	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L		< 0.1	< 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	< 0.1	< 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	< 0.1	< 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	< 0.1	< 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
Dibromochloromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2	< 2	< 2	< 2	< 2
Chlorobenzene	µg/L		< 0.2	< 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		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2,2 Tetrachloroethane	µg/L		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 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	< 0.1	< 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	< 0.2	< 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	< 0.1	< 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	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.4	< 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	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	µg/L		< 2	< 2	< 2	< 2	< 2	< 30	< 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	< 0.2
Methyl ethyl ketone	µg/L		< 1	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L		< 1	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20	< 20	< 20
Dichloromethane	µg/L	50	--	--	--	--	< 0.3	< 0.3	< 5	< 5	< 5	< 5	< 2
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 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-II 15-Apr-15	MW28-II 7-Oct-15	MW28-II 9-Nov-15	MW28-II 21-Jan-16
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
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		< 3							< 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	< 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	<0.5	< 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	< 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	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene	µg/L	5	< 0.5		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 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	0.6	0.5	< 0.5
1,1,2-Trichloroethane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.4	< 0.4	< 0.4	< 0.1
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	< 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	< 0.5	< 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	< 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	< 0.1	< 0.1	< 0.1	< 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	< 1.0	< 1.0	< 1.0	<1	<1	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	< 0.5	< 0.5	< 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	< 1.1	< 1.1	< 1.1			< 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	< 30	< 30	< 30	<30	<30	< 2	< 2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			--	--	--	< 0.1
Methyl ethyl ketone	µg/L		< 20	< 20	< 20	< 20	< 20	<2	<2	--	--	--	< 1
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	< 20	< 20	<20	<20	--	--	--	< 1
Dichloromethane	µg/L	50	< 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	MW28-II 27-Apr-16	MW28-II 7-Jul-16	MW28-II 3-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
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-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	MW28-II 7-Oct-24	MW28-III 15-Apr-15
Methyl Chloride	µg/L		< 2	< 2	< 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	--
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	< 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	< 0.1
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	**0.6**	<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	< 0.4
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2
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	< 0.1
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	< 1.0	<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	< 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	< 0.2			--
Methyl ethyl ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	<2	<2	--
Methyl Isobutyl Ketone	µg/L		< 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	

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

Ground Water Chemistry Summary ·
VOC

Parameters	Units	ODWQS	MW28-III 7-Oct-15	MW28-III 9-Nov-15	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	MW28-III 25-Apr-18
Methyl Chloride	µg/L		< 0.3	< 0.3	< 0.3	< 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
Bromomethane	µg/L		< 0.3	< 0.3	< 0.3	< 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	< 0.1	< 0.1	< 0.1
Trichloro-fluromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethene	µg/L	14	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L		< 1	< 1	< 1	< 1	< 1	< 1					< 1
Trans 1,2-Dichloroethene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloro-ethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,2-Dichloroethene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,1,1-Trichloroethane	µg/L		< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene	µg/L	5	< 0.1	< 0.1	--	--	--	--	--	--	--	--	< 0.1
1,2-Dichloropropane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,3-Dichloropropene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
T1,3-Dichloropropene	µg/L		< 0.1	< 0.1	< 0.1	< 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		< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	< 0.2	< 0.2	--	--	--	--	--	--	--	--	< 0.2
Dibromochloromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1,2 Tetrachloroethane	µg/L		< 0.1	< 0.1	< 0.1	< 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		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2 Tetrachloroethane	µg/L		< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1,3-Dichlorobenzene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	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
1,2-Dichlorobenzene	µg/L	200	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.1	< 0.1	< 0.1	< 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	< 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		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Acetone	µg/L		< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	**6**
1,2-Dibromoethane	µg/L		--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L		--	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		--	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	50	--	--	--	--	--	--	--	--	--	--	< 0.3
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-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	MW28-III 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	< 0.5	< 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	< 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	MW28-III	MW28-III	WP1	WP1	WP1	WP1	WP1	WP1	WP1	WP1	WP1
			17-Apr-24	7-Oct-24	16-Apr-15	8-Oct-15	28-Apr-16	4-Oct-16	18-Apr-17	23-Oct-17	25-Apr-18	16-Oct-18	11-Apr-19
Methyl Chloride	µg/L		<5	<5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.06	< 2
Vinyl Chloride	µg/L	2	<0.2	<0.2	--	--	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.2
Bromomethane	µg/L		<0.5	<0.5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.5	< 0.5
Chloroethane	µg/L				< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.08	< 3
Trichloro-fluromethane	µg/L		<5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5
1,1-Dichloroethene	µg/L	14	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Methyl tert-Butyl Ether	µg/L		<2	<2	< 1	< 1	< 1	< 1			< 1	< 2	< 2
Trans 1,2-Dichloroethene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
1,1-Dichloro-ethane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Cis 1,2-Dichloroethene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Chloroform	µg/L		<1	<1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 1	< 1
1,1,1-Trichloroethane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	5	<0.5	<0.5	< 0.1	< 0.1	--	--	--	--	< 0.1	< 0.5	< 0.5
1,2-Dichloropropane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Bromodichloromethane	µg/L		<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2
Cis 1,3-Dichloropropene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
T1,3-Dichloropropene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Tetrachloroethene	µg/L	80	<0.5	<0.5	< 0.2	< 0.2	--	--	--	--	< 0.2	< 0.5	< 0.5
Dibromochloromethane	µg/L		<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2
Chlorobenzene	µg/L		<0.5	<0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5
1,1,1,2 Tetrachloroethane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5
1,1,2,2 Tetrachloroethane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	5	<0.5	<0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	200	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
m/p-Xylene	µg/L		<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0
o-Xylene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 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
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	< 0.2	< 0.2	< 0.2	< 0.5	< 0.5
Acetone	µg/L		<30	<30	< 2	< 2	< 2	< 2	< 2	< 2	**4**	< 30	< 30
1,2-Dibromoethane	µg/L				--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2
Methyl ethyl ketone	µg/L		<2	<2	--	--	< 1	< 1	< 1	< 1	< 1	< 20	< 20
Methyl Isobutyl Ketone	µg/L		<20	<20	--	--	< 1	< 1	< 1	< 1	< 1	< 20	< 20
Dichloromethane	µg/L	50			--	--	--	--	--	--	< 0.3	< 0.3	< 5
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	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	WP1 7-Oct-24
Methyl Chloride	µg/L		< 2	< 2	< 2	< 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	**2.1**	< 0.5	< 0.5	<0.5	<0.5
Chloroethane	µg/L		< 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	<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		
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		
Methyl ethyl ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	<2	<2
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	<20	<20
Dichloromethane	µg/L	50	< 5	< 5	< 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	WP2 17-Apr-15	WP2 8-Oct-15	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	WP2 20-Apr-21
Methyl Chloride	µg/L		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.06	< 2	< 2	< 2	< 5
Vinyl Chloride	µg/L	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	**1.3**	< 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	< 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	< 0.1	--	--	--	< 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		< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	µg/L	80	< 0.2	< 0.2	--	--	--	< 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	< 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		< 0.1	< 0.1	< 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	< 0.5	< 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		7	< 2	**11**	**9**	< 2	**11**	< 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		--	--	< 1	**2**	< 1	**1**	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L		--	--	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20	< 20
Dichloromethane	µg/L	50	--	--	--	--	--	< 0.3	< 0.3	< 5	< 5	< 5	< 2
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	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	WP3 17-Apr-15	WP3 8-Oct-15	WP3 28-Apr-16	WP3 4-Oct-16
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
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		< 3							< 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	< 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	< 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	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene	µg/L	5	< 0.5		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 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	< 0.4	< 0.4	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 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	< 0.5	< 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	< 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	< 0.1	< 0.1	< 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	< 1.0	< 1.0	< 1.0	<1	<1	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	< 0.5	< 0.5	< 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	< 1.1	< 1.1	< 1.1			< 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	< 30	< 30	< 30	<30	<30	**4**	< 2	< 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		< 20	< 20	< 20	< 20	< 20	<2	**14**	--	--	< 1	< 1
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	< 20	< 20	<20	<20	--	--	< 1	< 1
Dichloromethane	µg/L	50	< 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	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	WP4 17-Apr-15	WP4 8-Oct-15	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	< 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
Bromomethane	µg/L		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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
Trichloro-fluromethane	µg/L		< 5	< 5	< 5	<5	<5	< 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
Methyl tert-Butyl Ether	µg/L		< 2	< 2	< 2	<2	<2	< 1	< 1	< 1	< 1		< 1
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	< 0.1
1,1-Dichloro-ethane	µg/L		< 0.5		< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,2-Dichloroethene	µg/L		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 1	< 1	< 1	<1	<1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,1,1-Trichloroethane	µg/L		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	**3.6**	<0.5	<0.5	1.2	0.8	< 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	< 0.1
1,1-Dichloroethylene	µg/L	5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	--	--	--	< 0.1
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	< 0.1
Bromodichloromethane	µg/L		< 2	< 2	< 2	<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,3-Dichloropropene	µg/L		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
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	< 0.1
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	< 0.4	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	--	--	--	< 0.2
Dibromochloromethane	µg/L		< 2	< 2	< 2	<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	<0.5	< 0.1	< 0.1	< 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	< 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	<0.5	<0.5	< 0.1	< 0.1	< 0.4	< 0.4	< 0.4	< 0.4
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	< 0.1
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	< 0.2
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	< 0.1
m/p-Xylene	µg/L		< 1.0	< 1.0	**2**	<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	< 0.5	**0.7**	<0.5	<0.5	< 0.1	< 0.1	< 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	< 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	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Acetone	µg/L		< 30	< 30	**39**	<30	<30	10	< 2	**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	--	--	< 1	< 1	**1**	< 1
Methyl Isobutyl Ketone	µg/L		< 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						

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	WP4	WP5	WP5	WP5	WP5	WP5	WP5	WP5	WP5	WP5
			18-Apr-24	7-Oct-24	16-Apr-15	27-Apr-16	18-Apr-17	24-Oct-17	23-Apr-18	16-Oct-18	12-Apr-19	22-Apr-20	19-Oct-20
Methyl Chloride	µg/L		<5	<5	**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	< 0.5	< 0.2	< 0.2	< 0.2
Bromomethane	µg/L		<0.5	<0.5	< 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	< 0.08	< 3	< 3	< 3
Trichloro-fluromethane	µg/L		<5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 5	< 5
1,1-Dichloroethene	µg/L	14	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether	µg/L		<2	<2	< 1	< 1			< 1	< 2	< 2	< 2	< 2
Trans 1,2-Dichloroethene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloro-ethane	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
Cis 1,2-Dichloroethene	µg/L		<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	µg/L		<1	<1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 1	< 1	< 1	< 1
1,1,1-Trichloroethane	µg/L		<0.5	<0.5	< 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	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	5	<0.5	<0.5	< 0.1	--	--	--	< 0.1	< 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	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L		<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2	< 2	< 2
Cis 1,3-Dichloropropene	µg/L		<0.5	<0.5	< 0.1	< 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	< 0.1	< 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		<0.5	<0.5	< 0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	µg/L	80	<0.5	<0.5	< 0.2	--	--	--	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L		<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 2	< 2	< 2	< 2
Chlorobenzene	µg/L		<0.5	<0.5	< 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		<0.5	<0.5	< 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		<5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 5	< 5
1,1,2,2 Tetrachloroethane	µg/L		<0.5	<0.5	< 0.1	< 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	< 0.1	< 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	< 0.2	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
m/p-Xylene	µg/L		<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/L		<0.5	<0.5	< 0.1	< 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	< 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	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	µg/L		<30	<30	< 2	< 2	**4**	< 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	--	< 1	**1**	< 1	< 1	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L		<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									

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

Ground Water Chemistry Summary ·
VOC

Parameters	Units	ODWQS	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	WP6 16-Apr-15	WP6 8-Oct-15	WP6 9-Nov-15
Methyl Chloride	µg/L		< 5	< 5	< 5	< 5	< 5	< 5	<5	<5	< 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	--	--	--
Bromomethane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.3	< 0.3	< 0.3
Chloroethane	µg/L		< 3	< 3							< 0.1	< 0.1	< 0.1
Trichloro-fluromethane	µg/L		< 5	< 5	< 5	< 5	< 5	< 5	<5	<5	< 0.1	< 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	< 0.1
Methyl tert-Butyl Ether	µg/L		< 2	< 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	<0.5	< 0.1	< 0.1	< 0.1
1,1-Dichloro-ethane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5		< 0.5	<0.5	<0.5	< 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	<0.5	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 1	< 1	< 1	< 1	< 1	< 1	<1	<1	< 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	<0.5	< 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	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	< 0.1	< 0.1
1,2-Dichloropropane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 2	< 2	< 2	< 2	< 2	< 2	<2	<2	< 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	<0.5	< 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	<0.5	< 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	3.9	< 0.5
1,1,2-Trichloroethane	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.4	< 0.4	< 0.4
Tetrachloroethene	µg/L	80	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	< 0.2
Dibromochloromethane	µg/L		< 2	< 2	< 2	< 2	< 2	< 2	<2	<2	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 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	< 5	< 5	< 5	<5	<5	< 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	<0.5	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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	<0.5	< 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	<0.5	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 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	< 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	< 0.2	< 0.2	< 0.2
Acetone	µg/L		< 30	< 30	< 30	< 30	< 30	< 30	<30	<30	2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			--	--	--
Methyl ethyl ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	<2	<2	--	--	--
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	<20	<20	--	--	--
Dichloromethane	µg/L	50	< 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	WP6 28-Apr-16	WP6 4-Oct-16	WP6 18-Apr-17	WP6 24-Oct-17	WP6 24-Apr-18
Methyl Chloride	µg/L		< 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
Bromomethane	µg/L		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Chloroethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Trichloro-fluromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethene	µg/L	14	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L		< 1	< 1			< 1
Trans 1,2-Dichloroethene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloro-ethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,2-Dichloroethene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,1,1-Trichloroethane	µg/L		< 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
Benzene	µg/L	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
1,1-Dichloroethylene	µg/L	5	--	--	--	--	< 0.1
1,2-Dichloropropane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,3-Dichloropropene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
T1,3-Dichloropropene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	µg/L	24	< 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
Tetrachloroethene	µg/L	80	--	--	--	--	< 0.2
Dibromochloromethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1,2 Tetrachloroethane	µg/L		< 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
Bromoform	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2 Tetrachloroethane	µg/L		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1,3-Dichlorobenzene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	µg/L	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	µg/L	200	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L		< 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
Styrene	µg/L		< 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
Acetone	µg/L		< 2	< 2	< 2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L		< 1	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		< 1	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	50	--	--	--	--	< 0.3
Trichloroethylene	µg/L	5					

ODWQS - Ontario Drinking Water Quality Standards
Bold and highlighted indicates exceedance
Bold indicates detection

Surface Water Chemistry Summary
- VOC

Parameters	Units	PWQO	SW12 20-Jul-17	SW13 20-Jul-17	SW12 24-Apr-18	SW13 24-Apr-18	SW13 (10m) 17-Apr-24	SW13 (10m) 11-Jul-24	SW14 18-Apr-17	SW14 20-Jul-17	SW14 26-Oct-17	SW14 24-Apr-18	SW14 12-Apr-19
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	< 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 8-Jul-19	SW14 23-Apr-20	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	SW15 24-Apr-18	SW16 24-Apr-18
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	< 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	SW2 16-Apr-15	SW2 28-Jul-15	SW2 29-Apr-16	SW2 24-Aug-16	SW2 18-Apr-17	SW2 23-Apr-18	SW2 18-Jul-18	SW2 12-Apr-19	SW2 8-Jul-19	SW2 23-Apr-20	SW2 20-Jul-20
Methyl Chloride	µg/L		< 0.3	< 0.3	--	--	--	< 0.3	< 0.3	< 2	< 2	< 2	< 2
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	< 0.2
Bromomethane	µg/L	0.9	< 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	< 3	< 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-Dichloroethylene	µg/L	40	< 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	200	< 1	< 1	< 1	< 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	200	< 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	200	< 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	800	< 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		< 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	100	< 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	70	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	20	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	100	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	200	< 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	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
Tetrachloroethene	µg/L		< 0.2	< 0.2	--	--	--	< 0.2	< 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	15	< 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	20	< 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	8	< 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	60	< 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									< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	2.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	4	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 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	< 0.1	< 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	40	< 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		< 0.4	< 0.4	< 0.4	< 0.4	--	< 0.4	< 0.4	< 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	< 0.5
1,2,4 Trichlorobenzene	µg/L	0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.5	< 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	400	--	--	< 1	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L		--	--	< 1	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20
Dichloromethane	µg/L	100	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.5	< 5	< 5	< 5	< 5
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 20-Apr-21	SW2 19-Jul-21	SW2 21-Apr-22	SW2 20-Jul-22	SW2 20-Apr-23	SW2 30-Aug-23	SW2 17-Apr-24	SW2 11-Jul-24	SW3 16-Apr-15	SW3 28-Jul-15	SW3 11-May-16
Methyl Chloride	µg/L		< 5	< 5	< 5	< 5	< 5	< 5	<5	<5	< 0.3	< 0.3	--
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	< 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	< 0.3
Chloroethane	µg/L		< 3	< 3							< 0.1	< 0.1	< 0.1
Trichloro-fluromethane	µg/L		< 5	< 5	< 5	< 5	< 5	< 5	<5	<5	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene	µg/L	40	< 0.5	< 0.5					<0.5	<0.5	< 0.1	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L	200	< 2	< 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	<0.5	< 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	<0.5	<0.5	< 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	<0.5	<0.5	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 1	< 1	< 1	< 1	< 1	< 1	<1	<1	< 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	<0.5	<0.5	< 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	< 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	< 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	< 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	< 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	< 0.1
Bromodichloromethane	µg/L	200	< 2	< 2	< 2	< 2	< 2	< 2	<2	<2	< 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	<0.5	< 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	<0.5	< 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	< 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	< 0.2	< 0.2	--
Dibromochloromethane	µg/L		< 2	< 2	< 2	< 2	< 2	< 2	<2	<2	< 0.1	< 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	< 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	< 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	< 0.5
Bromoform	µg/L	60	< 5	< 5	< 5	< 5	< 5	< 5	<5	<5	< 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	<0.5			
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	< 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	< 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	< 0.1
m/p-Xylene	µg/L		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	< 0.4	< 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	< 0.1
Total Xylene	µg/L		< 1.1	< 1.1	< 1.1	< 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	< 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	< 0.2
Acetone	µg/L		< 30	< 30	< 30	< 30	< 30	< 30	<30	<30	< 2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L	400	< 20	< 20	< 20	< 20	< 20	< 20	<2	<2	--	--	< 1
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	< 20	< 20	< 20	<20	<20	--	--	< 1
Dichloromethane	µg/L	100	< 2	< 2							< 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	SW3 24-Aug-16	SW3 18-Apr-17	SW3 20-Jul-17	SW3 24-Apr-18	SW3 18-Jul-18	SW3 12-Apr-19	SW3 8-Jul-19	SW3 23-Apr-20	SW3 20-Jul-20	SW3 20-Apr-21	SW3 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	< 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	< 0.5
Chloroethane	µg/L		< 0.1	< 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	< 0.1	< 5	< 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	< 0.5
Methyl tert-Butyl Ether	µg/L	200	< 1	< 1	< 1	< 1	< 1	< 2	< 2	< 2	< 2	< 2	< 2
Trans 1,2-Dichloroethene	µg/L		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 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	< 0.1	< 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	< 0.1	< 0.5	< 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
1,1,1-Trichloroethane	µg/L	800	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 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	< 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	< 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	< 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	< 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	< 0.5
Bromodichloromethane	µg/L	200	< 0.1	< 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	< 0.1	< 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	< 0.1	< 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	< 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	< 0.1	< 2	< 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	< 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	< 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	< 0.5
Bromoform	µg/L	60	< 0.1	< 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	< 0.1	< 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	< 0.2	< 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	< 0.1	< 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	< 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	< 0.1	< 0.5	< 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	< 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	< 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	< 0.5
Acetone	µg/L		< 2	< 2	< 2	< 2	< 2	< 30	< 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	< 0.2
Methyl ethyl ketone	µg/L	400	< 1	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L		< 1	< 1	< 1	< 1	< 1	< 20	< 20	< 20	< 20	< 20	< 20
Dichloromethane	µg/L	100	< 0.3	< 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 21-Apr-22	SW3 19-Apr-23	SW3 30-Aug-23	SW3 17-Apr-24	SW3 11-Jul-24	SW4 16-Apr-15	SW4 28-Jul-15	SW4 29-Apr-16	SW4 24-Aug-16	SW4 18-Apr-17	SW4 20-Jul-17
Methyl Chloride	µg/L		< 5	< 5	< 5	<5	<5	< 0.3	< 0.3	--	--	--	--
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	< 0.2
Bromomethane	µg/L	0.9	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 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
Trichloro-fluromethane	µg/L		< 5	< 5	< 5	<5	<5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene	µg/L	40				<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl tert-Butyl Ether	µg/L	200	< 2	< 2	< 2	<2	<2	< 1	< 1	< 1	< 1	< 1	< 1
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	< 0.1
1,1-Dichloro-ethane	µg/L	200	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform	µg/L		< 1	< 1	< 1	<1	<1	< 0.3	< 0.3	< 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	< 0.1	< 0.1	< 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	< 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	< 0.5
1,2-Dichloroethane	µg/L	70	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Trichloroethylene	µg/L	20	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichloropropane	µg/L	100	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bromodichloromethane	µg/L	200	< 2	< 2	< 2	<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cis 1,3-Dichloropropene	µg/L		< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
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	< 0.1
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	< 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	< 0.2	< 0.2	--	--	--	--
Dibromochloromethane	µg/L		< 2	< 2	< 2	<2	<2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene	µg/L	15	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	< 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	< 0.1	< 0.1	< 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	< 0.5
Bromoform	µg/L	60	< 5	< 5	< 5	<5	<5	< 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	<0.5	<0.5						
1,3-Dichlorobenzene	µg/L	2.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	µg/L	4	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.2	< 0.2	< 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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m/p-Xylene	µg/L		< 1.0	< 1.0	< 1.0	<1	<1	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
o-Xylene	µg/L	40	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Xylene	µg/L		< 1.1	< 1.1	< 1.1			< 0.4	< 0.4	< 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	< 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	< 0.2	< 0.2
Acetone	µg/L		< 30	< 30	< 30	<30	<30	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dibromoethane	µg/L		< 0.2	< 0.2	< 0.2			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Methyl ethyl ketone	µg/L	400	< 20	< 20	< 20	<2	<2	--	--	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L		< 20	< 20	< 20	<20	<20	--	--	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	100						< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
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	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	SW4 20-Jul-22
Methyl Chloride	µg/L		--	< 0.3	< 0.3	< 2	< 2	< 2	< 2	< 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	< 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	< 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	< 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	< 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	200	< 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	200	< 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	800	< 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		< 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	100	**0.7**	< 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	< 0.5	< 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	< 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	< 0.5
Bromodichloromethane	µg/L	200	< 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	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	< 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	< 0.5
Dibromochloromethane	µg/L		< 0.1	< 0.1	< 0.1	< 2	< 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	< 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	< 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	< 0.5
Bromoform	µg/L	60	< 0.1	< 0.1	< 0.1	< 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
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	< 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	< 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	< 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	40	< 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		< 0.4	< 0.4	< 0.4	< 1.1	< 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	< 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	< 0.5
Acetone	µg/L		**4**	< 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	400	< 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	100	< 0.3	< 0.3	< 0.5	< 5	< 5	< 5	< 5	< 2	< 2		
Trichloroethylene	µg/L	20										< 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 19-Apr-23	SW4 30-Aug-23	SW4 17-Apr-24	SW4 11-Jul-24
Methyl Chloride	µg/L		< 5	< 5	<5	<5
Vinyl Chloride	µg/L	600	< 0.2	< 0.2	<0.2	<0.2
Bromomethane	µg/L	0.9	< 0.5	< 0.5	<0.5	<0.5
Chloroethane	µg/L					
Trichloro-fluromethane	µg/L		< 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
Trans 1,2-Dichloroethene	µg/L		< 0.5	< 0.5	<0.5	<0.5
1,1-Dichloro-ethane	µg/L	200	< 0.5	< 0.5	<0.5	<0.5
Cis 1,2-Dichloroethene	µg/L	200	< 0.5	< 0.5	<0.5	<0.5
Chloroform	µg/L		< 1	< 1	<1	<1
1,1,1-Trichloroethane	µg/L	800	< 0.5	< 0.5	<0.5	<0.5
Carbon Tetrachloride	µg/L		< 0.2	< 0.2	<0.2	<0.2
Benzene	µg/L	100	< 0.5	< 0.5	<0.5	<0.5
1,2-Dichloroethane	µg/L	70	< 0.5	< 0.5	<0.5	<0.5
Trichloroethylene	µg/L	20	< 0.5	< 0.5	<0.5	<0.5
1,2-Dichloropropane	µg/L	100	< 0.5	< 0.5	<0.5	<0.5
Bromodichloromethane	µg/L	200	< 2	< 2	<2	<2
Cis 1,3-Dichloropropene	µg/L		< 0.5	< 0.5	<0.5	<0.5
T1,3-Dichloropropene	µg/L		< 0.5	< 0.5	<0.5	<0.5
Toluene	µg/L	0.8	< 0.5	< 0.5	<0.5	<0.5
1,1,2-Trichloroethane	µg/L		< 0.5	< 0.5	<0.5	<0.5
Tetrachloroethene	µg/L		< 0.5	< 0.5	<0.5	<0.5
Dibromochloromethane	µg/L		< 2	< 2	<2	<2
Chlorobenzene	µg/L	15	< 0.5	< 0.5	<0.5	<0.5
1,1,1,2 Tetrachloroethane	µg/L	20	< 0.5	< 0.5	<0.5	<0.5
Ethylbenzene	µg/L	8	< 0.5	< 0.5	<0.5	<0.5
Bromoform	µg/L	60	< 5	< 5	<5	<5
1,1,2,2 Tetrachloroethane	µg/L		< 0.5	< 0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	< 0.5	< 0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	< 0.5	< 0.5	<0.5	<0.5
1,2-Dichlorobenzene	µg/L	2.5	< 0.5	< 0.5	<0.5	<0.5
m/p-Xylene	µg/L		< 1.0	< 1.0	<1	<1
o-Xylene	µg/L	40	< 0.5	< 0.5	<0.5	<0.5
Total Xylene	µg/L		< 1.1	< 1.1		
Styrene	µg/L	4	< 0.5	< 0.5	<0.5	<0.5
1,2,4 Trichlorobenzene	µg/L	0.5	< 0.5	< 0.5	<0.5	<0.5
Acetone	µg/L		< 30	< 30	<30	<30
1,2-Dibromoethane	µg/L		< 0.2	< 0.2		
Methyl ethyl ketone	µg/L	400	< 20	< 20	<2	<2
Methyl Isobutyl Ketone	µg/L		< 20	< 20	<20	<20
Dichloromethane	µg/L	100				
Trichloroethylene	µg/L	20	< 0.5	< 0.5	<0.5	<0.5

PWQO - Provincial Water Quality Objectives
Bold and highlighted indicates exceedance
Bold indicates detection

Ground Water Quality - PCB's

Parameters	PCB
Units	µg/L
ODWQS / PWQO	3 / 0.001
Monitoring Well 7	
2010-05-05	<0.001
2011-06-08	**0.028**
2013-10-01	<0.05
2017-04-17	<0.05
2018-04-25	<0.05
2019-04-11	< 0.05
2020-04-28	< 0.05
2021-04-19	<0.05
2022-04-21	<0.05
2023-04-19	<0.05
2024-04-17	<0.05
Monitoring Well 15	
2009-06-04	<0.001
2010-05-14	**0.003**
2010-10-20	<0.001
2011-06-09	< 0.001
2011-11-10	< 0.001
2012-05-23	< 0.001
2012-10-01	< 0.001
2013-05-23	< 0.2
2013-10-01	< 0.05
2014-04-23	< 0.04
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2017-04-17	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Monitoring Well 15A	
2008-09-24	<0.001
2009-08-20	<0.001
2010-05-14	< 0.001
2010-10-20	<0.001
2011-06-09	< 0.001
2011-11-10	< 0.001
2012-05-23	< 0.001
2012-10-01	< 0.001
2013-05-23	< 0.2
2013-10-01	< 0.05
2014-04-23	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2017-04-17	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-10-27	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05

Parameters	PCB
Units	µg/L
ODWQS / PWQO	3 / 0.001
Monitoring Well 15B	
2010-05-14	< 0.001
2010-10-20	<0.001
2011-06-09	< 0.001
2011-11-10	< 0.001
2012-05-23	< 0.001
2012-10-01	< 0.001
2013-05-23	< 0.05
2013-10-01	< 0.05
2014-04-23	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2017-04-17	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Monitoring Well 16	
2017-04-17	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05

Parameters	PCB
Units	µg/L
ODWQS / PWQO	3 / 0.001
Monitoring Well 26	
2009-08-18	<0.001
2010-05-11	<0.001
2010-10-26	<0.001
2011-06-09	< 0.001
2011-11-10	< 0.001
2012-05-23	< 0.001
2012-10-01	< 0.001
2013-05-23	< 0.05
2013-10-01	< 0.05
2014-04-24	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2017-04-17	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Monitoring Well 26-I	
2009-08-18	<0.001
2010-05-11	<0.001
2010-10-26	<0.001
2011-06-09	< 0.001
2011-11-10	< 0.001
2012-05-23	< 0.001
2012-10-01	< 0.001
2013-05-23	< 0.05
2013-10-01	< 0.05
2014-04-24	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.04
2015-10-07	< 0.2
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2017-04-17	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05

Parameters	PCB
Units	µg/L
ODWQS / PWQO	3 / 0.001
Monitoring Well 26-2	
2011-06-09	< 0.001
2011-11-10	< 0.001
2012-05-23	< 0.001
2012-10-01	< 0.001
2013-05-23	< 0.05
2013-10-01	< 0.05
2014-04-24	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2017-04-17	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-05-08	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Monitoring Well 27-I	
2014-04-24	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2017-02-22	< 0.05
2017-04-17	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05

Parameters	PCB
Units	µg/L
ODWQS / PWQO	3 / 0.001
Monitoring Well 27-II	
2014-04-24	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2016-04-27	< 0.05
2017-02-22	< 0.05
2017-04-17	< 0.05
2017-07-20	< 0.05
2017-10-23	< 0.05
2018-10-15	< 0.05
2018-05-08	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Monitoring Well 27-III	
2014-04-24	< 0.05
2014-10-15	< 0.05
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2016-04-27	< 0.05
2017-02-22	< 0.05
2017-04-17	< 0.05
2017-07-20	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Monitoring Well 28-I	
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2016-04-27	< 0.05
2017-02-22	< 0.05
2017-04-17	< 0.05
2017-07-20	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05

Parameters	PCB
Units	µg/L
ODWQS / PWQO	3 / 0.001
Monitoring Well 28-II	
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2017-02-22	< 0.05
2017-04-17	<0.05
2017-07-20	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Monitoring Well 28-III	
2015-04-15	< 0.05
2015-10-07	< 0.2
2016-04-27	< 0.05
2017-02-22	< 0.05
2017-04-17	< 0.05
2017-07-20	< 0.05
2017-10-23	< 0.05
2018-04-25	< 0.05
2018-10-15	< 0.05
2019-04-11	< 0.05
2019-10-21	< 0.05
2020-04-22	<0.05
2020-10-19	<0.05
2021-04-19	<0.05
2021-10-27	<0.05
2022-04-21	<0.05
2022-10-26	<0.05
2023-04-19	<0.05
2023-10-12	<0.05
2024-04-17	<0.05
2024-10-07	<0.05
Surface Water 3	
2008-07-24	<0.001
2009-08-17	<0.001
2010-04-28	<0.001
2010-08-16	<0.001
2010-11-02	<0.001
2011-06-07	< 0.001
2011-08-23	< 0.001
2011-11-11	< 0.001
2012-05-30	< 0.001
2012-08-16	< 0.001
2012-10-01	< 0.001
2013-05-22	< 0.05
2013-08-12	< 0.05
2014-04-24	<0.05
2014-07-14	<0.05
2014-10-15	<0.05
2015-07-28	< 0.05
2015-10-08	< 0.2
2016-04-29	< 0.05
2016-10-04	< 0.05
2017-10-24	< 0.05
2018-10-16	< 0.05
2019-10-22	<0.05
2020-10-19	<0.05
2021-10-27	<0.05
2022-10-26	<0.05
2023-10-12	<0.05
2024-10-07	<0.05

ODWQS - Ontario Drinking Water Quality Standards (Ground Water Samples)
PWQO - Provincial Water Quality Objectives (Surface water Samples)

Ground Water Quality - Pesticides

Parameters	Alpha-BHC	Aldrin	Alpha-Chlordane	Beta BHC	Delta BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulphate	Endrin	Gamma-Chlordane	Gamma-BHC	Heptachlor
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ODWS													
Monitoring Well 7													
2009-06-04	<0.004	<0.005	<0.003	<0.002	<0.001	<0.001	<0.003	<0.003	<0.013	<0.002	<0.003	<0.005	<0.001
2010-05-12	< 0.004	< 0.005	< 0.003	< 0.002	0.003	0.002	< 0.003	< 0.003	< 0.013	< 0.002	< 0.003	< 0.005	< 0.001
2011-06-08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.003	< 0.005	< 0.005
2017-04-17	<0.4	<0.001	<0.005	<0.4	--	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	--	<0.1
2018-04-25	--	--	--	--	--	--	--	--	--	--	--	--	--
2019-04-11	<0.4	<0.02	**0.08**	<0.4		<0.05	<0.05	<0.05	<0.05	<0.05	**0.08**		<0.1
2020-04-28	<0.4	<0.01	<0.05	<0.4		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.1
2021-04-19		<0.01	<0.05			<0.05	<0.05	<0.05		<0.05	<0.05		<0.01
2022-04-21		<0.01	<0.05			<0.05	<0.05	<0.05		<0.05	<0.05		<0.004
2023-04-19		<0.01	<0.05			<0.05	<0.05	<0.05		<0.05	<0.05		<0.004
2024-04-17	<0.4	<0.01	<0.05	<0.4		<0.01	<0.05		<0.05	<0.05	<0.05		<0.1

Monitoring Well 7

	Heptachlor Epoxide	Hexachlorobenzene	Mirex	op'-DDT	pp'-DDD	pp'DDE	pp'DDT	pp'-Methoxychlor	Chlordane (Total)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
2009-06-04	<0.001	<0.006	<0.001	<0.003	<0.003	<0.003	<0.003	<0.008	--
2010-05-12	< 0.001	< 0.006	< 0.001	< 0.003	< 0.003	< 0.003	< 0.003	< 0.008	--
2011-06-08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.005
2017-04-17	<0.1	--	<1	<0.005	<0.05	<0.01	<0.005	<0.1	<0.05
2018-04-25	--	--	--	--	--	--	--	--	--
2019-04-11	<0.1		<1	<0.05	<0.05	<0.01	<0.05	<0.1	<0.04
2020-04-28	<0.1		<1	<0.05	<0.05	<0.01	<0.05	<0.1	<0.04
2021-04-19	<0.01	<0.01		<0.05	<0.05	<0.01	<0.05	<0.05	<0.05
2022-04-21	<0.006	<0.01	<0.009	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05
2023-04-19	<0.006			<0.05	<0.05	<0.01	<0.05	<0.05	<0.05
2024-04-17	<0.02	<0.01	<1	<0.05	<0.05	<0.01	<0.05	<0.05	

APPENDIX F

Sampling Protocols

FIELD SAMPLING PROTOCOL FOR CKL LANDFILL SITES

Last updated: November 19, 2018

Table of Contents

FIELD PREPARATION……3
Review Sampling Requirements……3
Prepare Equipment 3
On-site Arrival..... 4
SAMPLING 4
Landfill Gas Monitoring 4
Groundwater 5
1. Field Book Setup..... 5
2. Water Level Measurements 5
3.Purging Procedure 6
4.Sampling Procedure..... 7
5.Troubleshooting in the Field..... 8
Surface Water 9
Leachate Pumping Chambers..... 11
Field Book Setup..... 11
1. Lindsay Ops and Lindsay St. North Leachate Pumping Chambers 12
2.Emily Purge Wells..... 12
Residential 13
Compost..... 13
LABORATORY PROCEDURES 15
Water 15
Residential Well Sample Submission..... 16
POST MONITORING PROCEDURES 16
Groundwater 16
Surface Water 16
Landfill Gas 17
MONITORING WELL REPAIRS ..... Error! Bookmark not defined.
Appendix A – Field Sampling Equipment List 18
Appendix B – Equipment Calibration and Maintenance Protocols..... 19
Appendix C – Contact Information 24
Appendix D – Health and Safety Information..... 27

Review Sampling Requirements

- All of the sampling requirements are listed in the monthly sampling requirements spreadsheet S G:\Environmental\Env Ser - SWaste - Gen\W22 LANDFILL MONITORING PROGRAMS. The Waste Technician and Regulatory Compliance Officer will ensure that the sampling requirements spreadsheet is kept up to date.
- Ensure that the sampling requirements spreadsheets and site maps are in the back of each field book, and are current prior to each sampling event.

Prepare Equipment

- Ensure that you have all equipment on the field equipment list. See Appendix A - Field Sampling Equipment List.
- Equipment must be calibrated according to manufacturer's standards. See Appendix B - Equipment Calibration and Maintenance Protocols for a complete set of maintenance and calibration instructions.
- Sampling bottles should be ordered at least 2 weeks before scheduled field sampling. Sample bottles should be stored primarily at 12 Peel Street in the Waste Management Department, or the Lindsay Ops maintenance building if necessary.
- Check the charge on the phone, GPS, YSI (dissolved oxygen, pH, temperature and conductivity) and gas monitor.
- Inspect your vehicle to ensure you have enough fuel, washer fluid and oil. Also check tire pressure and make note of any other alarms present on the vehicle. It is important to fill out the daily log book located in the vehicle to document the checks being conducted. Do not drive the vehicle if it requires servicing – contact Fleet for assistance.
- Leave the Supervisor of Waste Management Operations with your daily schedule. The Administrative Assistant or Regulatory Compliance Officer should also be informed of your schedule. If you will be working alone, you must follow SOP WM-005 – Working Alone. You are required to contact TAS (1-877-885-7337) when you arrive on-site and when you leave the site.
- Contact the Supervisor of Waste Management Operations or Regulatory Compliance Officer as well as TAS in the case of after-hours sampling. Confirm with the Supervisor of Waste Management Operations or Regulatory Compliance Officer and TAS when you arrive back at the office.
- Ensure that you have your cell phone and that it is fully charged at all times when you are out of the vehicle.

On-site Arrival

- Observe your surroundings. Note if gates and offices (if applicable) are locked if site is not in operation. Contact Supervisor of Waste Management Operations immediately if suspicious activity is noted.
- Honk the vehicle horn if you note bear signs in the area.
- Generally always work from areas of less contamination to areas of higher potential contamination to reduce the possibility of sample cross contamination.
- Sampling should not be conducted during a thunderstorm or other severe weather conditions. If severe weather conditions arise while you are at a landfill follow the SOP WM004 – Extreme Weather.
- Appropriate precautions must be followed in extreme cold/heat conditions. See Appendix D - Health and Safety information.
- Ensure that appropriate PPE is worn for sampling including gloves, steel toed boots, long pants, sunscreen, safety glasses, etc.
- Do not proceed with work in isolated areas if you are uncomfortable with the work. Contact the Supervisor of Waste Management Operations to make alternate arrangements.

SAMPLING

Landfill Gas Monitoring

1. The GMI GT-44 Methane Monitor is a certified Class 1, Div 1 Groups C and D instrument. The GT-44 should be operated and maintained as per manufacture's instructions. See Appendix B for further information; a copy of the manual is available in the Equipment Manuals binder. The monitor uses 3 C batteries as a power source – ensure extra batteries are always available.

2. The GMI GT-44 Gas Monitor can be programmed to read %VOL, %LEL and ppm CH4. Readings should be recorded in %VOL. This can be achieved by placing the monitor in Purge Mode. Record the date, site, monitor number and both the %VOL and the %LEL in the methane field book.

3. You must complete a fresh air calibration before each sampling event. Switch the monitor on in an open environment away from any sources of contamination. The monitor will begin a 30 second warm-up and calibration sequence.

4. If gas monitoring is required, it should be done before water level measurements and shall be taken without the removal of the any dedicated sampling device. Place the tube of the gas meter into the monitoring well. Avoid lowering the tube into the well water; water will damage the meter's sensors. If a release valve is

not available hold your hand over the top of the well ensuring a seal. You must wear latex or protective gloves when putting your hand over the monitoring well. If taking measurements from a dedicated gas monitoring probe, insert the tip of the monitor into the well valve and then open the stopcock. The monitor should be attached before opening the stopcock to ensure there is no release of methane gas.

5. Place the monitor in purge mode and allow the automatic pump to run for at least 30 seconds, or until the gas reading reaches a maximum and then begins to decline. In the field book record the highest %VOL displayed on the meter and determine the %LEL. The maximum reading is stored in the monitor for your reference.

Groundwater

1. Field Book Setup

Monitoring Well Number	Water Level	Well Depth	Casing Volume (WD-WL xF)	Casing Volume x 3	Volume of Water Purged	Sample Collected (2B4B, VOC etc)	Date Sample Collected	Well Condition, Weather, etc.
MW	**WL**	**WD**	**V**	**Vx3**	**Purge**	**Sample**	**Date**	**Comments**
e.g. MW1	6.2	15.2	18.18	54.54	55	2B4B	25-Oct-10	overcast, 25°C, well cap replaced

Table 1: Sample field book format

Pipe Size (inch)	Factor (F)
1/2	0.127
3/4	0.285
1	0.506
1 1/4	0.791
1 1/2	1.140
1 3/4	1.551
2	**2.026**

Table 2: Common factors for determining well volume

2. Water Level Measurements

a. To ensure that water levels are not affected by purging adjacent wells, gas and water levels should be taken from all wells prior to sampling/purging any wells in the area. Sample tubing should not be moved until the gas and water level measurements have been taken.

b. Water level measurements shall be taken without the removal of any dedicated sampling device (tubing and foot-valve arrangements). Disturbing anything in the well including the tubing and foot-valve can alter the water level reading.
c. Rinse the water level meter with distilled water prior to lowering it into the well. Make sure the water meter is on and lower the meter into the well until the meter beeps. The meter can be affected by condensation on the walls of the pipe or conductivity levels, so slightly raise and lower the water meter to be sure of your measurement. Water levels shall be measured with an electric depth gauge to the nearest 0.01 meters.
d. Measurements shall be taken from the top of the monitored well. The measurement will be taken from the top of the PVC casing (well pipe) and not the top of the protective casing. Ensure that the TOP levels are up to date.
e. Water level measurements shall be recorded in the field book for each specific monitor.
f. Switch off the water level monitor and continue lowering the table until it reaches the bottom of the well – the tape should become slack. Raise the tape just until it becomes taught and read the depth from the top of the PVC casing (well pipe). The height of standing water in each well shall be calculated by subtracting the static water level from the total well depth.

3. Purging Procedure

a. Prior to sampling, each well shall be purged to remove stagnant water within the casing.
b. Three casing volumes shall be removed by the dedicated samplers or by use of a bailer from the wells with moderate inflow. The casing volume can be determined by multiplying the height of standing water by F. The casing volume is then multiplied by 3 to determine the purge volume. Record these values in the field book.
c. The volume of water required to be purged is calculated as follows:

Volume (m^3) =3 x (F(m^2) *(Depth of Well-Water Level (m))

Where:

F is equal to the area (F=(3.14 *D^2)/4*1000
D is the diameter measured in meters

d. The purged water shall be measured into a calibrated container (i.e. bucket with known volume) and the volume of water purged shall be recorded in the field book for the specific monitor. Be sure to purge any sediment that may have accumulated at the bottom of the well.
e. Slow inflow monitors shall be purged entirely dry. The volume of purged water shall be recorded in the field book for the specific monitor. Staff should leave

the monitor to recharge and return periodically to the well to attempt to purge the full volume.

f. For slow recharge wells it may be necessary to return the following day to collect your sample.

4. Sampling Procedure

a. Suitable sample bottles (containing pre-measured preservatives, as required) shall be obtained from the analyzing laboratory in advance of the sampling program.

b. Each sample bottle shall be labeled to indicate the project name (landfill site), well designation, date, time of sample collection, and preservatives added.

c. Samples shall be collected by means of the dedicated samplers in all monitoring wells, if present. For slow inflow monitors, samples shall be collected the day following the purging exercise (to permit water-level recovery, if required).

d. Nitrile gloves should be worn when taking any sample. Change gloves for each sampling location.

e. When 3 borehole volumes have been purged sample the groundwater in the following order as necessary:

i. If required, pH, conductivity, and water temperature

ii. VOC glass amber bottles contain preservatives (usually HCl) but need to be filled with no headspace. Carefully fill the VOC bottles to the top without losing the preservative. To help ensure no air in the sample fill the top of the cap with the groundwater as well or ensure there is a convex surface on the mouth of the bottle. After filling the bottle and putting the lid on, invert the bottle and tap the sides to ensure that no air is present in the sample. Add more sample until no air bubbles remain. If a significant volume of water is lost during refilling, the sample must be collected in a new bottle to ensure sufficient preservatives.

iii. Poly Aromatic Hydrocarbons (PAHs) - 1 L amber bottles with Teflon lids.

iv. Pesticides – 1 or 2 unpreserved 1 L amber bottles may be required (depending on the amount of sediment, check with the lab). Fill bottle leaving a bit of headspace to allow for liquid to expand in temperature changes. Ensure that the lip of the bottle and the lid do not come into contact with anything except the sample.

v. Dissolved Organic Carbon (DOC) –bottle may contain preservative

vi. Phenols – glass bottle with preservative (H_2SO_4 or $CuSO_4$)

vii. Mercury – glass bottle contains preservative ($K_2Cr_2O_7$ or HNO_3)

viii. General chemistry is taken in PET bottles with no filtration and no preservative

ix. Inorganic compounds (metals) – PET bottle with acid preservative (often HNO_3). In Ontario metals are measured in the dissolved state so groundwater samples must be filtered. Use a 45 micron filter, ensure that it is placed on the waterra tubing in the correct direction, purge some water though the filter and then fill the bottle. There is a preservative in metals

bottles. Fill the bottle almost entirely but not all the way to the top. If there is a lot of sediment you may require more than one filter. Alternatively you can request lab filtration of the sample but this must be indicated on the sample bottle and the chain of custody and the sample must be collected in an unpreserved bottle.

f. Sampling information shall be recorded in the field book. Information includes the well number, date of sample collection, static water level, well casing volume, purge volume, actual volume of water purged, and any repairs necessary on the well and weather conditions. Take any field notes on the condition of the well or the reason if a sample could not be obtained. A pencil is preferred as it won't smudge if wet.

g. If sampling during the winter ensure that all water is emptied from the waterra tubing before closing the well.

5. Laboratory Procedures

Laboratory sample submission protocols should be confirmed with the laboratory where samples will be shipped to. This information should be known ahead of time.

6. Troubleshooting in the Field

The following are a number of common issues that may be encountered in the field when groundwater sampling.

Issue	Solution
Water level meter won't beep	Check that the meter is on. If the meter is on and will not buzz, try changing the batteries. If the meter still will not buzz, the well may be dry. Attempt purging the well using the dedicated tubing. If no water is present note this in the field book.
Water level meter won't stop beeping	Try rinsing the water level meter with distilled water.
While purging, water stops coming out of Waterra	The foot valve may have become plugged with sediment or small stones or may have fallen off. Remove the waterra (making sure not to rest it on the ground) and inspect the foot valve. If there is no problem with the foot valve, the well may be dry. Confirm this with the water level meter and make note in the field book.
When you remove the well cap the Waterra has slid too far down the PVC casing to grab.	Always carry a coat hanger in your field bag. This can be used to hook and raise waterra that has fallen down the standpipe.
The waterra tubing has split and	If the leak is coming from the connection between

water is spraying out of the side	the large diameter and small diameter tubing, ensure they are connected properly and use electrical tape if necessary. If the leak is coming from other parts of the waterra, cut and replace that section. Depending on where the leak is, you may have to replace the entire length of tubing.
Well has been purged dry and exhibits slow recharge	Move on and complete the remaining wells, returning to the dry well at the end of the sampling day. If the well is still dry, you may have to return the following day to collect the sample. Note this in the field book.

Surface Water

1. Field Book Setup

Your field book should be set up in the following way, prior to heading out into the field:

Station	pH	DO (mg/L)	Cond (uS/cm)	H_2O Temp	Air Temp	Width (m)	Depth (m)	Flow (m/s)	Sample/Date/ Comments
SWA	7.03	2.36	456	14	17	2	1	0.3	2B4B/Aug 3/silty sample

2. Sampling Procedure

a. Sampling should usually be conducted under base flow conditions (to observe maximum quality impact). Thus, there shall be several days without precipitation before the sampling survey. However, sampling of ponding water during stagnant conditions shall be discouraged unless representative of the local conditions. If a sample is collected in a stagnant water body this should be noted in the field book.
b. Confirm the monitoring regime. There are some sites where surface water sampling is specified to occur after a rainfall event (e.g. Lindsay Ops and Verulam surface water sampling).
c. Samples should be collected from the furthest station downstream from the site first and then progress up stream towards the site. This ensures that downstream samples are not affected by disturbances caused from upstream sampling.
d. Ensure that equipment is properly cleaned and gloves are changed between sampling locations, especially prior to taking a background sample.
e. Prior to sampling conduct a visual inspection and take photographs of the site. Label the site and the SW location in the photos once they have been uploaded to the computer in the office. Field measurements shall be taken for temperature, conductivity, pH and DO at each sampling

station when samples are collected for chemical analysis. It is best to take these measurements from a location slightly downstream of your collection location before you take samples to avoid influencing results from disturbances during sample collection. You can also take these measurements after sample collection but in this case they should be taken slightly upstream of the sample collection location.

f. The YSI must be calibrated at the beginning of every day it is being used (see Appendix C). Turn the YSI on 5-15 minutes before use. Allow temperature readings to stabilize. The probe shall be placed perpendicular to flow direction in a flowing stream. In a non-flowing sample, the YSI probe should be stirred at least 6 inches per second (for 1.25 PE membranes). When the DO values plateau and stabilize you may record the measurement in the field book or log the data set. The probe should be completely submerged for accurate conductivity readings; the pH probe may need a bit of time to stabilize so take this reading last.
g. Nitrile or latex gloves should be worn when taking any sample. Change gloves for each sampling location.
h. Samples should not be filtered unless directly indicated in the protocol. The general chemistry bottle can be used to fill bottles with preservatives already in the bottle (bottles with preservative should not be filled directly in the surface water).
i. To take the sample, remove the lid and keep in your fingers of one hand (the lids and mouth of the bottle should only be in contact with the air and sample). Collect the sample from the middle of the stream where possible. Place the sample bottle into the water column facing downwards about half way down the water column. Turn the sample bottle facing upstream to collect the sample.
j. Weather conditions shall be recorded in the field book.
k. Flow measurements shall be recorded after samples have been collected.
    i. For typical stream flow in a distinguished channel, measure the average water depth, stream width, and water velocity using the method below. It is preferable to measure at a minimum of three (3) locations across the stream. The measurement should be taken in an area as straight as possible with similar substrate.
    ii. Flow can also be measured at culverts by taking the depth of the water in the culvert, and diameter of the culvert, and the velocity of the water entering or exiting the culvert.
    iii. Water velocity can be measured by the time it takes a floating object to travel a set distance (orange peel and stop-watch method). Make sure that you measure the distance and have a stop watch to measure the time.
l. Additional observations may include vegetation, substrate, water colour, odour, iron staining, algae etc. All measurements and observations should be recorded in the field book.

m. Any digitally-metered instrument used to obtain field measurements (other than temperature) shall be calibrated before the sampling survey to ensure reliable results.

Lindsay OPS Stormwater Sampling

Lindsay OPS Stormwater sampling at SW14, SW15 and SW18 must be completed following at least four storm events producing surface water runoff in the spring, summer and fall. At each station, one sample is collected to measure pH using a general chemistry bottle, one sample is collected to measure for ammonia using a nutrients bottle, and an additional sample is collected to conduct an on-site ammonia reading using a general chemistry bottle. One general chemistry bottle and one nutrients bottle will be sent to the lab for certified analysis of pH and ammonia.

When each station has been sampled, immediately bring the additional sample bottle collected to the Lindsay Ops Administration Building. There is a LaMotte Ammonia-Nitrogen kit kept on-site for analysis. Proper PPE, including safety glasses and nitrile gloves should be worn during this procedure. The test kits contain reagents that may be harmful if you come in contact with them.

The following is the procedure for the Ammonia-Nitrogen Kit:

a. Insert the Ammonia Nitrogen Octa-Slide 2 Bar into the Octa-Slide 2 Viewer.
b. Fill a test tube to the 5 mL line with the water sample.
c. Add 10 drops of Salicylate Ammonia #1. Cap the test tube and mix thoroughly.
d. Add 7 drops of Salicylate Ammonia #2. Cap the test tube and mix thoroughly.
e. Wait 1 minute. Add 7 drops of Salicylate Ammonia #3. Cap the test tube and mix thoroughly. Wait 20 minutes.
f. Insert the test tube into the Octa-Slide 2 Viewer. Match the sample colour to a standard colour. Record as ppm of ammonia nitrogen.

Follow the laboratory submission protocol. It is imperative to request that laboratory analysis is completed as quickly as possible.

Leachate Pumping Chambers

Field Book Setup

Your field book should be set up in the following way prior to heading into the field:

Station	pH	Cond (uS/cm)	H_2O Temp	Air Temp	Sample/Date/ Comments
LPC WPCP	7.03	456	14	17	2B4B/Aug 3/orange colouration

1. Lindsay Ops and Lindsay St. North Leachate Pumping Chambers

- Open chamber lid.
- Lower dedicated bailer attached inside the chamber to collect water sample. Lift and lower the bailer until it is full.
- Fill an extra PET bottle with a representative sample of leachate and use the YSI to record sample temperature, pH, DO and conductivity in the field book.
- Samples can be collected directly from the bailer into sample bottles.
- Metals must be collected in an unfiltered metals bottle which must be lab filtered and preserved. This should be indicated on the bottle and laboratory submission sheet.
- Ensure that after sample collection the bailer is emptied and securely tied to the top of the chamber to avoid fouling in the chamber.
- If a bailer is not available use a large bucket to collect a sample. Ensure that the rope on the bucket is secured to something before lowering the bucket into the chamber.

2. Emily Purge Wells

When the system is not turned off and the system is in use, sampling protocol for the purge wells are as follows:

- All pumps should be placed in the off position.
- Open TW1 slightly and turn on Pump 1. Allow TW1 to flush to the lagoons for at least five minutes. This will help dislodge any sediment that has become trapped in the pipes. Once complete turn off Pump1.
- The backflow valve should be closed to prevent water from the force main back flowing into your sample.
- Open the ball valve for TW1 slightly to avoid build up of pressure in the pipes when collecting the sample.
- Turn on TW1 and open the upper tap. Run the tap into a bucket until it runs clear. There is sometimes build up of iron in the pipes that comes loose when the taps are opened.
- After you have run the tap, collect your samples. When you are done collecting the sample turn off the tap and the pump.
- It should be indicated on the bottle and laboratory submission sheet that the sample could not be filtered.
- Follow the same procedure for TW2 and TW3 using the middle and bottom taps, respectively.
- For the composite sample, use the procedure outlined above to fill each sample bottle 1/3 with a sample from each TW. You can fill the combined bottles at the same time as you are filling the sample bottles for each TW.

- To restart the collection system, open the force main valve. Then start all the pumps and follow the procedures outlined in the Emily Operations Manual to set the optimal flow rates for each pump.

Residential

- If possible, notify resident of sampling prior to your arrival at their house. When you arrive at their home, knock on the door and identify yourself as a City employee conducting water sampling, and ask if it is a convenient time to take a sample. If resident is not home but received prior notification, proceed with sampling.

- Ensure sampling location is of raw water (water not treated by a water softener or other treatment device).

- Run the tap for 3-5 minutes prior to sampling. Generally it is good to direct the water away from the foundation of the house with a hose or bucket with running the tap. The home owner may have specific requests which will be noted in the sampling requirements per site sheet.

- Prior to collecting the sample, remove hose if taking sample from an outside tap.

- Take sample.

- Place sample in cooler with ice for transport back to office.

- If taking a sample for bacteria, please follow the directions for sampling and submission provided by the Health Unit with the sample bottle.

- See the residential section of Laboratory Procedures.

Compost

- Samples are to be taken and submitted for analysis once the compost has finished curing and it is ready to be moved. Take 10 grab samples from diverse points within the compost pile; dig in at least 1 meter into the pile.
- Each grab sample will contain a minimum of 20 liters (one pail, ensure pail/ tools are clean).
- Mix the 10 grab samples in a separate pile, and from that pile, take one sample for submission to the laboratory.
- Sample will be sent to Caduceon laboratory for compost analysis.

- Samples are to be contained in a clean PET bag, PET bottle, or glass jars and submitted for analysis for the parameters listed below.
- Currently Caduceon laboratory will provide 2 glass jars (one for metals and one for particle size) for the analysis.

Table 3: Ontario Compost Quality Standards, July 2012

Parameter	Category AA	Category A	Category B
	ppm = mg/kg = ug/g		
Arsenic	13	13	75
Cadmium	3	3	20
Chromium	210	210	1060
Cobalt	34	34	150
Copper	100	400	760
Lead	150	150	500
Mercury	0.8	0.8	5
Molybdenum	5	5	20
Nickel	62	62	180
Selenium	2	2	14
Zinc	500	700	1850
Foreign matter particles greater than 3mm	1%	1%	2%
Plastic foreign matter	0.5%	0.5%	0.5%
Sharp foreign matter	No material that can reasonably cause injury	No material that can reasonably cause injury	Max. 3 pieces/500 ml, Max. 12.5 mm in size
Pathogen Testing (SSO only) Fecal coliforms	<1000 MPN/g of total solids on dry weight basis	<1000 MPN/g of total solids on dry weight basis	<1000 MPN/g of total solids on dry weight basis
Pathogen Testing (SSO only) Salmonellae	<3 MPN/4g total solids calculated on dry weight basis	<3 MPN/4g total solids calculated on dry weight basis	<3 MPN/4g total solids calculated on dry weight basis

LABORATORY PROCEDURES

Laboratory procedures are subject to change with a new lab. Procedures should be confirmed with the lab if there are any changes in laboratories.

Groundwater and Surface Water

- QA/QC procedures (i.e. number and type of field and spiked blanks) shall be determined by prior consultation with the laboratory representative. Current practice is 1 duplicate sample taken for every 10 samples collected. Additionally, one travel blank should be included for every couple of sites.

- Place samples into a cooler with pre-frozen ice packs and if possible send the samples to the lab the same day or next morning. Surface water samples must be sent to the laboratory within 48 hours of sample collection because of BOD holding times. Groundwater samples may be kept up to a maximum of 72 hours before they are sent to the laboratory.

- Samples must maintain a temperature below 10°C. Coolers (or samples) must be stored in fridge at Lindsay Ops if keeping overnight. If they cannot be stored in the fridge, make sure to add extra ice in the coolers for overnight keeping, and ensure more ice is added in the morning.

- A chain of custody form shall be completed and submitted together with the samples to the laboratory. A copy of the chain of custody shall be retained by the sample collector.

- Surface water samples should not be sampled on Friday as the sample will not get to the laboratory before holding time expires. Laboratory holding times for samples are currently as follows:

Table 4: Laboratory holding times

Parameter	Days
ICP Metals	60
Mercury	14
Nitrite	7
Nitrate	7
Fluoride	30
Turbidity	7
Alkalinity	14

Chloride	30
Sulphate	30
DOC	5
TDS	7
pH	ASAP
BOD	5
VOC	14

Residential Well Sample Submission

- Residential well samples must be submitted to the laboratory as soon as possible after sampling. Bacti samples are to be submitted to the health unit as soon as possible. Samples cannot sit over the weekend and cannot be shipped on a Friday.

- Complete the chain of custody ensuring all the required information is completed. There may be specific forms from the lab for submitting residential drinking water samples.

- Pack samples in a cooler with LOTS of ice and ship via courier. Residential samples must be 5°C upon receipt at the laboratory.

POST MONITORING PROCEDURES

Groundwater

- Ensure that all equipment is cleaned and stored in the equipment area at Lindsay Ops.
- Transfer water level information into the field notes folder in the G drive. Go to G:\Environmental\Env Ser - SWaste - Gen\W22 LANDFILL MONITORING PROGRAMS.
- If monitoring well repairs are required note these in the MW repair excel sheet in the G drive. Go to G:\Environmental\Env Ser - SWaste - Gen\W22 LANDFILL MONITORING PROGRAMS and select the excel sheet for the appropriate year entitled Monitoring Well Repairs.

Surface Water

- Ensure that all equipment is clean and stored in the equipment area at Lindsay Ops. The YSI and calibration solutions should be stored inside at 12 Peel Street with the Waste Management Department.

- Transfer surface water information into the field notes folder in the G drive. Go to G:\Environmental\Env Ser - SWaste - Gen\W22 LANDFILL MONITORING PROGRAMS.
- Copy pictures into the SW photo folder for the appropriate site in the G drive. Ensure that the date of the picture is included in the name.

Landfill Gas

- Transfer methane information into the field notes folder in the G drive. Go to G:\Environmental\Env Ser - SWaste - Gen\W22 LANDFILL MONITORING PROGRAMS.

Monitoring Well Repairs

- Monitoring wells should be repaired on a regular basis. Repairs include fixing the waterra tubing, fixing loose casings, cutting down well PVC pipe if the casing has sunk and won't close, extending the well if it is too short. etc.
- All repairs should be documented in the monitoring well repairs excel spreadsheet in the landfill general folder in the G drive.
- For some repairs, it may be necessary to contract a licensed well technician to complete the work. Refer to O Reg. 903 for more information.
- **Be sure to measure the length of PVC that is being extended or cut and adjust the well depth in the field book accordingly.
- **Any changes to the elevation of the pipe must be carried out by a certified well technician and must be indicated to the Regulatory Compliance Officer so a new TOP elevation can be surveyed at the end of the year

Appendix A – Field Sampling Equipment List

All sampling

- Site keys
- Location maps and field sheets
- GPS and locations for the site
- Mobile phone equipped with a camera, or digital camera
- Bear deterrents (bear spray, fog horn, whistle, etc.)
- Cell phone
- Small knife
- Tool box and socket set
- PPE (gloves, bug spray, sunscreen)
- Biodegradable detergent
- Distilled water
- Sharpies
- Hand wipes/hand sanitizer
- Pencils
- Electrical tape
- Measuring tape
- Watch or mobile phone displaying time
- Paper towel

Groundwater monitoring

- Water level indicator (extra C batteries)
- Sampling bottles
- Purging buckets – at least 2 marked with volumes (i.e. 4L, 8L, etc)
- Filters for GW samples
- Additional tubing and foot valves
- Calculator
- Field book
- Coat hanger or threaded rod
- Extra locks and well caps

Surface water monitoring

- Sampling bottles
- YSI meter (extra AA batteries)
- Calibration solutions and distilled water
- Swing sampler
- Mobile phone equipped with camera, or digital camera
- Hip waders
- Rubber boots
- Field book

Gas monitoring

- Methane monitoring device (GMI GT-44)
- Extra C batteries
- Methane field book

Monitoring well repairs

- Hand held electric saw
- Casing caps and collars
- Well caps
- Bucket
- Concrete
- Bentonite
- Waterra tubing (high and low density)
- Foot valves
- PVC pipe
- Ski pole
- Orange spray paint
- Locks

Appendix B – Equipment Calibration and Maintenance Protocols

YSI

For detailed information on YSI please consult the Professional Plus User Manual.

General Use

- The YSI should be calibrated at the beginning of every day that it will be used.
- Prior to departing for field work the protective sleeve can be removed and the field sleeve can be attached.
- Upon return from the field the probe should be rinsed with clean water.
- At the end of every day the probe should be stored with a damp sponge in the bottom of the storage sleeve, or a small amount of water is to be added to the storage sleeve if no sponge is present. The YSI and calibration solutions should be stored in a temperature regulated room. Check the acceptable range for storage on the calibration solution bottles.
- Calibration solutions should be transferred into smaller glass jars to avoid contaminating the entire bottle of solution. Jars should be labeled with the name and concentration of solution as well as the date of transfer and expiry date.

Calibration and Maintenance

- DO Meter

- Follow the “Calibrating DO % in Water Saturated Air: 1 Point Calibration” as described in the Professional Plus YSI user manual (pg 27) and below:
- The supplied sensor storage container (a screw on plastic cup) can be used for DO calibration purposes
- Moisten the sponge in the storage sleeve or plastic cup with small amount of clean water. The sponge should be clean since bacterial growth may consume oxygen and interfere with the calibration. If using the cup and you no longer have the sponge, place a small amount of clean water (1/8 inch) in the plastic storage cup instead.
- Make sure there are no water droplets on the DO membrane or temperature sensor. Then install the storage sleeve or cup over the sensors. The storage sleeve ensures venting to the atmosphere. If using the cup, screw it on the cable and then disengage one or two threads to ensure atmospheric venting. Make sure the DO and temperature sensors are not immersed in water. Turn the instrument on and wait approximately 5-15 minutes for the storage container to become completely saturated and to allow the sensors to stabilize.
- Pres Cal. Highlight probe ID (which must be enabled in the GLP menu to appear in calibration menu).
- Highlight DO % and press enter to confirm.
- Wait for the temperature and DO % values under “actual readings” to stabilize then highlight accept calibration and press enter to calibrate. Or press Esc to cancel calibration.
- The potassium chloride solution and membrane cap should be changed at least every 30 days during regular use.

- Conductivity

- Follow the “Calibrating in Specific (Sp.) Conductance or Conductivity” as described in the Professional Plus YSI manual (pg 36) and below:
- Press Cal. Highlight Probe ID
- Place the sensor into a fresh, traceable conductivity calibration solution. The solution must cover the holes of the conductivity sensor that are closest to the cable. Ensure the entire conductivity sensor is submerged in the solution or the instrument will read approximately half the expected value
- Choose the units in SPC-uS/cm
- Highlight Calibration Value and press enter to input the value of the calibration standard
- Once the temperature and conductivity readings stabilize highlight accept calibration and press enter or press esc to cancel

- The openings that allow sample access to the conductivity electrodes should be cleaned regularly (small cleaning brush included in the maintenance kit). Dip the brush into clean water and insert into each hole 10 to 12 times.

  - pH

- Follow the instructions “Calibration pH” as described in the Professional Plus SI user manual (pg40).
- Press Calc. Highlight probe ID
- Highlight ISE (pH) and press enter. The message line will show the instrument is “Ready for point 1” (The pH calibration allows up to six points)
- Rinse the sensor with distilled water and pat dry before placing in the buffer solution.
- Place the sensor in a traceable pH buffer solution. The value of the buffer should show up at the top of the calibration screen. If not, highlight calibration value and enter it manually.
- Once the temperature and pH readings stabilize press accept calibration.
- The probe should be rinsed with distilled water and patted dry in between buffer solutions.
- To continue with the second point, place the sensor in the second buffer solution. Again this buffer solution should be recognized or entered manually.
- Once the pH and temperature have stabilized press accept calibration and press enter.
- If you do not wish to perform a 3rd calibration point press cal to complete the calibration.

Barometer

- Do not calibrate the barometer unless you have specific reason to believe that the values are untrue. If calibrating the barometer carefully follow the instructions in the Professional Plus YSI user manual (pg 32).

GMI GT-44 (Methane Monitor)

For detailed information on the GT-44 please consult the GMI GT Series User Handbook – CSA.

General Use

- To turn the unit on hold the PUMP button down for 1 second. The instrument will ask you if all filters are installed and in good condition – check that they are and then select YES.
- The unit will then ask you if you would like to perform a flow fault test. Place your finger over the sensor. The monitor should read successful – select yes to continue.

- Fresh air calibration should be conducted at the beginning of every sampling day. The monitor will do this automatically, counting down from 30 in the top right hand corner.
- The following different modes will read methane concentration in these units:
    - Confined space - %LEL
    - Barhole – 0-100% LEL ; 0-100% VOL
    - Purge – 0-100% VOL
    - Sniffer - ppm CH4
    - Leak Test – ppm CH4
- For best results, the monitor should be operated in Purge mode as methane readings must be recorded in %VOL. However, if you would like to identify very small methane concentrations, the monitor can be placed in sniffer or leak test mode and ppm CH4 can be easily converted to %VOL using the following equation:

%VOL methane = ppm/10,000

- To switch between operation modes, press and hold both the INVERT and PUMP buttons at the same time.
- The max/live or min/max methane readings can be seen by pressing and holding the INVERT button (only available in confined space or leak test mode). To return to live readings press and hold the INVERT button again.
- The automatic pump can be turned on and off by pressing the PUMP button.
- To turn the monitor off, press and hold the INVERT and PUMP button simultaneously while the monitor counts down from 3.

Calibration

- To conduct a Fresh Air calibration, turn the monitor on – the monitor will automatically begin the fresh air calibration and warm up sequence.
- If the instrument reads error please refer to the Instruction manual or call a service technician.
- The unit is to be calibrated when Hetek Solutions Inc. is on site for gas detection calibration at the Lindsay Ops Landfill.

Compost Thermometer

Please refer to Recalibrating your Reotemp Dial Compost Thermometer information sheet for more information.

- To calibrate the thermometer prepare a Reference Bath**.** You will need a bath of water of a known temperature. You can use ice water for any range that includes 0°C. The ice bath should be mostly ice, with just enough water to fill the spaces.
- You can use any other temperature bath (room temperature is most convenient, but your working temperature will be most effective), if you have another reference thermometer that you know is accurate.
- The reference bath should be at least 4 inches deep (6 or more inches is better.) If the reference bath is water at room temperature, use a big container, like a bucket.

- The bath should be agitated (stirred) just before or during calibration (boiling water will do its own agitation).
- If you are using a reference thermometer, place the Unit under test (UUT) right next to the reference unit (REF). You can even strap them together with a small rubber band. The UUT should be immersed at least 4 inches into the bath, as the sensitive portion of the thermometer is in the last 2-3 inches of the stem.
- Leave the UUT in the bath for at least a minute, to make sure temperatures have stabilized. Then rotate the small (1/4”) hex screw head on the back of the dial case of the UUT until the pointer is indicating the proper temperature. You can use a flat screwdriver, or a small coin, or pliers to rotate the screw head. Once the UUT and REF thermometers agree, you are done!
- If your thermometer will not recalibrate, it may need factory repair. (If the stem is bent, it cannot be repaired, and must be replaced). Contact our factory at 858-784-0710, or fax us at 858-784-0720, or email (sales@reotemp.com) to discuss repair/replacement options.

Appendix C – Contact Information

City of Kawartha Lakes Contact List

Name	Position	Number (705) 324-9411 ext:	Cell
Heather Dzurko	Supervisor of Waste Management Operations	1133	705-328-4263
Kerri Snoddy	Regulatory Compliance Officer	2360	705-879-2666
Nikki Payne	Waste Technician	1144	705-928-3056
David Kerr	Manager Environmental Services	1118	705-340-3448

Repair and Maintenance Contact List

Company Name	Contact Name/Information	Number	Email	Equipment
Coe Fisher Cameron	Herman Wimmelbach or Geoff Lees	705-324-4152	geoff@coefishercameron.com	Surveys
Sitech	Spencer Wykes	905-669-4773(w) 416-436-3241(c)	spencer.wykes@sitechmidcanada.com	Trimble GPS unit
Hart & Sons Drilling	Clark Watson	887-3331		Monitoring well repairs
Kevin Keenan	Keenan Electric	878-2111		Electrician for Emily (set up spray irrigation times etc.)
Tom Taylor	Taylor Electric	705-878-6050		Emily electrical
Steve Walsh	Walsh's welding	705-328-0738		Welding repairs of Emily irrigation system
Christie Mechanical	Christie Mechanical (7415 Highway 9 Rr	519-943-0506		Emily Rotork Valves: for replcement only

	1, Palgrave L0N 1P0, ON			
Syntec Maintenance	Steve Stoll	905-951-8000	steve@syntecpe.com	Emily Rotork Valves: for information/support
Hetek Environmental Solutions	Karl Stoute, Account Manager - GTA	519-659-1144	karl.stoute@hetek.com	GMI GT-44 Methane Monitor Calibration and Support

Equipment Supplies Contact List

Company Name	Contact Name/ Information	Number	Email	Equipment
Hoskin Scientific	Natalia Lecki 4210 Morris Dr. Burlington	905-333-5510 x 232	nlecki@hoskin.ca	Calibration Solutions for YSI and other environmental monitoring equipment
Desco Plumbing and Heating Supply Inc.	39 Colborne St. East Lindsay	705-324-9421		Plumbing supplies
Solinst Canada Ltd.	35 Todd Rd Georgetown, ON	1-800-516-9081	john.buckley@solinst.com	environmental monitoring equipment
Pine Environmental Services	Aimee Fossett or Grahamn Johnstone, 6380 Tomken Rd. Mississauga	905-795-9700	gjohnstone@pine-environmental.com	renting water level meter, other equipment
Maxim Environmental & Safety	Paul Coulombe, 170 Ambassador ON	1-888-285-2324	paul@maximenvironmental.com	environmental monitoring equipment
Osprey Scientific	Claire Aucott, Mississauga	905-820-3122	caucott@ospreyscientific.com	environmental monitoring equipment

Appendix D – Health and Safety Information

Every field sample technician should be aware of the hazards of working in the outdoor environment. Please consult the following information included in the protocol and ask any questions if you feel additional information should be included.

Confined Space Entry

- Consult the City Policy number M-HR-003.

Bear Spray

- Consult the Bear Spray fact sheet included in this appendix. Detailed information about being bear safe can be found on the MNR website.
- http://www.mnr.gov.on.ca/en/Business/Bearwise/index.html

Heat and Cold

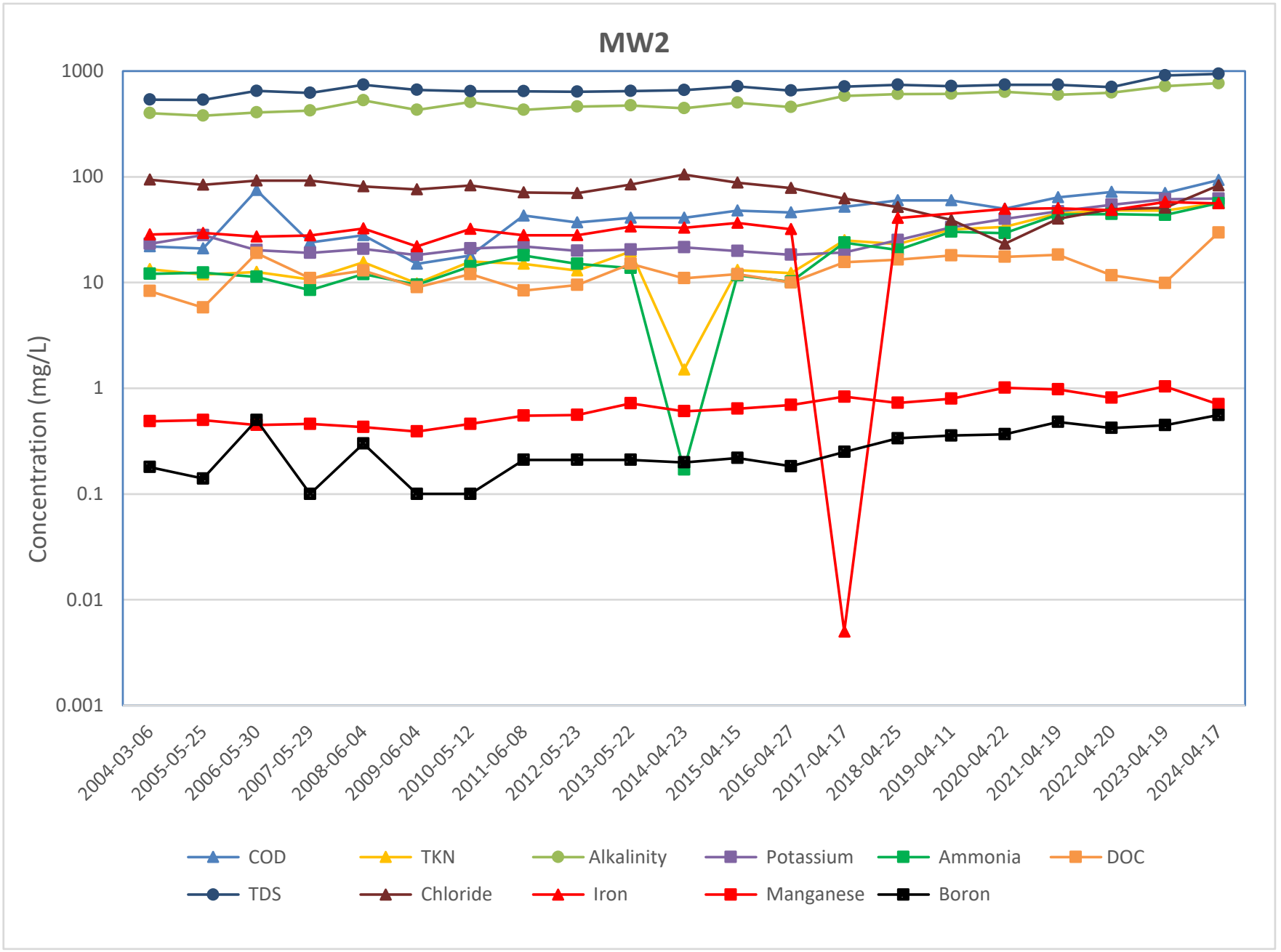
- Consult the Working in Hot and Cold Temperatures SOP WM025.

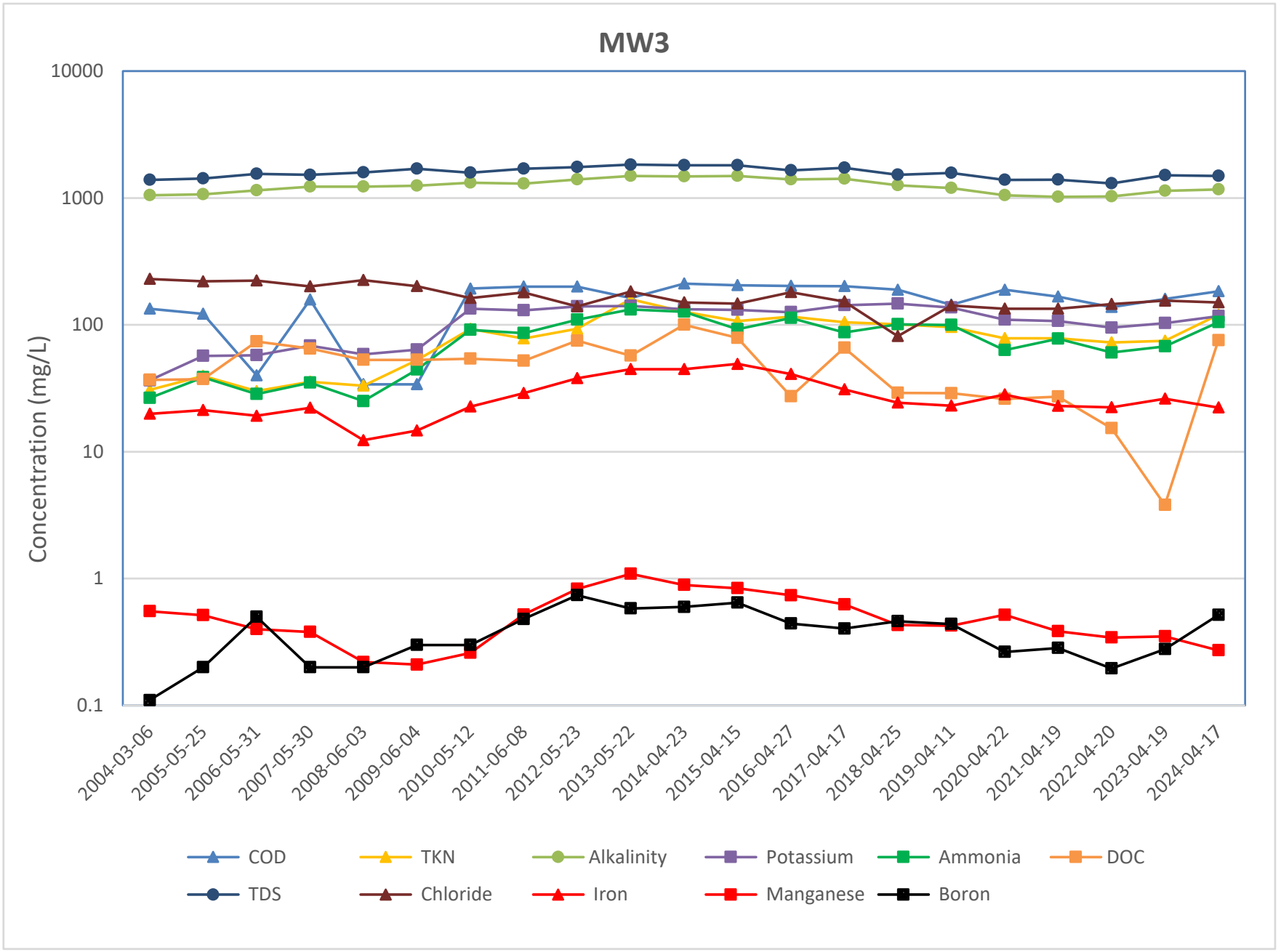
Plants to avoid

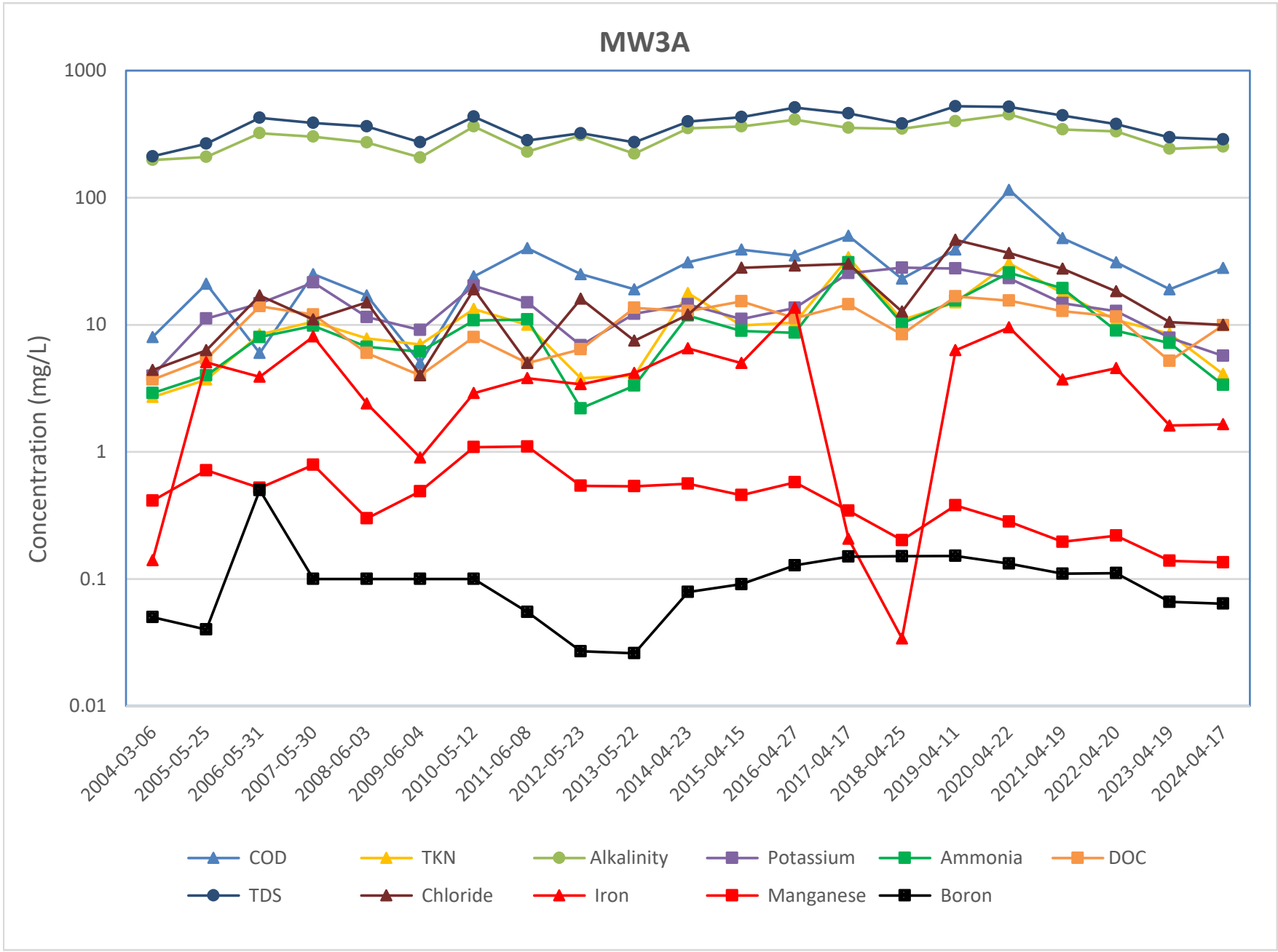
- Consult the plants to avoid information sheet included in G:\Environmental\Env Ser - SWaste - Gen\W22 LANDFILL MONITORING PROGRAMS.

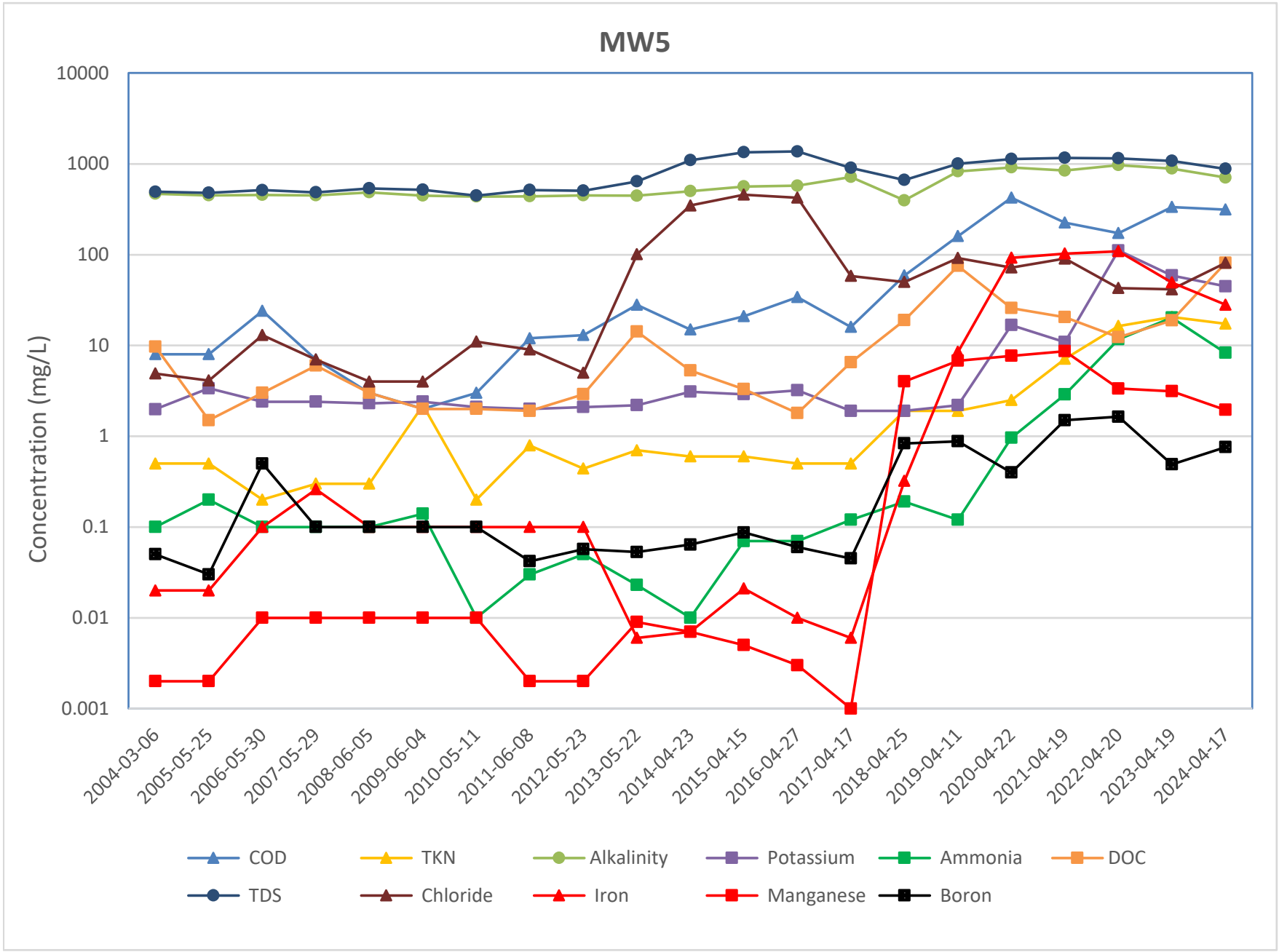
APPENDIX G

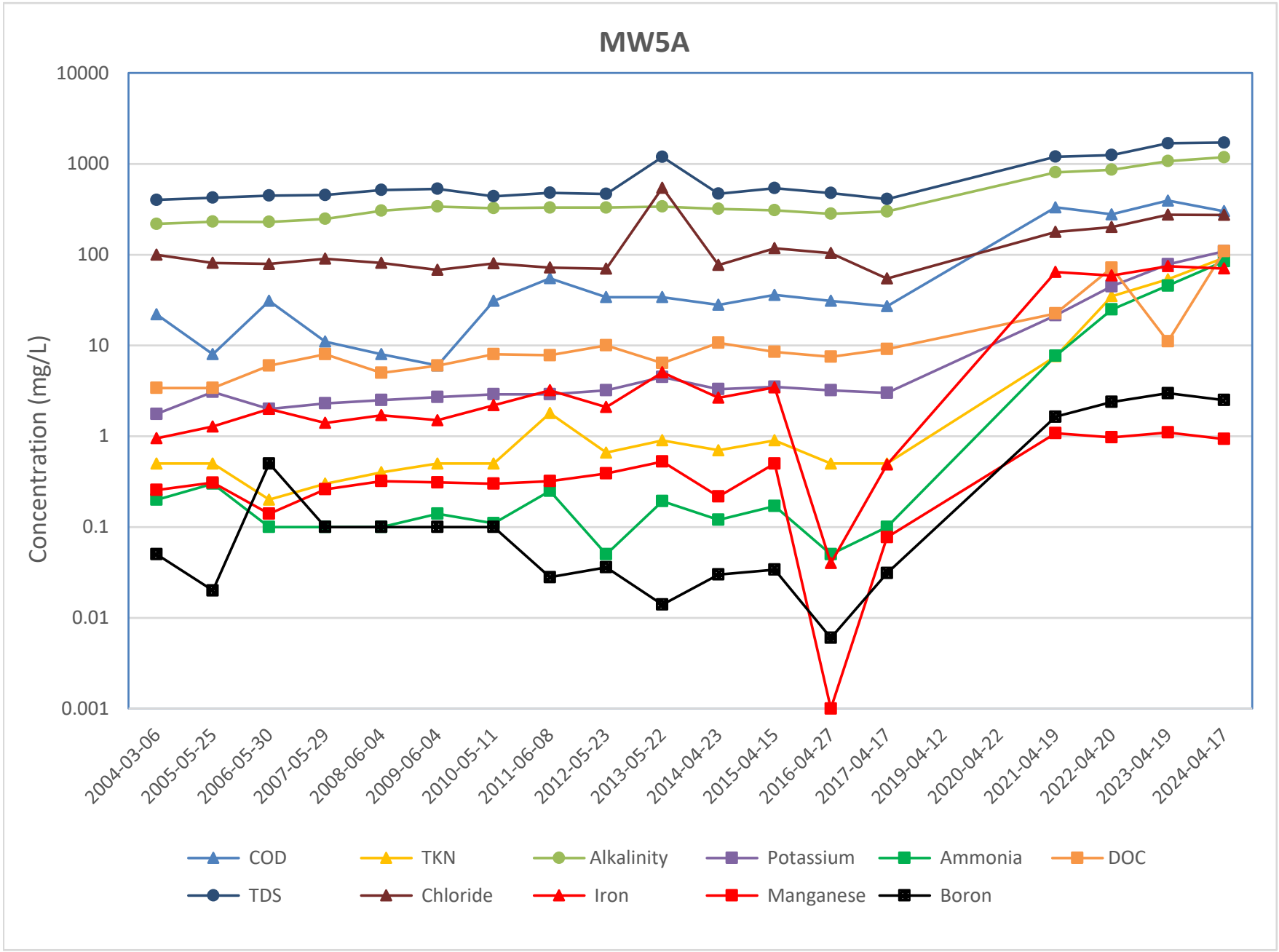
Chemistry Over Time Graphs

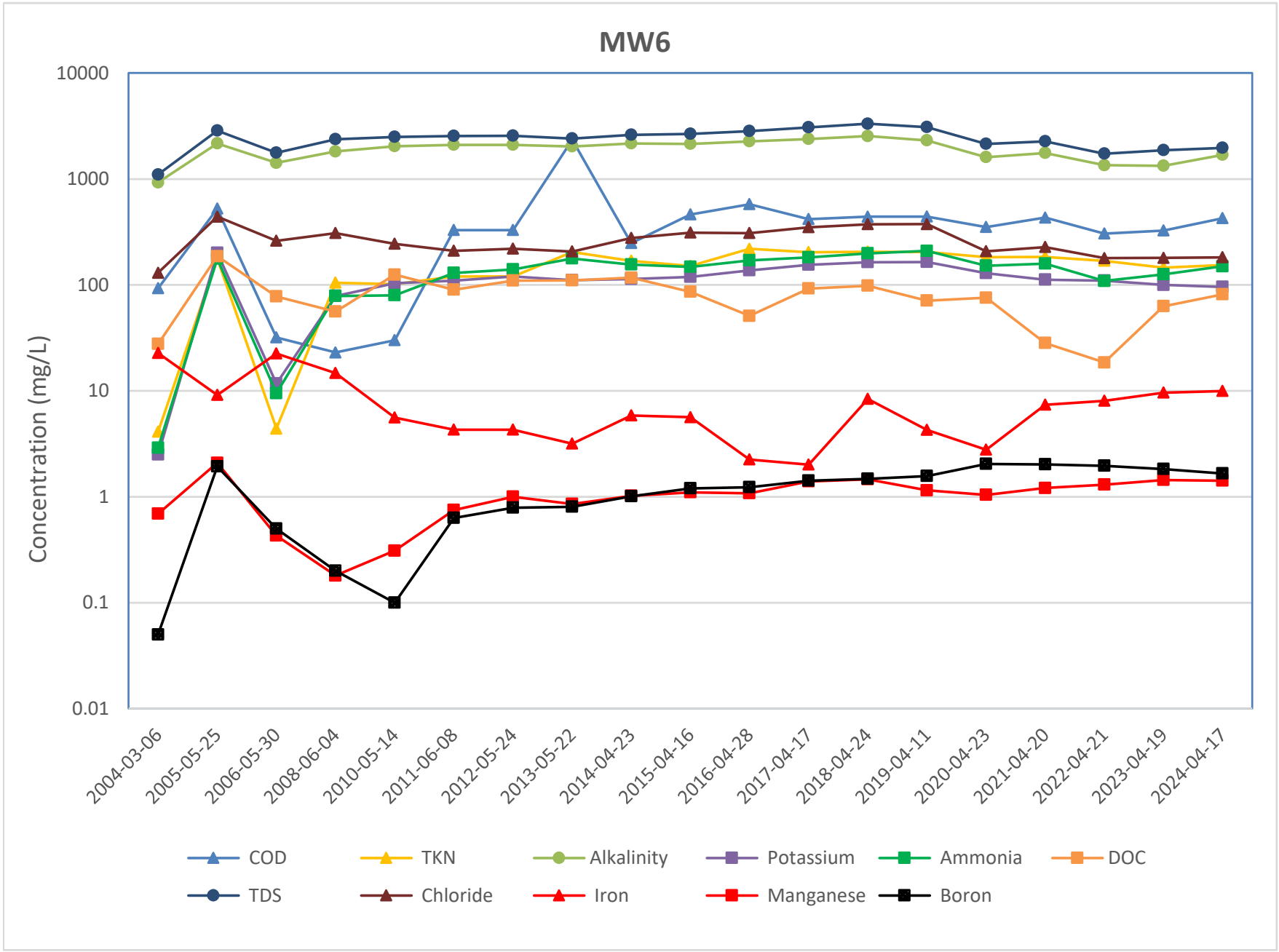

MW2
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2005-05-25
2006-05-30
2007-05-29
2008-06-04
2009-06-04
2010-05-12
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

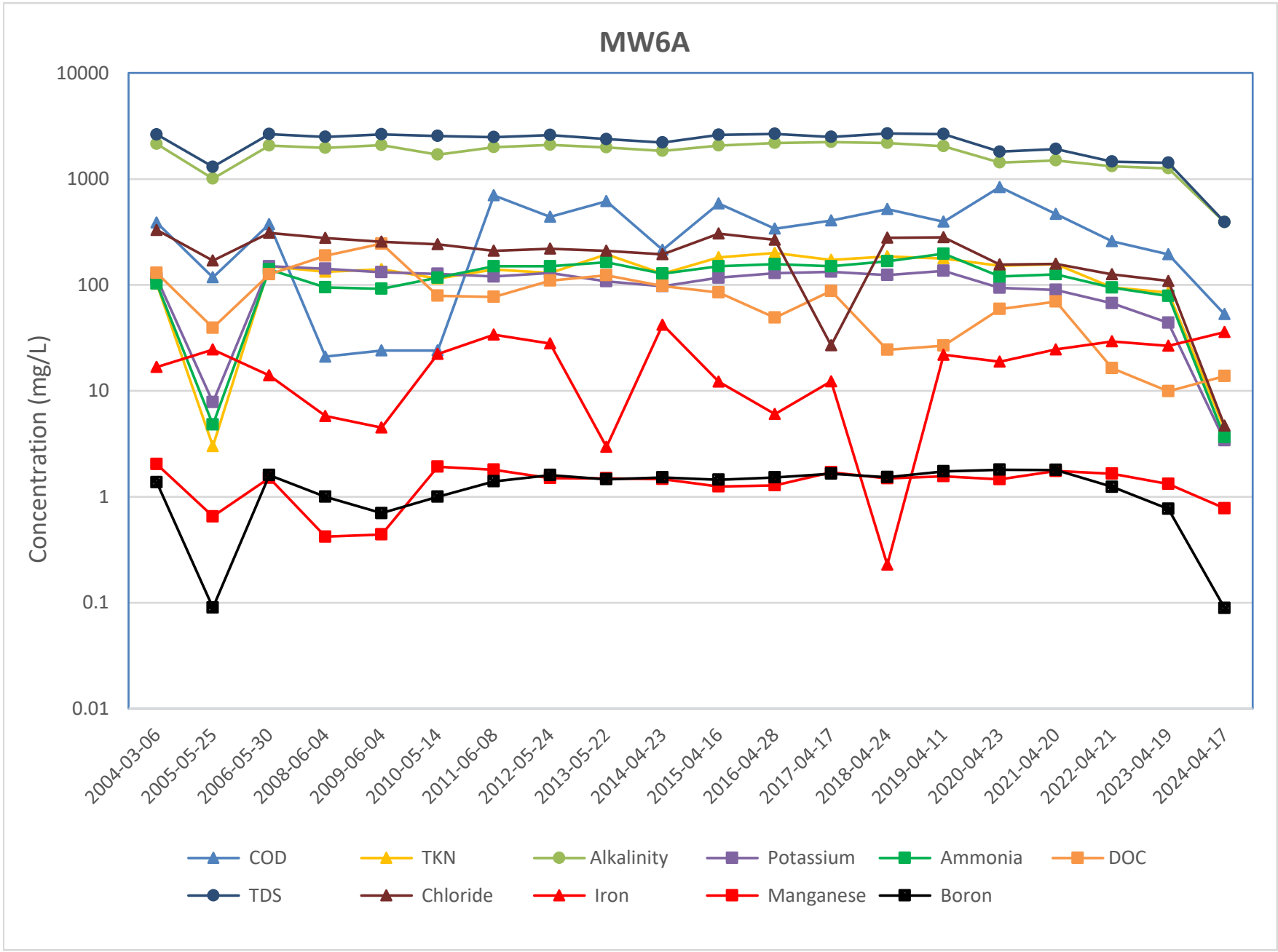

MW3
Concentration (mg/L)
10000
1000
100
10
1
0.1
2004-03-06
2005-05-25
2006-05-31
2007-05-30
2008-06-03
2009-06-04
2010-05-12
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

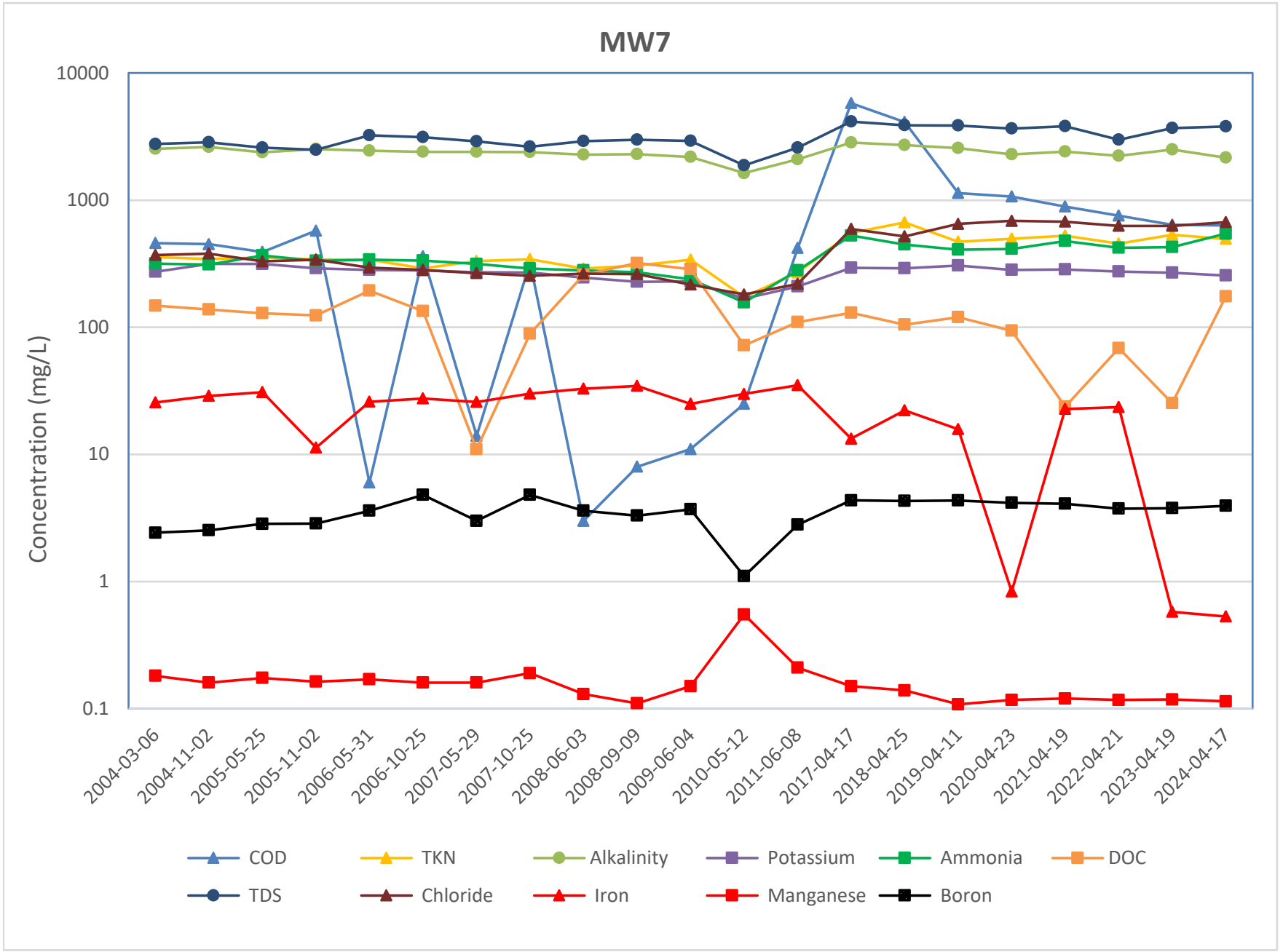

MW3A
1000
100
10
1
0.1
0.01
Concentration (mg/L)
2004-03-06
2005-05-25
2006-05-31
2007-05-30
2008-06-03
2009-06-04
2010-05-12
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

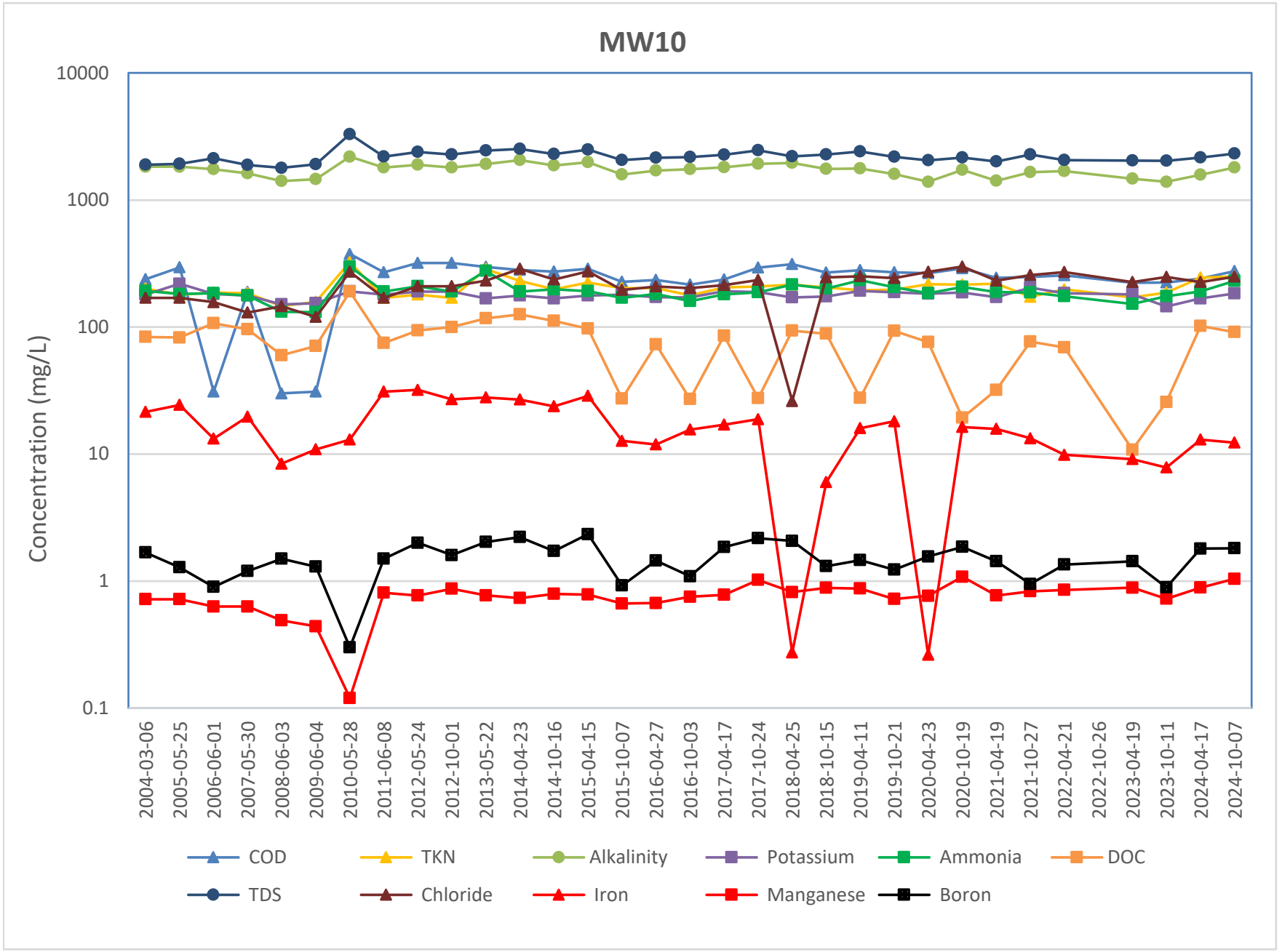

MW5
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2005-05-25
2006-05-30
2007-05-29
2008-06-05
2009-06-04
2010-05-11
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2018-04-25
2019-04-11
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

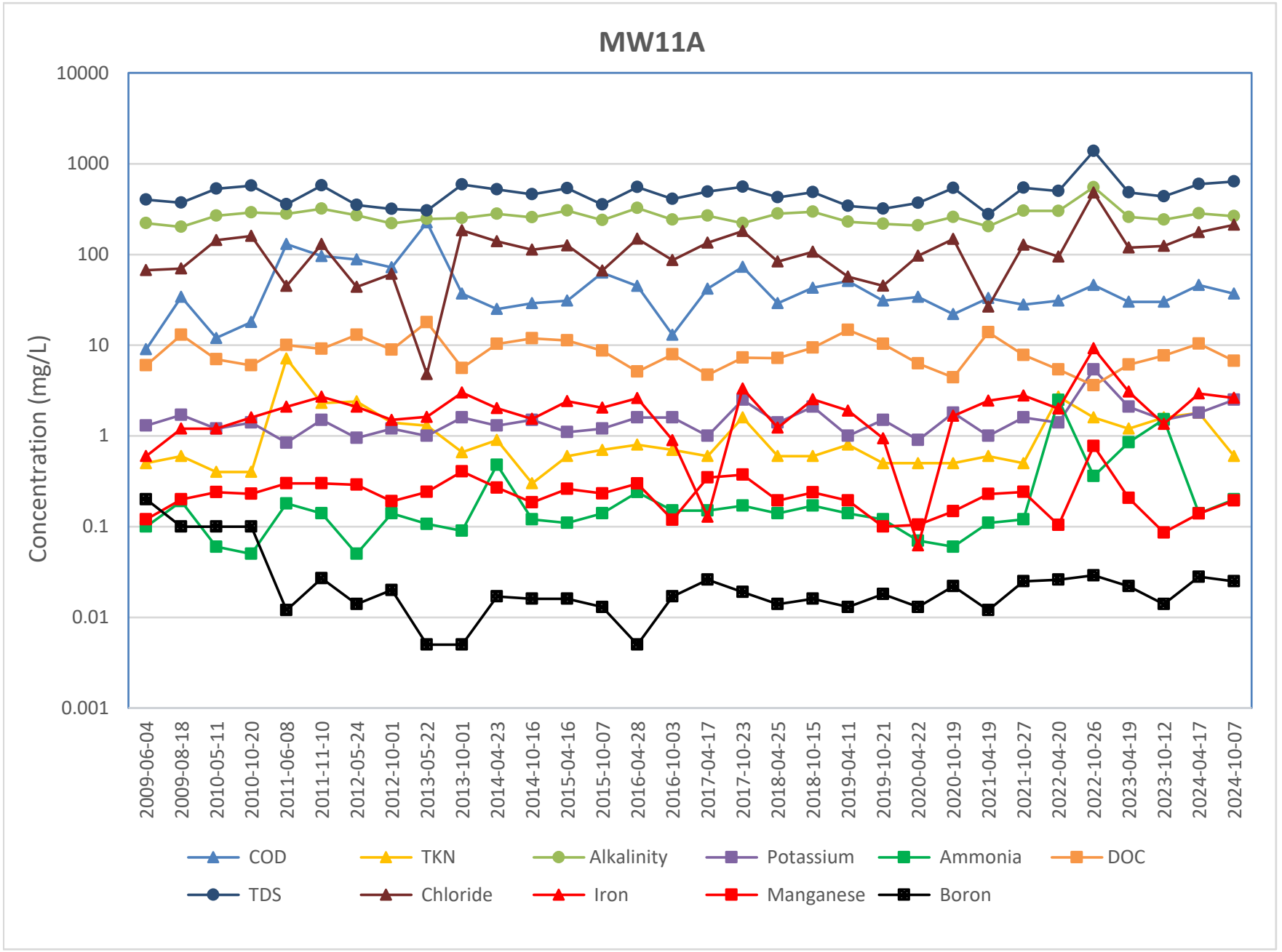

MW5A
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2005-05-25
2006-05-30
2007-05-29
2008-06-04
2009-06-04
2010-05-11
2011-06-08
2012-05-23
2013-05-22
2014-04-23
2015-04-15
2016-04-27
2017-04-17
2019-04-12
2020-04-22
2021-04-19
2022-04-20
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

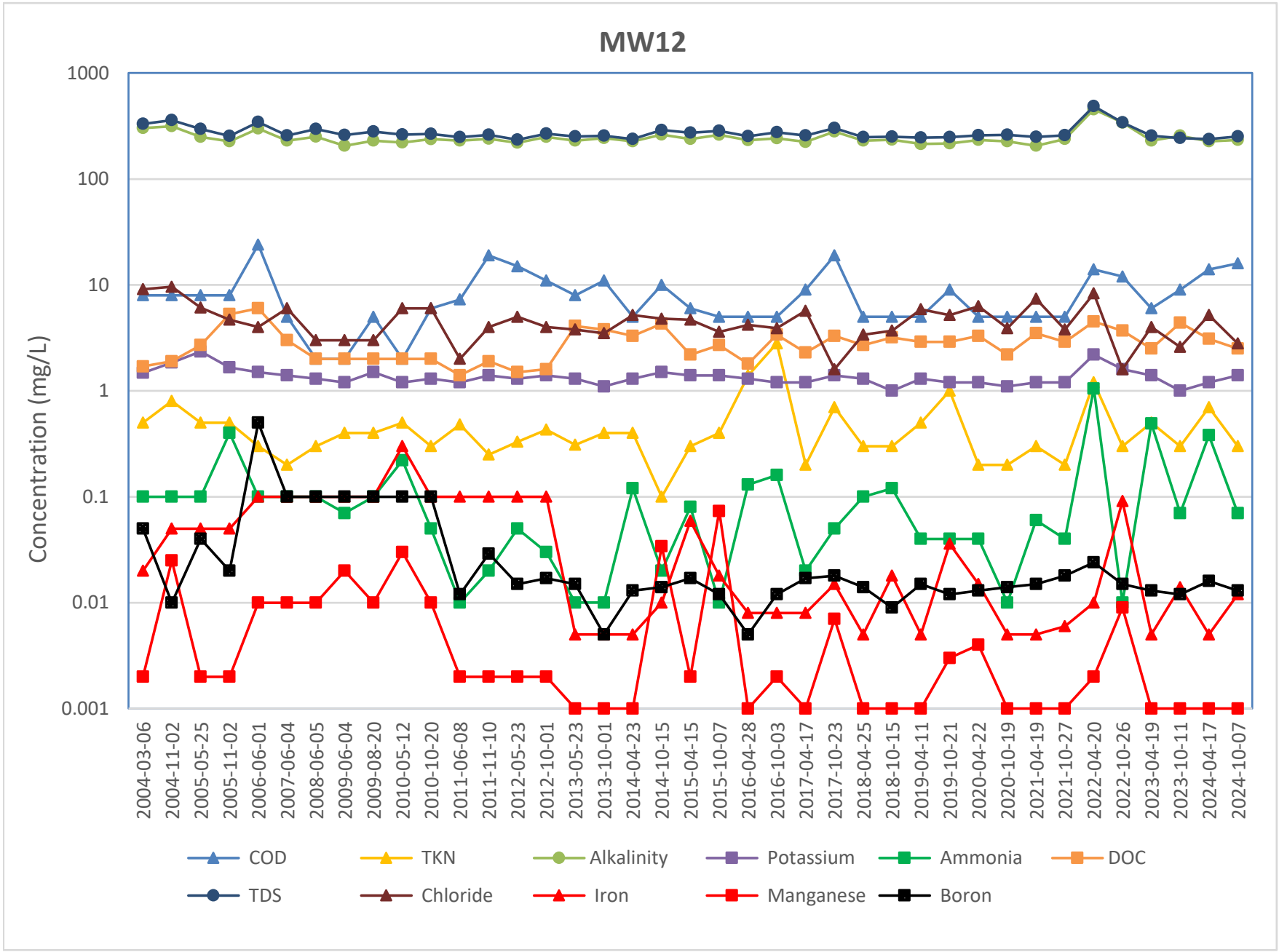

MW6
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
2004-03-06
2005-05-25
2006-05-30
2008-06-04
2010-05-14
2011-06-08
2012-05-24
2013-05-22
2014-04-23
2015-04-16
2016-04-28
2017-04-17
2018-04-24
2019-04-11
2020-04-23
2021-04-20
2022-04-21
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

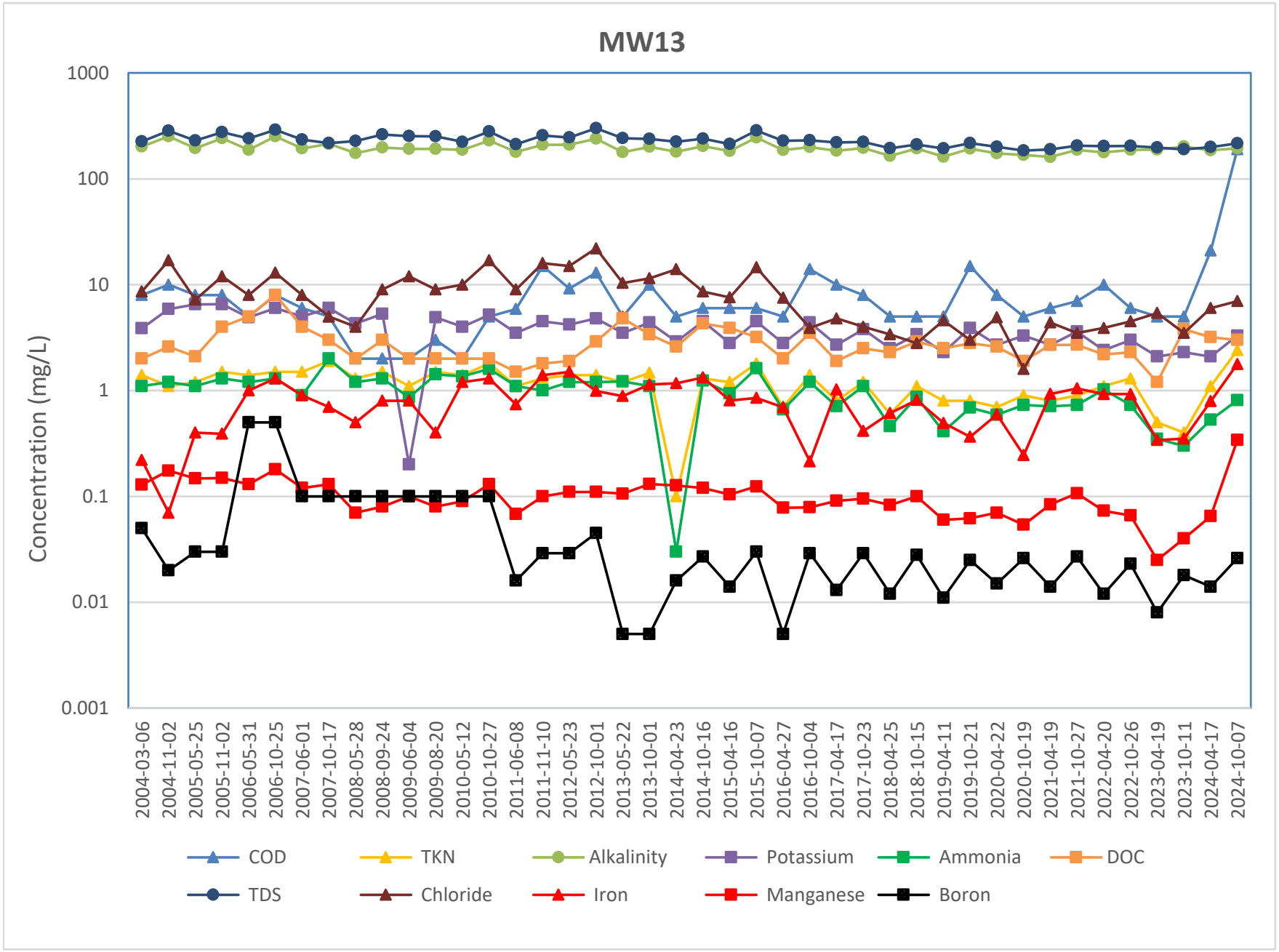

MW6A
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
2004-03-06
2005-05-25
2006-05-30
2008-06-04
2009-06-04
2010-05-14
2011-06-08
2012-05-24
2013-05-22
2014-04-23
2015-04-16
2016-04-28
2017-04-17
2018-04-24
2019-04-11
2020-04-23
2021-04-20
2022-04-21
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

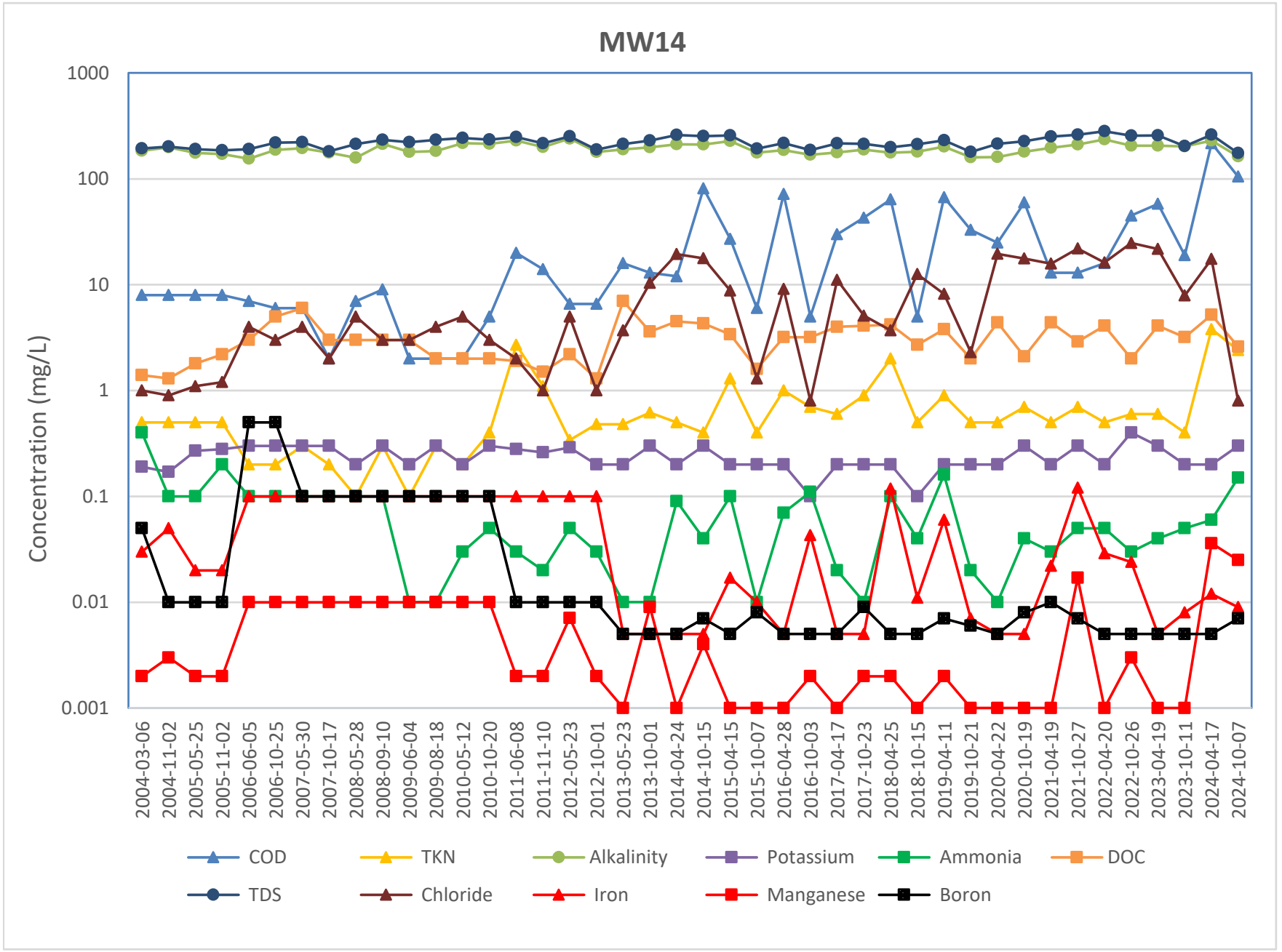

MW7
10000
1000
100
10
1
0.1
Concentration (mg/L)
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-31
2006-10-25
2007-05-29
2007-10-25
2008-06-03
2008-09-09
2009-06-04
2010-05-12
2011-06-08
2017-04-17
2018-04-25
2019-04-11
2020-04-23
2021-04-19
2022-04-21
2023-04-19
2024-04-17
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

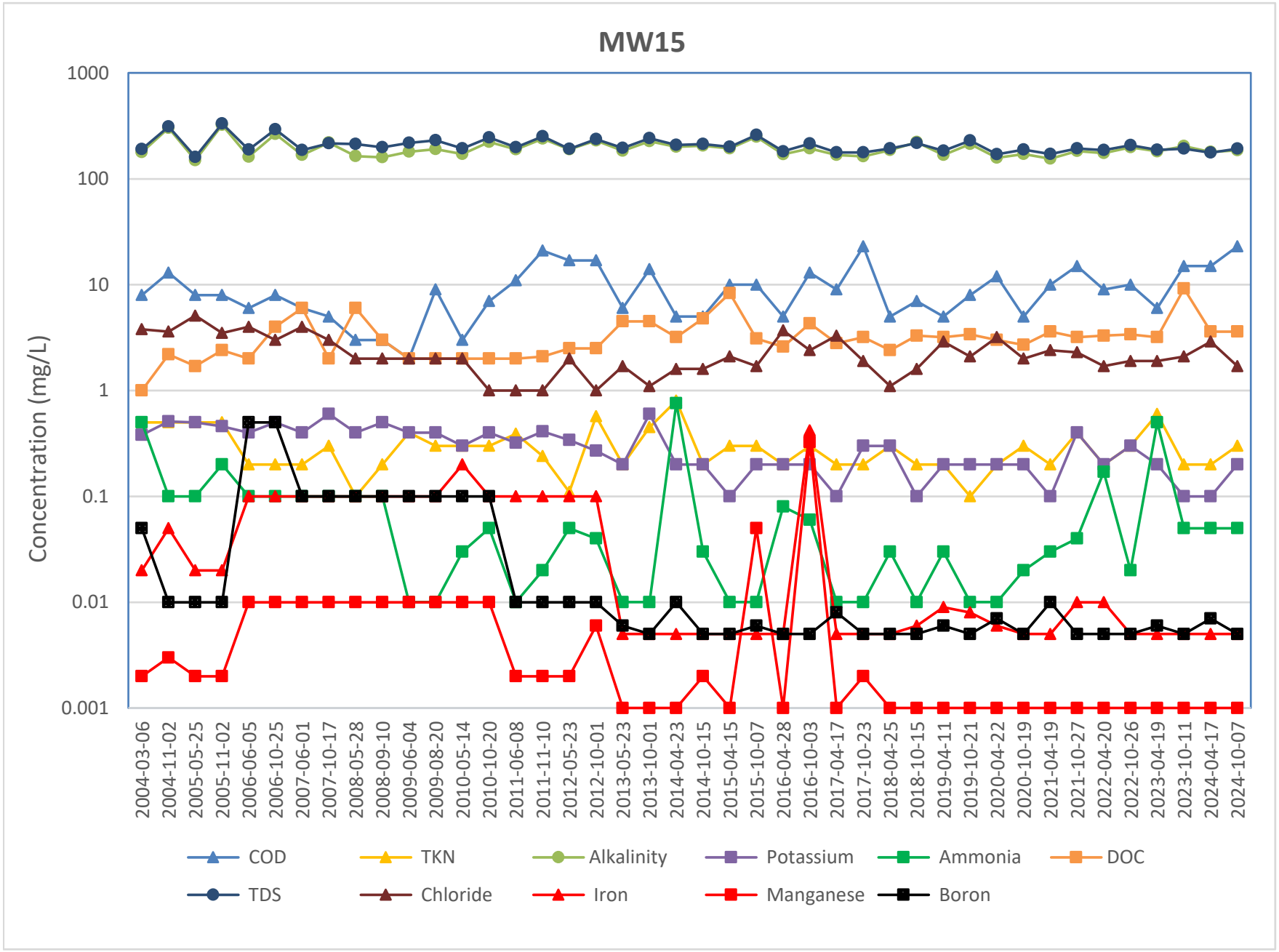

MW10
Concentration (mg/L)
10000
1000
100
10
1
0.1
2004-03-06
2005-05-25
2006-06-01
2007-05-30
2008-06-03
2009-06-04
2010-05-28
2011-06-08
2012-05-24
2012-10-01
2013-05-22
2014-04-23
2014-10-16
2015-04-15
2015-10-07
2016-04-27
2016-10-03
2017-04-17
2017-10-24
2018-04-25
2018-10-15
2019-04-11
2019-10-21
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

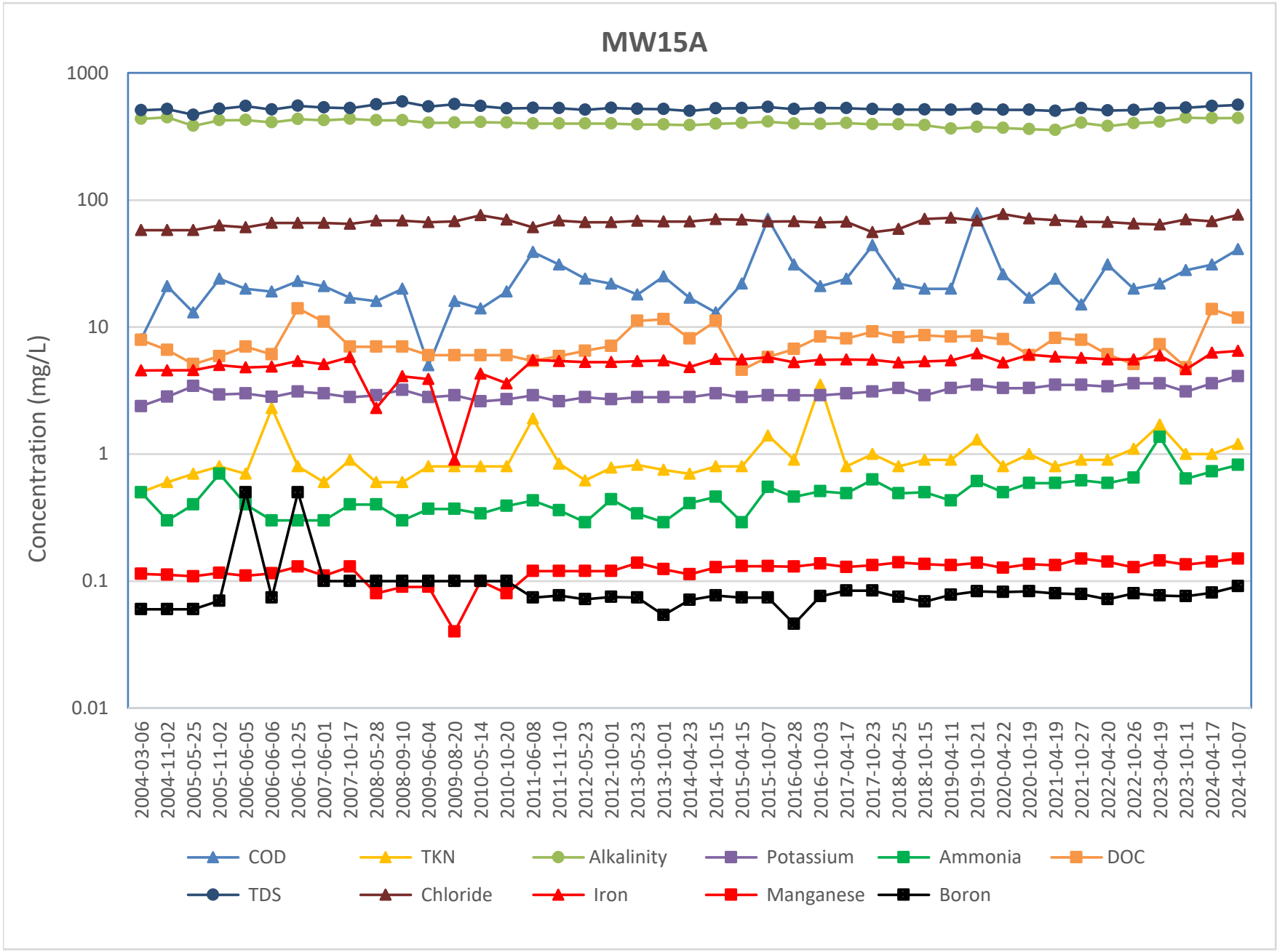

MW11A
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2009-06-04
2009-08-18
2010-05-11
2010-10-20
2011-06-08
2011-11-10
2012-05-24
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

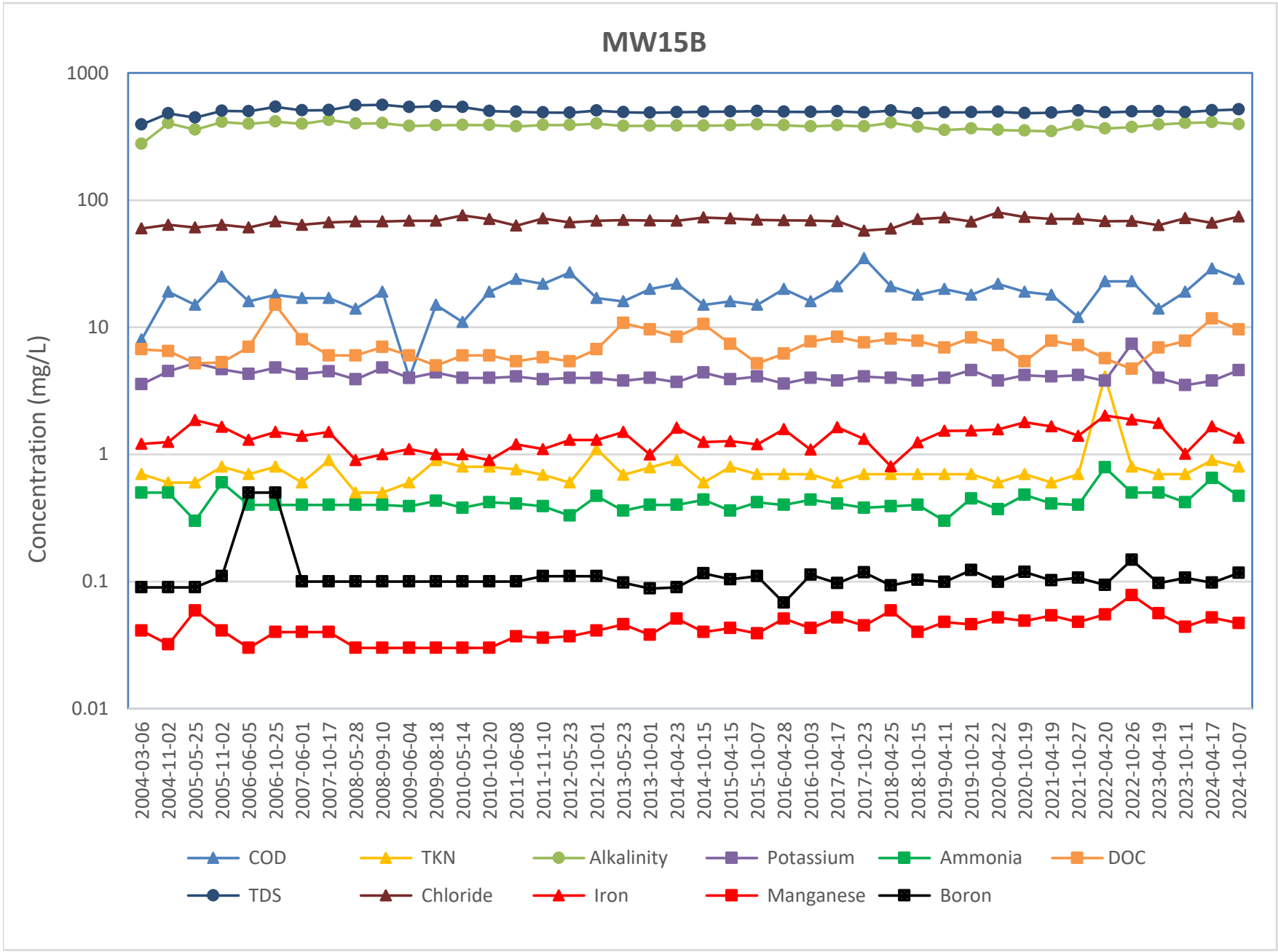

MW12
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-01
2007-06-04
2008-06-05
2009-06-04
2009-08-20
2010-05-12
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-23
2014-10-15
2015-04-15
2015-10-07
2016-04-28
2016-10-03
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

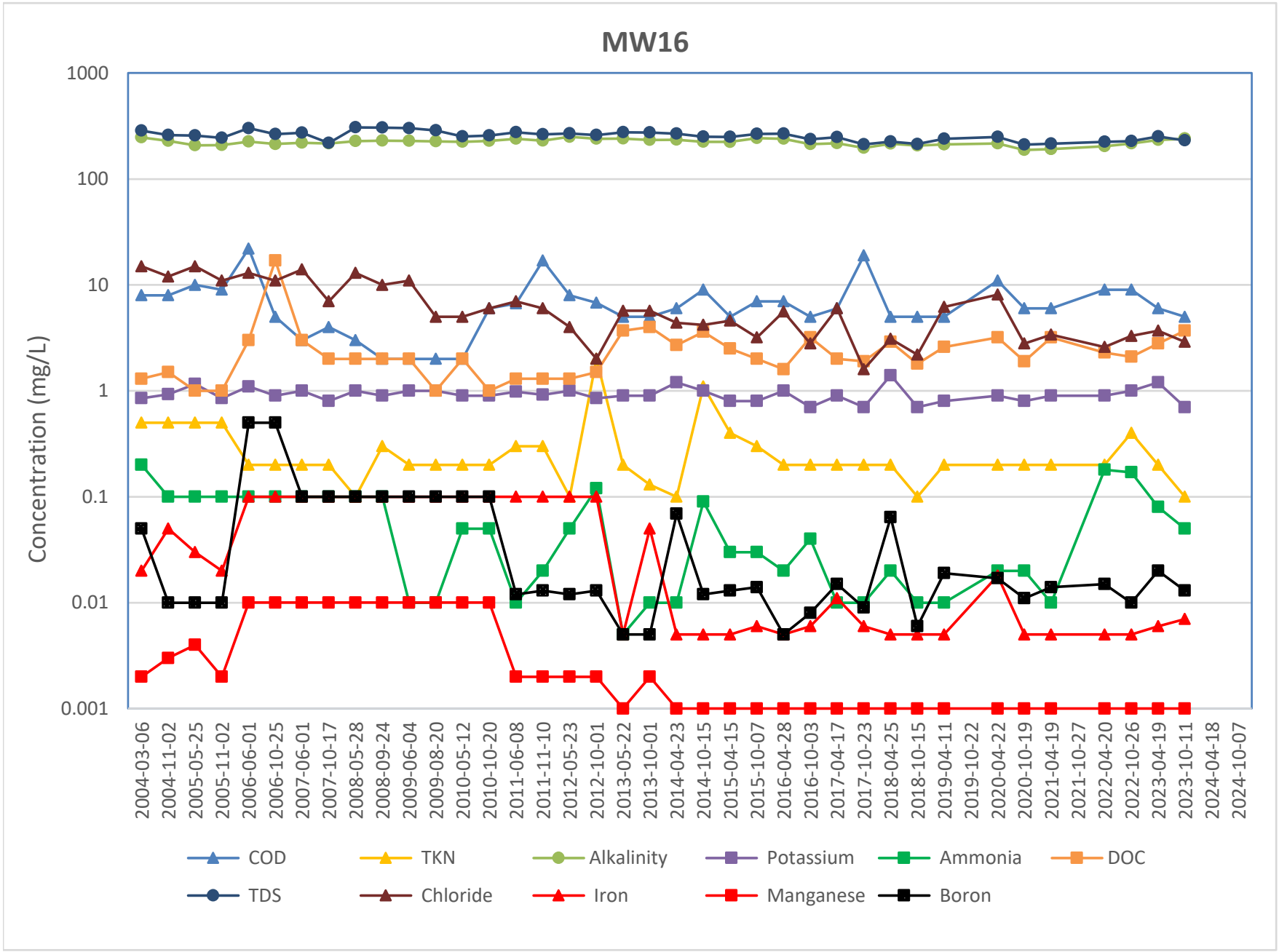

MW13
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-31
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-24
2009-06-04
2009-08-20
2010-05-12
2010-10-27
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-16
2015-04-16
2015-10-07
2016-04-27
2016-10-04
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

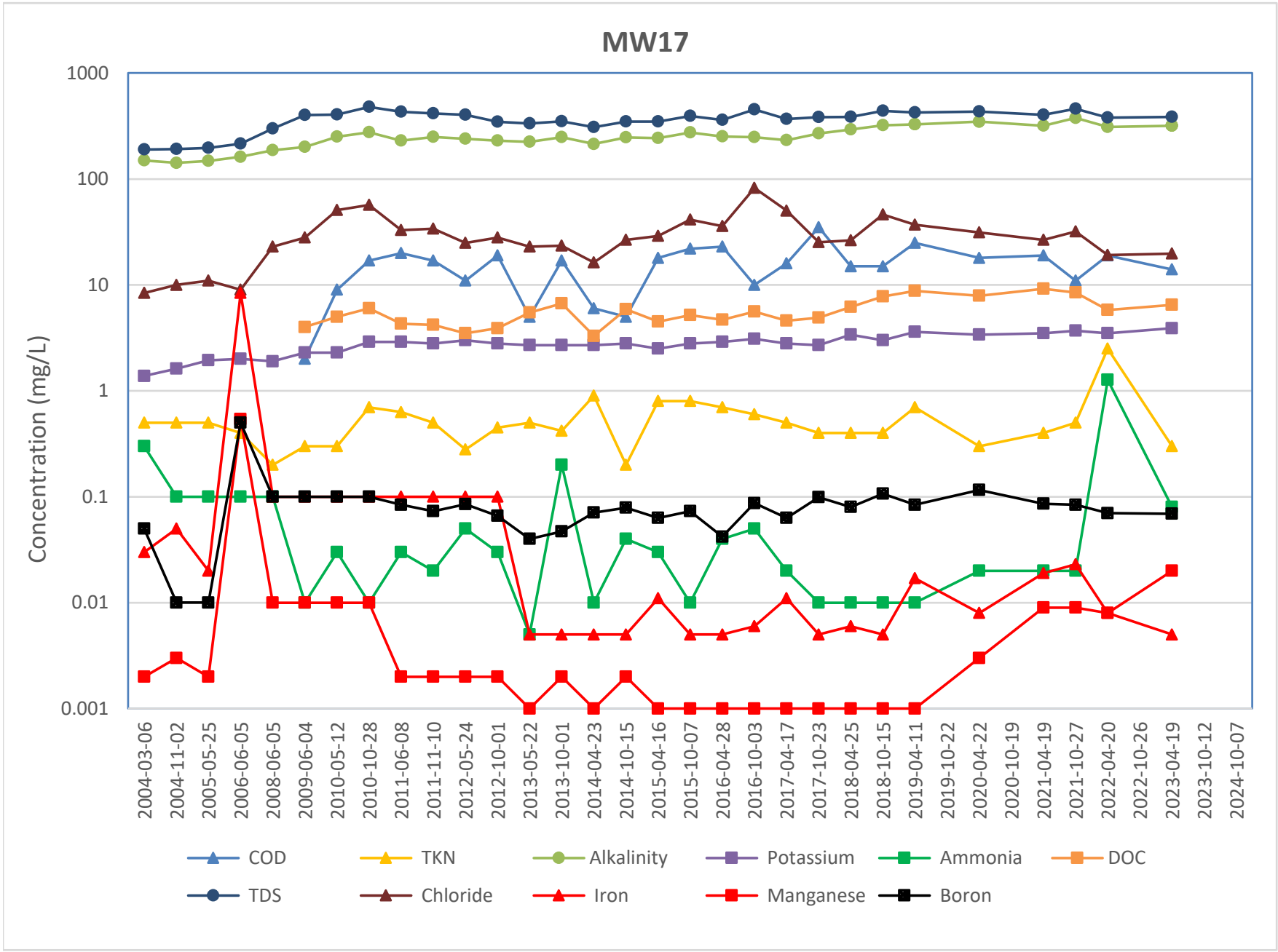

MW14
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-10-25
2007-05-30
2007-10-17
2008-05-28
2008-09-10
2009-06-04
2009-08-18
2010-05-12
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-25
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

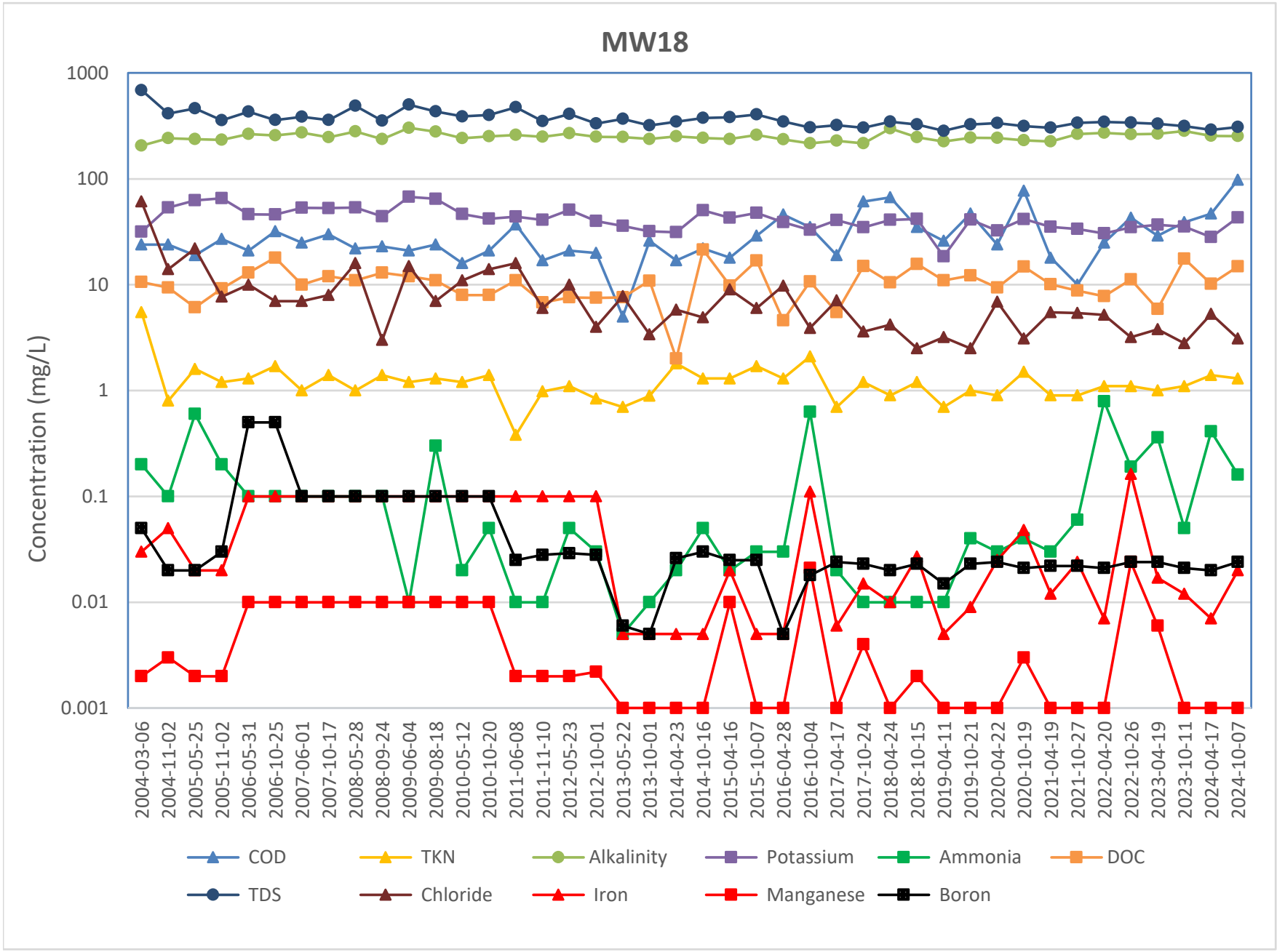

MW15
1000
100
10
1
0.1
0.01
0.001
Concentration (mg/L)
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-10
2009-06-04
2009-08-20
2010-05-14
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-23
2014-10-15
2015-04-15
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

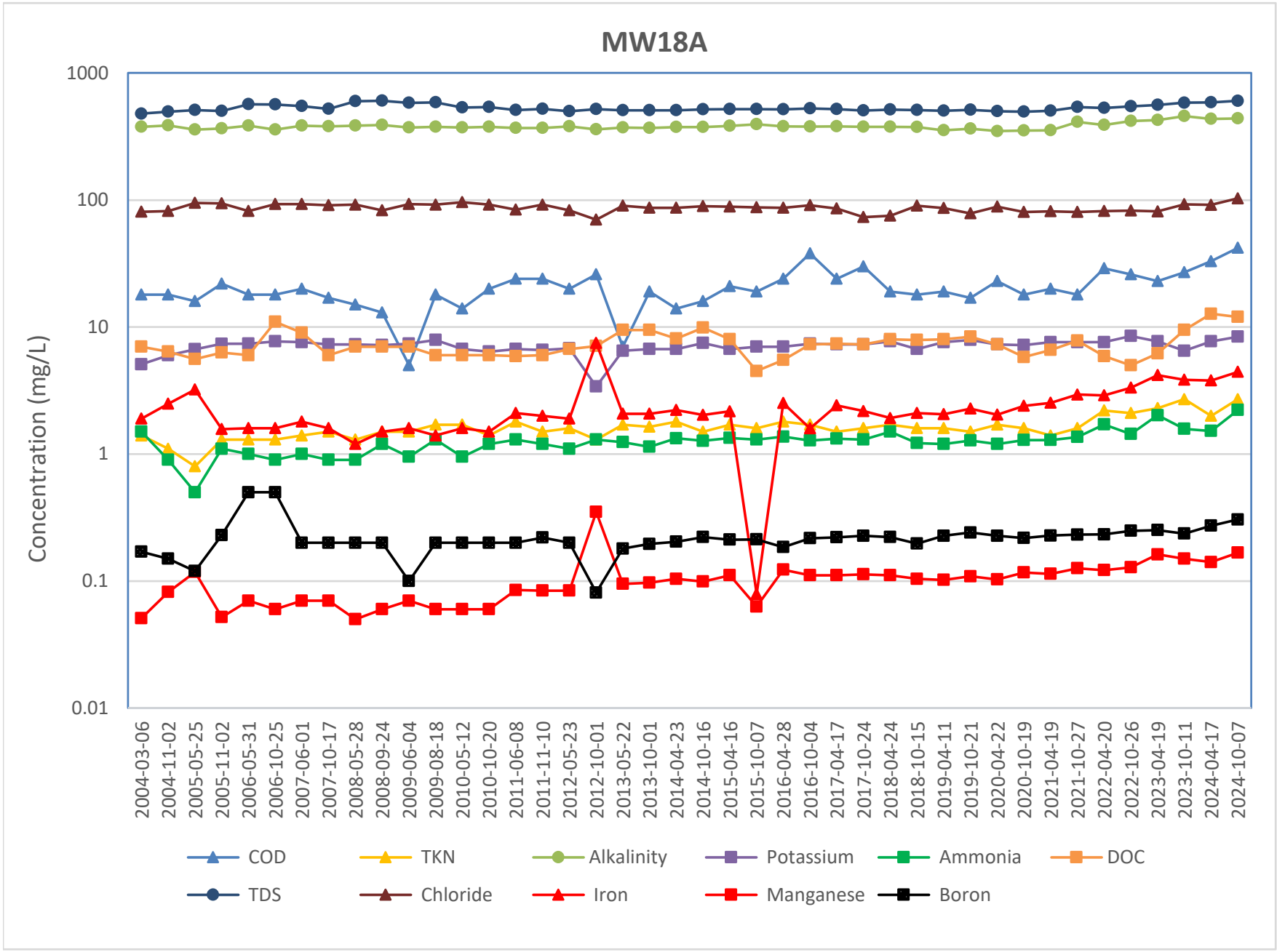

MW15A
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-06-06
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-10
2009-06-04
2009-08-20
2010-05-14
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-23
2014-10-15
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

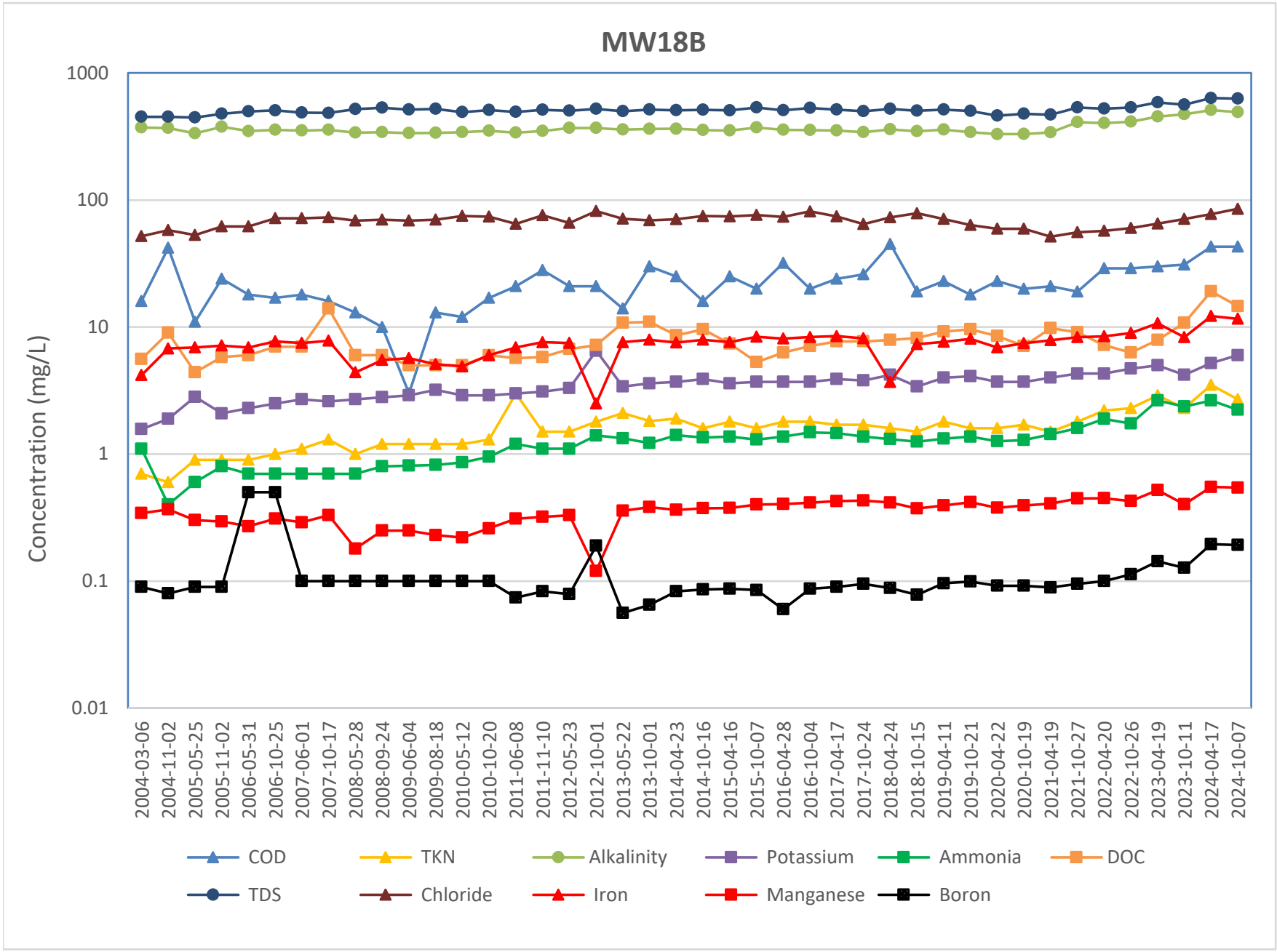

MW15B
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-10
2009-06-04
2009-08-18
2010-05-14
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-23
2014-10-15
2015-04-15
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

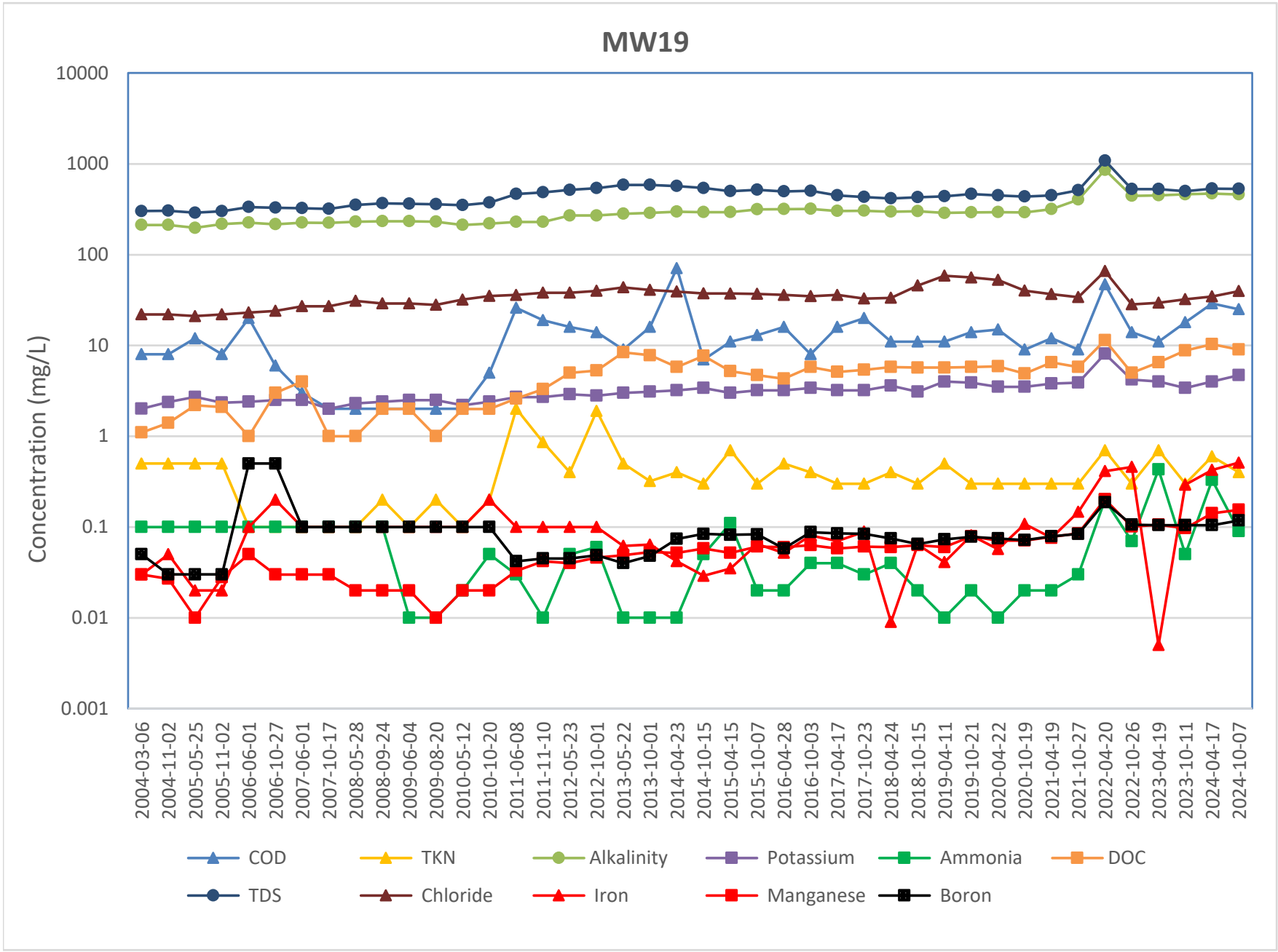

MW16
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-01
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-24
2009-06-04
2009-08-20
2010-05-12
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-15
2015-04-15
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-22
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-11
2024-04-18
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

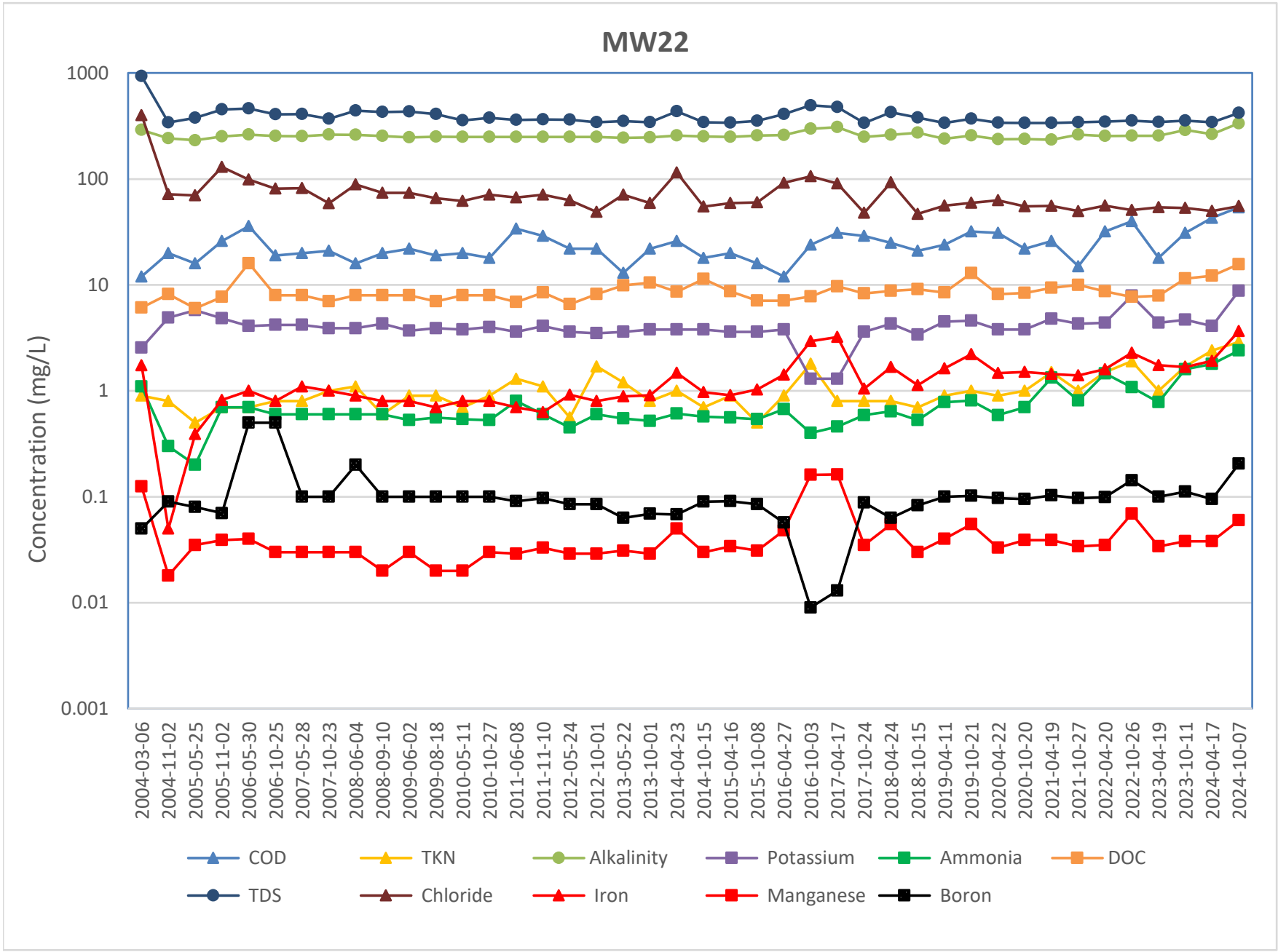

MW17
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2006-06-05
2008-06-05
2009-06-04
2010-05-12
2010-10-28
2011-06-08
2011-11-10
2012-05-24
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-15
2015-04-16
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-22
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

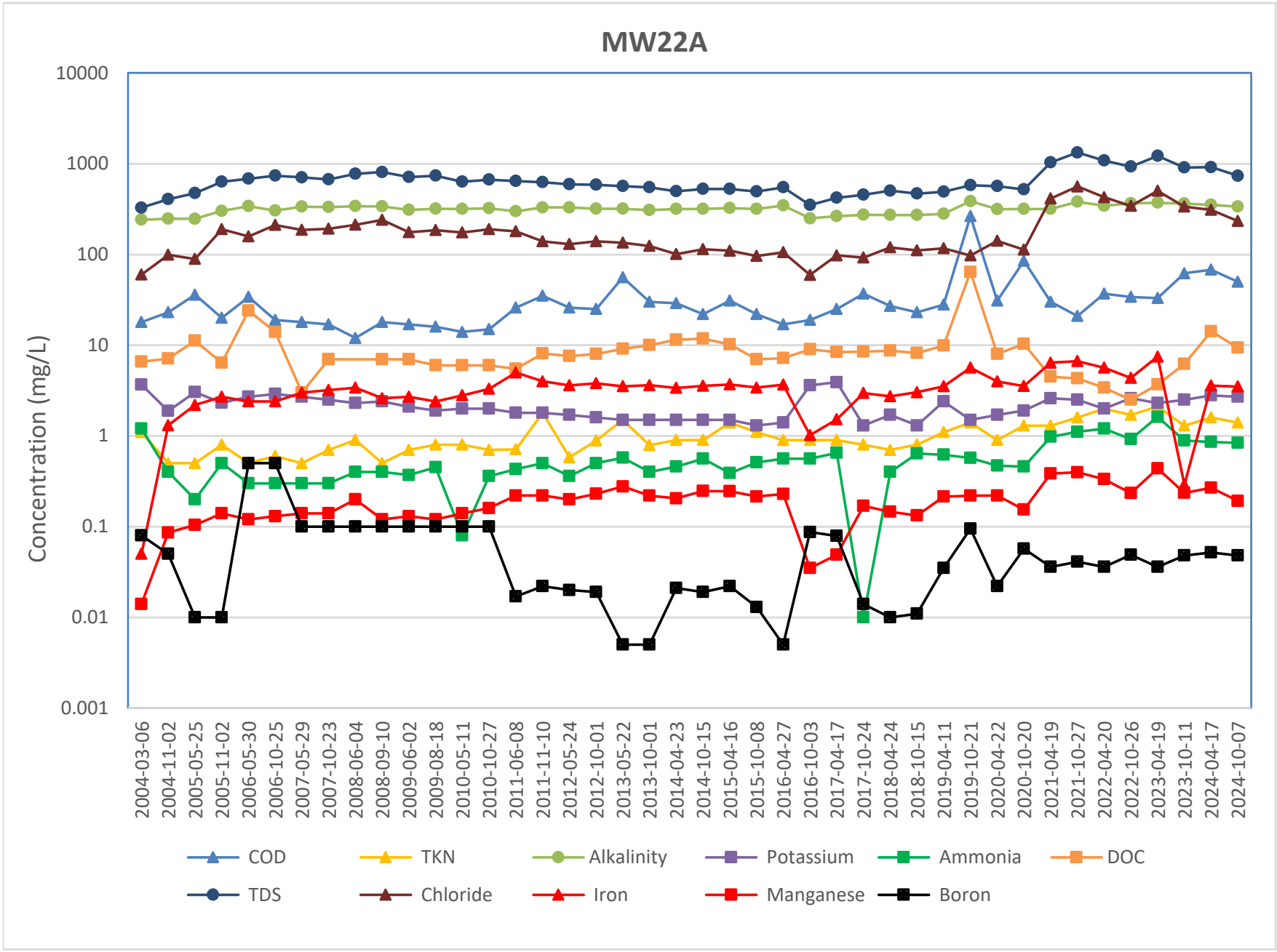

MW18
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-31
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-24
2009-06-04
2009-08-18
2010-05-12
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-04
2017-04-17
2017-10-24
2018-04-24
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

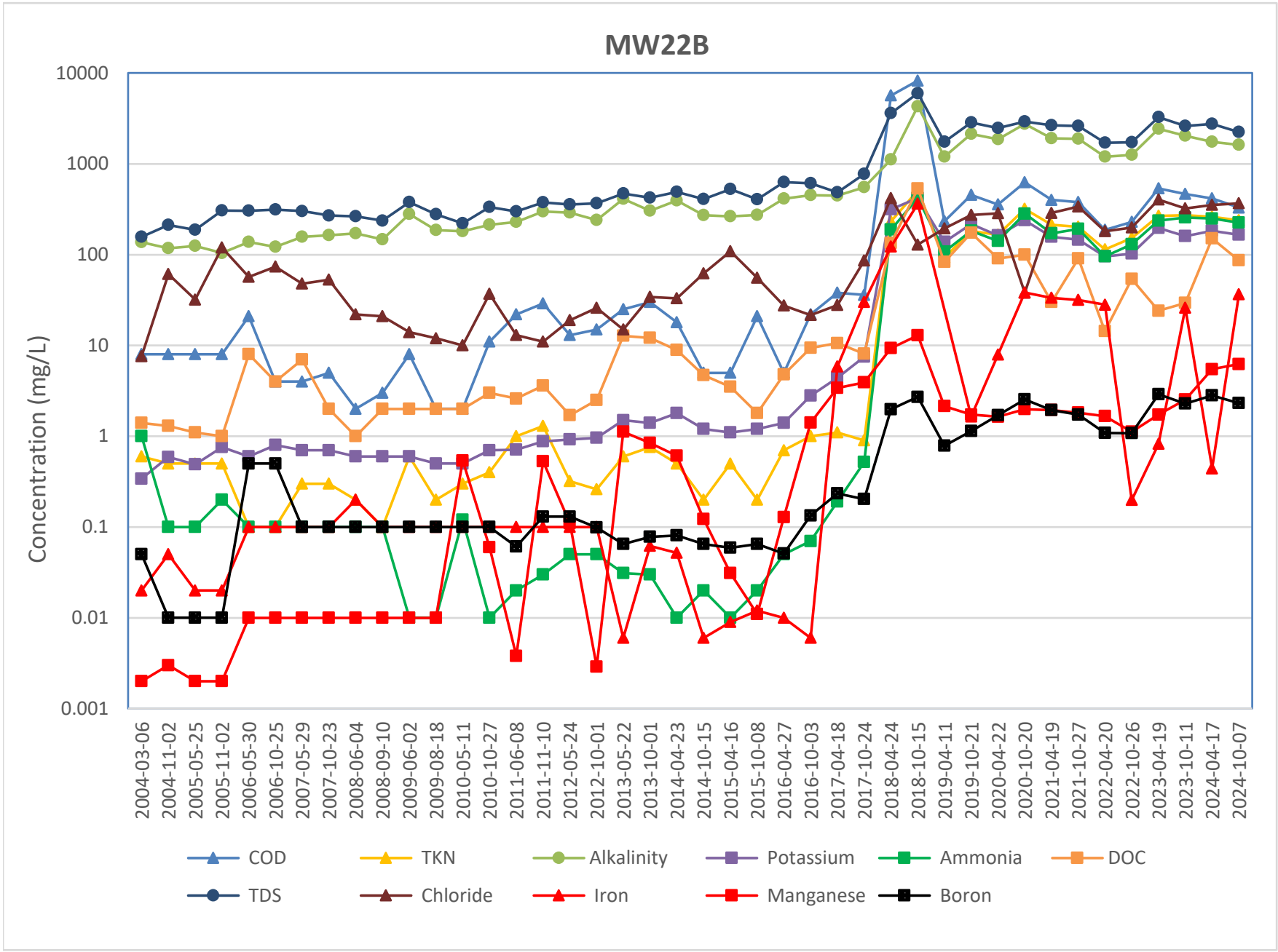

MW18A
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-31
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-24
2009-06-04
2009-08-18
2010-05-12
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-04
2017-04-17
2017-10-24
2018-04-24
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

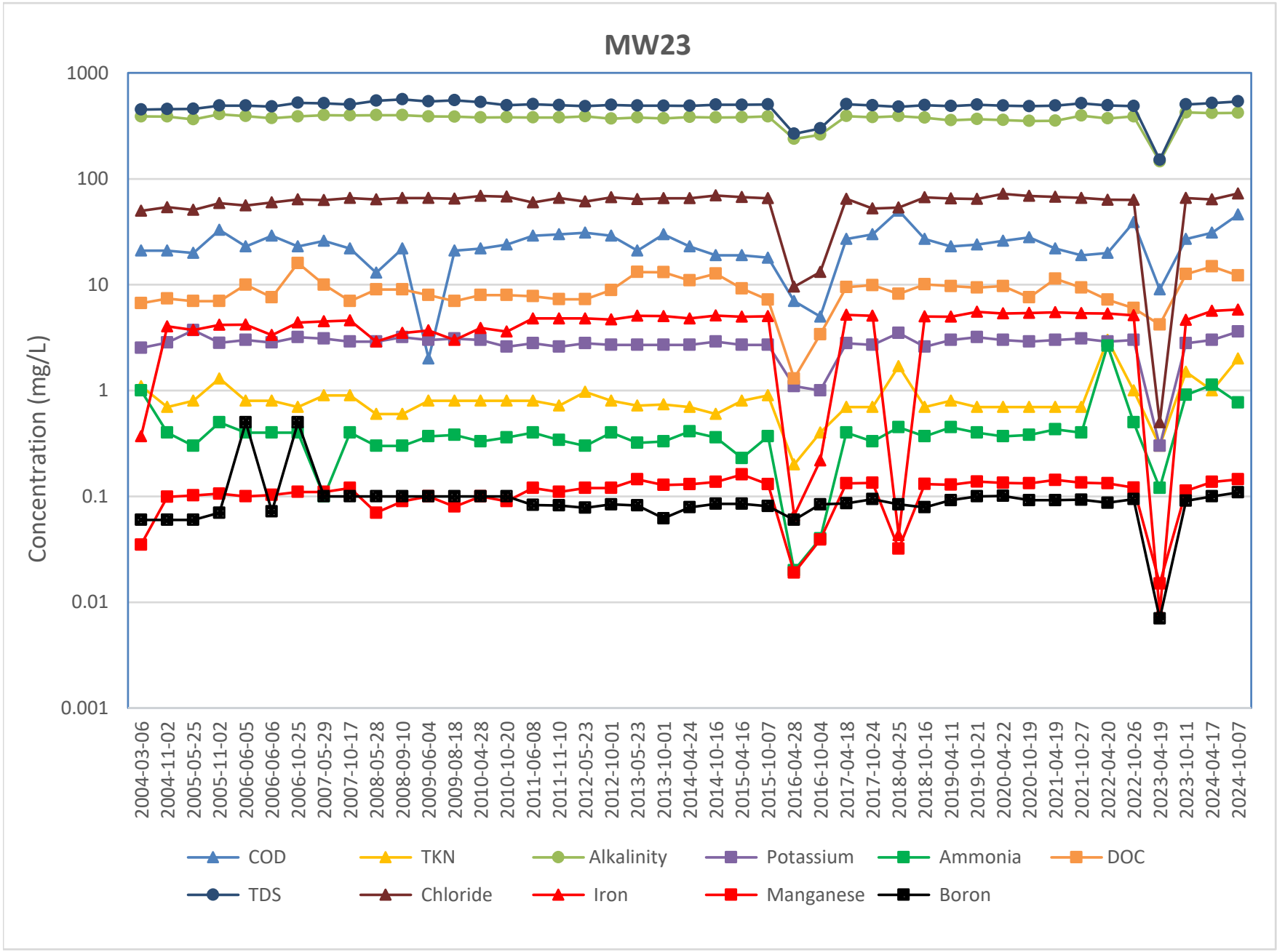

MW18B
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-31
2006-10-25
2007-06-01
2007-10-17
2008-05-28
2008-09-24
2009-06-04
2009-08-18
2010-05-12
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-04
2017-04-17
2017-10-24
2018-04-24
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

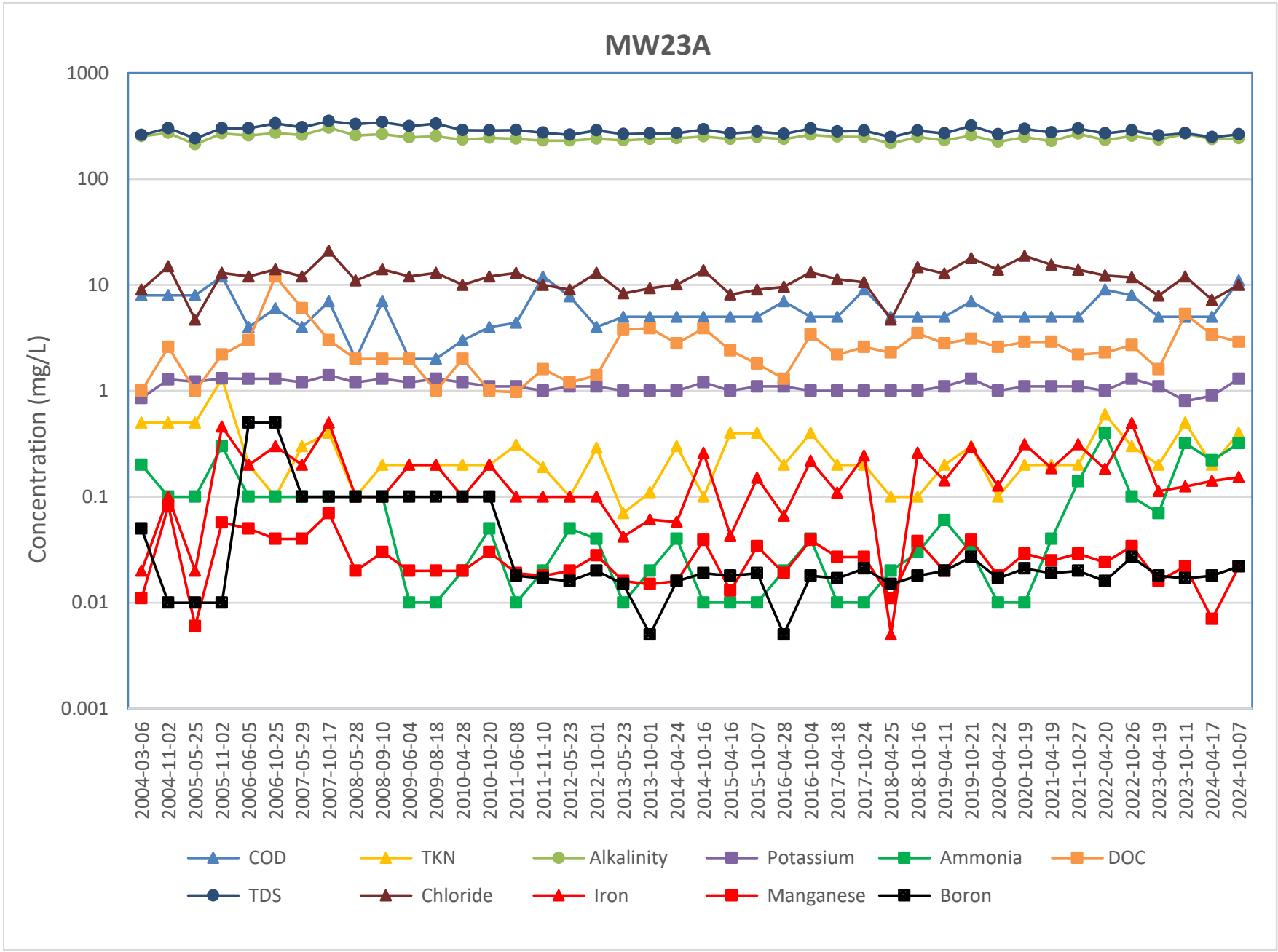

MW19
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-01
2006-10-27
2007-06-01
2007-10-17
2008-05-28
2008-09-24
2009-06-04
2009-08-20
2010-05-12
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-15
2015-04-15
2015-10-07
2016-04-28
2016-10-03
2017-04-17
2017-10-23
2018-04-24
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

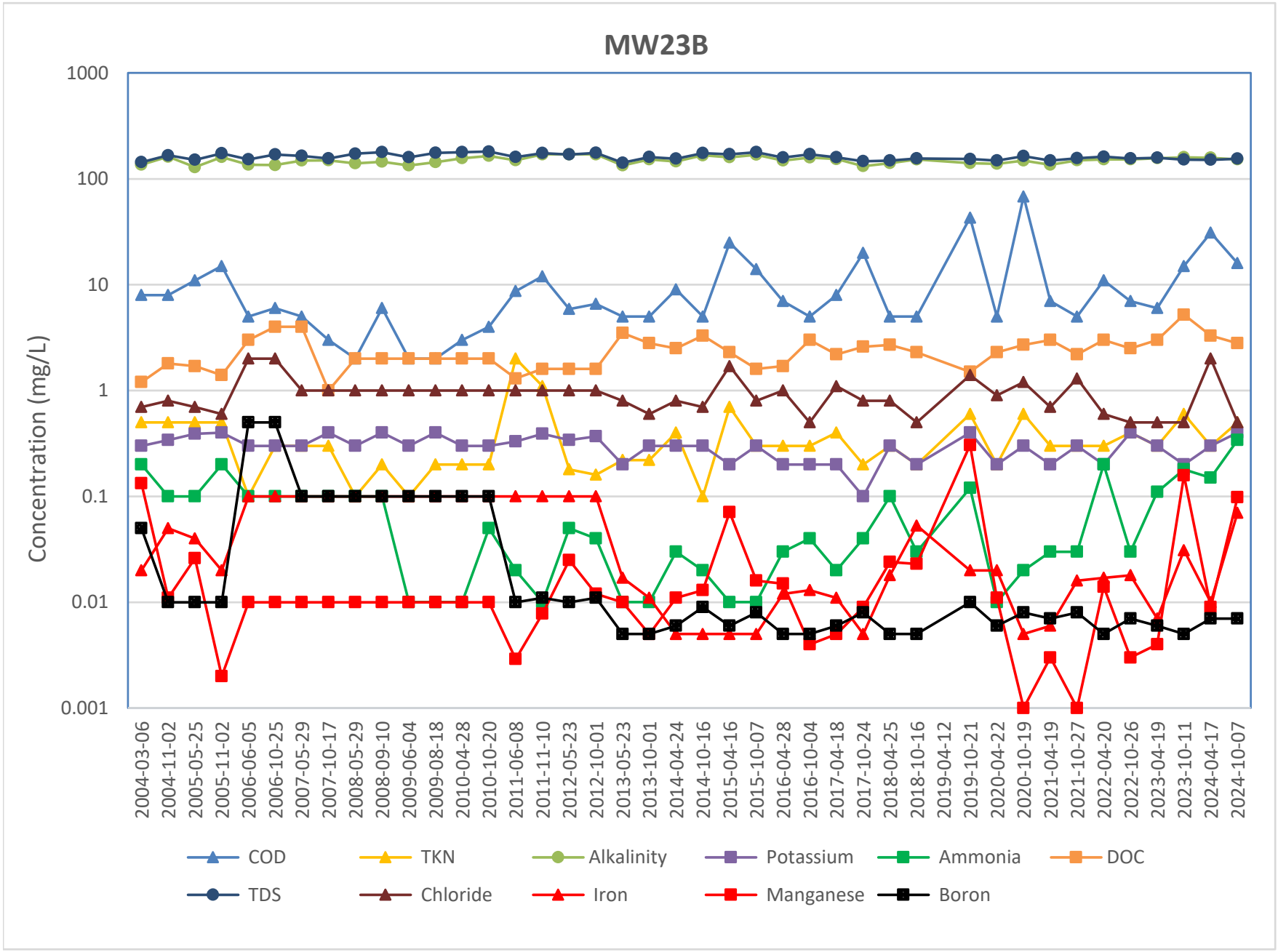

MW22
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-30
2006-10-25
2007-05-28
2007-10-23
2008-06-04
2008-09-10
2009-06-02
2009-08-18
2010-05-11
2010-10-27
2011-06-08
2011-11-10
2012-05-24
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-15
2015-04-16
2015-10-08
2016-04-27
2016-10-03
2017-04-17
2017-10-24
2018-04-24
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-20
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-11
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

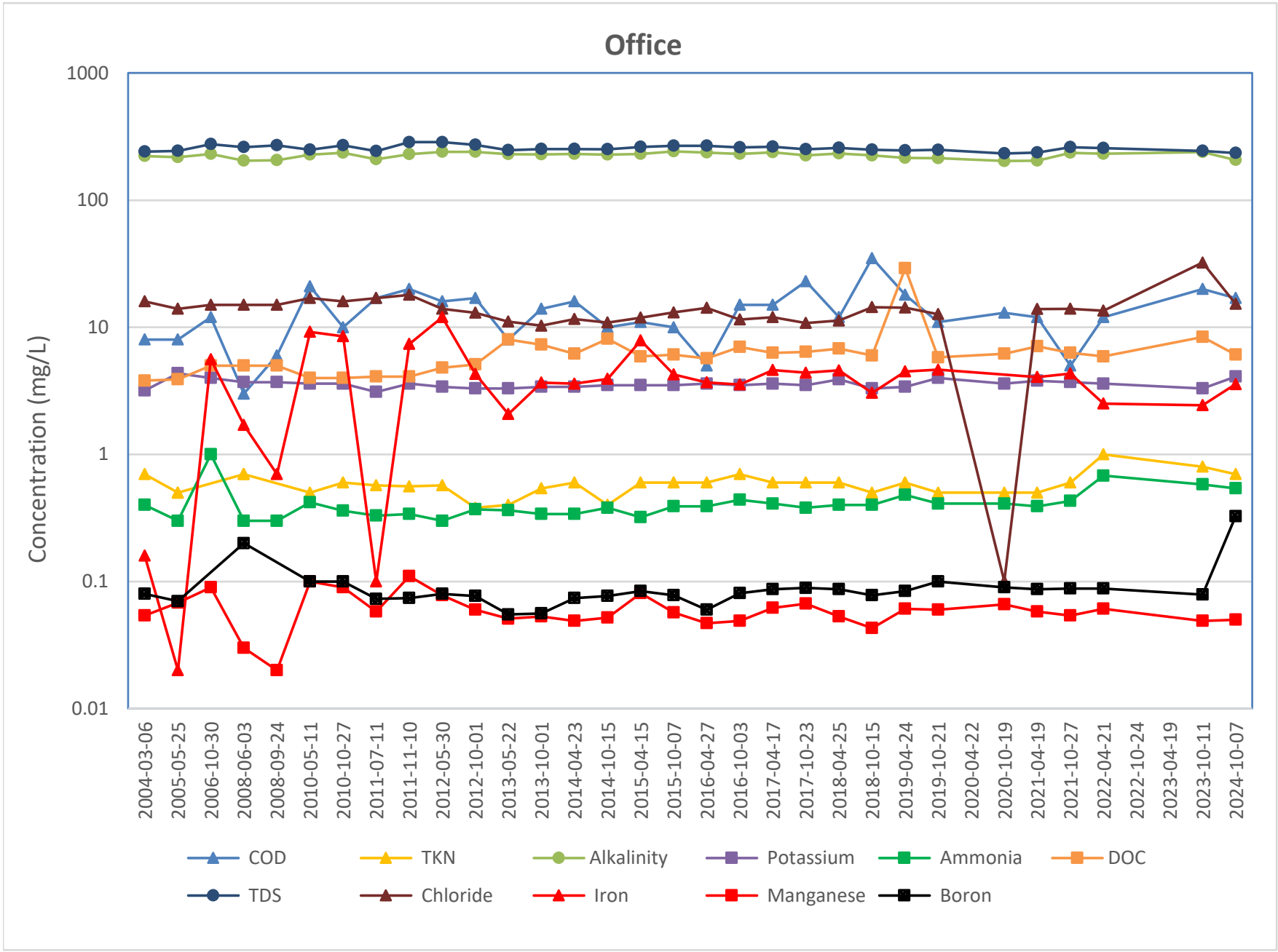

MW22A
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-30
2006-10-25
2007-05-29
2007-10-23
2008-06-04
2008-09-10
2009-06-02
2009-08-18
2010-05-11
2010-10-27
2011-06-08
2011-11-10
2012-05-24
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-15
2015-04-16
2015-10-08
2016-04-27
2016-10-03
2017-04-17
2017-10-24
2018-04-24
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-20
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-11
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

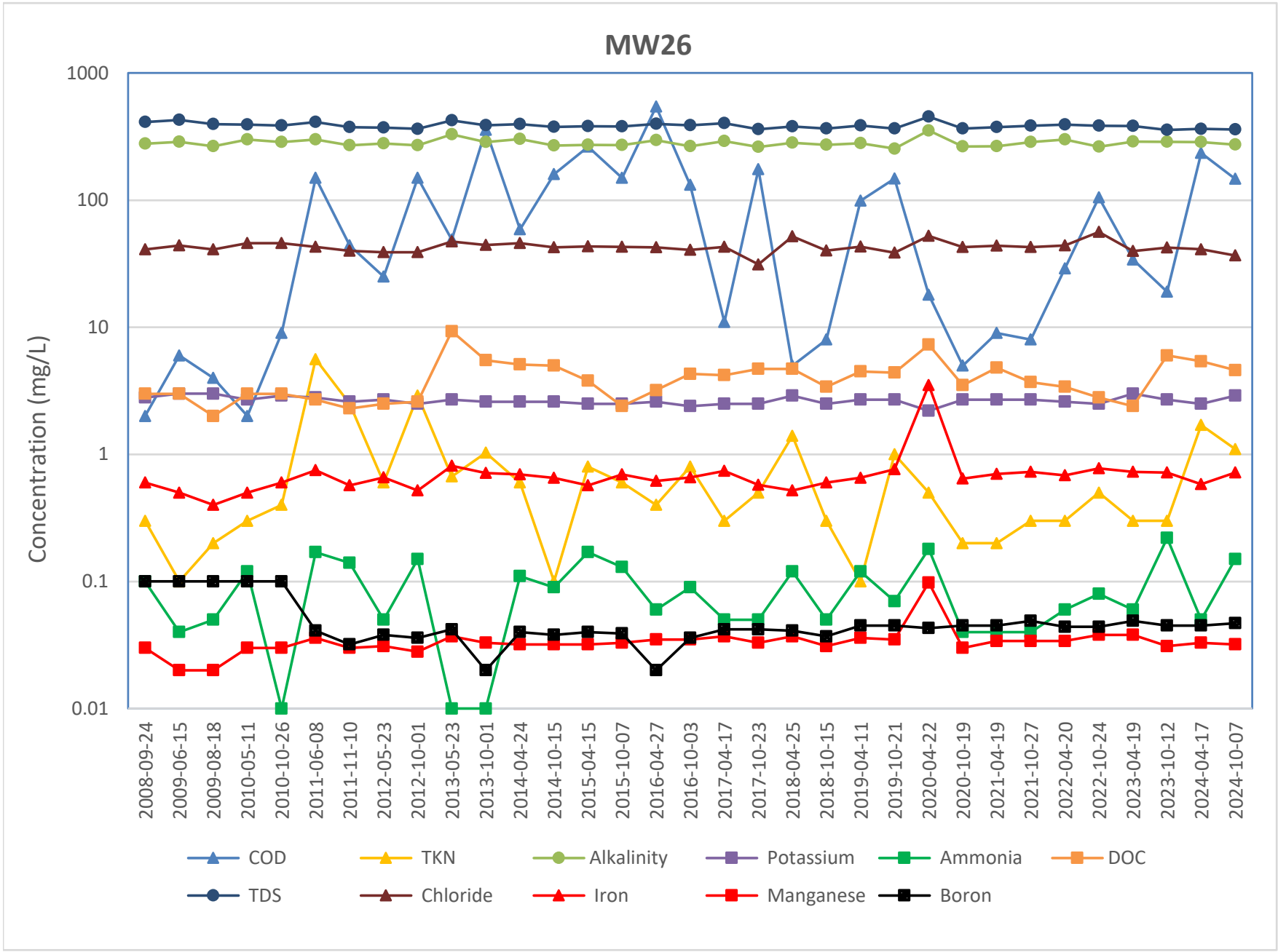

MW22B
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-05-30
2006-10-25
2007-05-29
2007-10-23
2008-06-04
2008-09-10
2009-06-02
2009-08-18
2010-05-11
2010-10-27
2011-06-08
2011-11-10
2012-05-24
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-15
2015-04-16
2015-10-08
2016-04-27
2016-10-03
2017-04-18
2017-10-24
2018-04-24
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-20
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-11
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

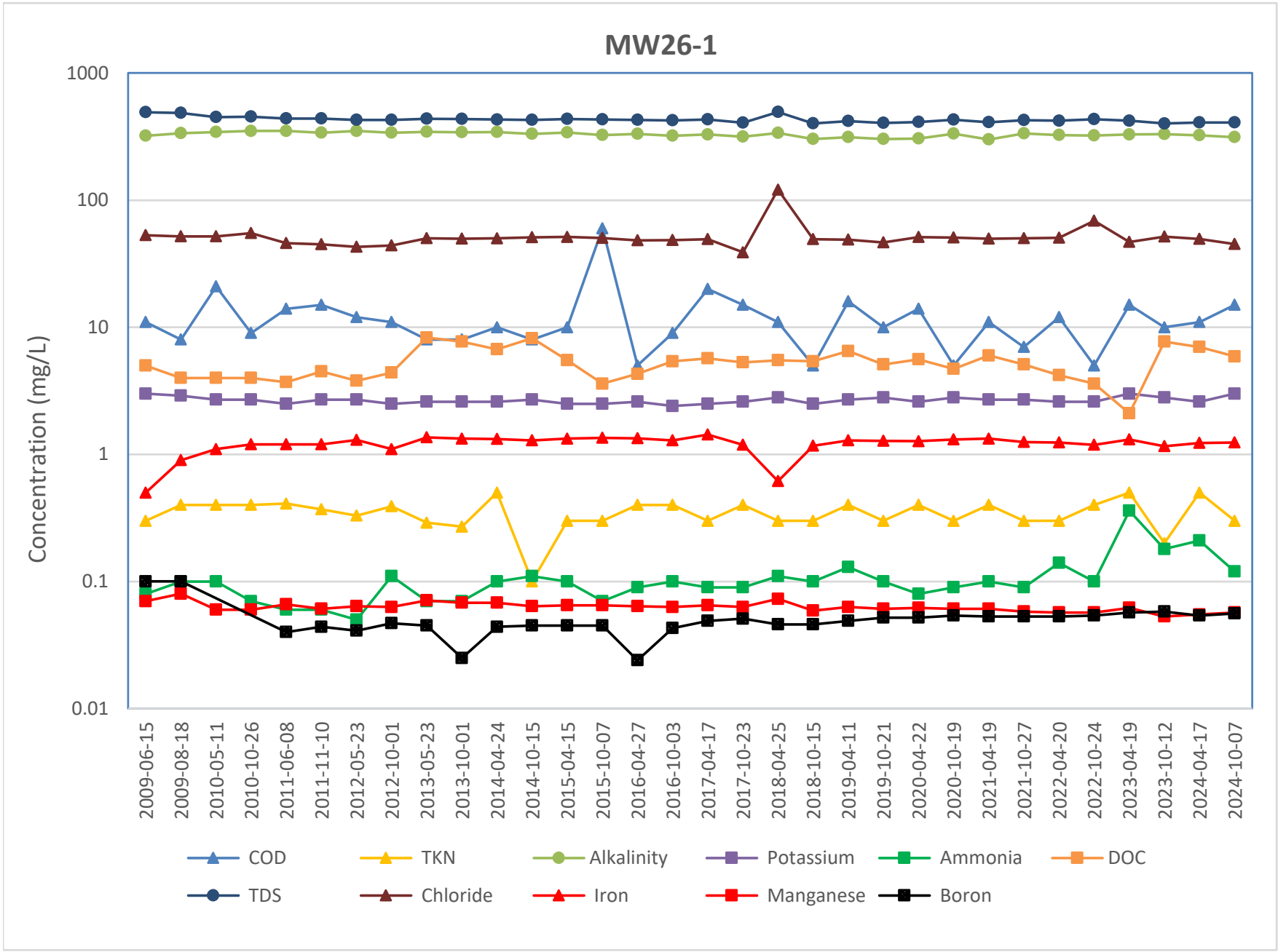

MW23
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-06-06
2006-10-25
2007-05-29
2007-10-17
2008-05-28
2008-09-10
2009-06-04
2009-08-18
2010-04-28
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-24
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-04
2017-04-18
2017-10-24
2018-04-25
2018-10-16
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

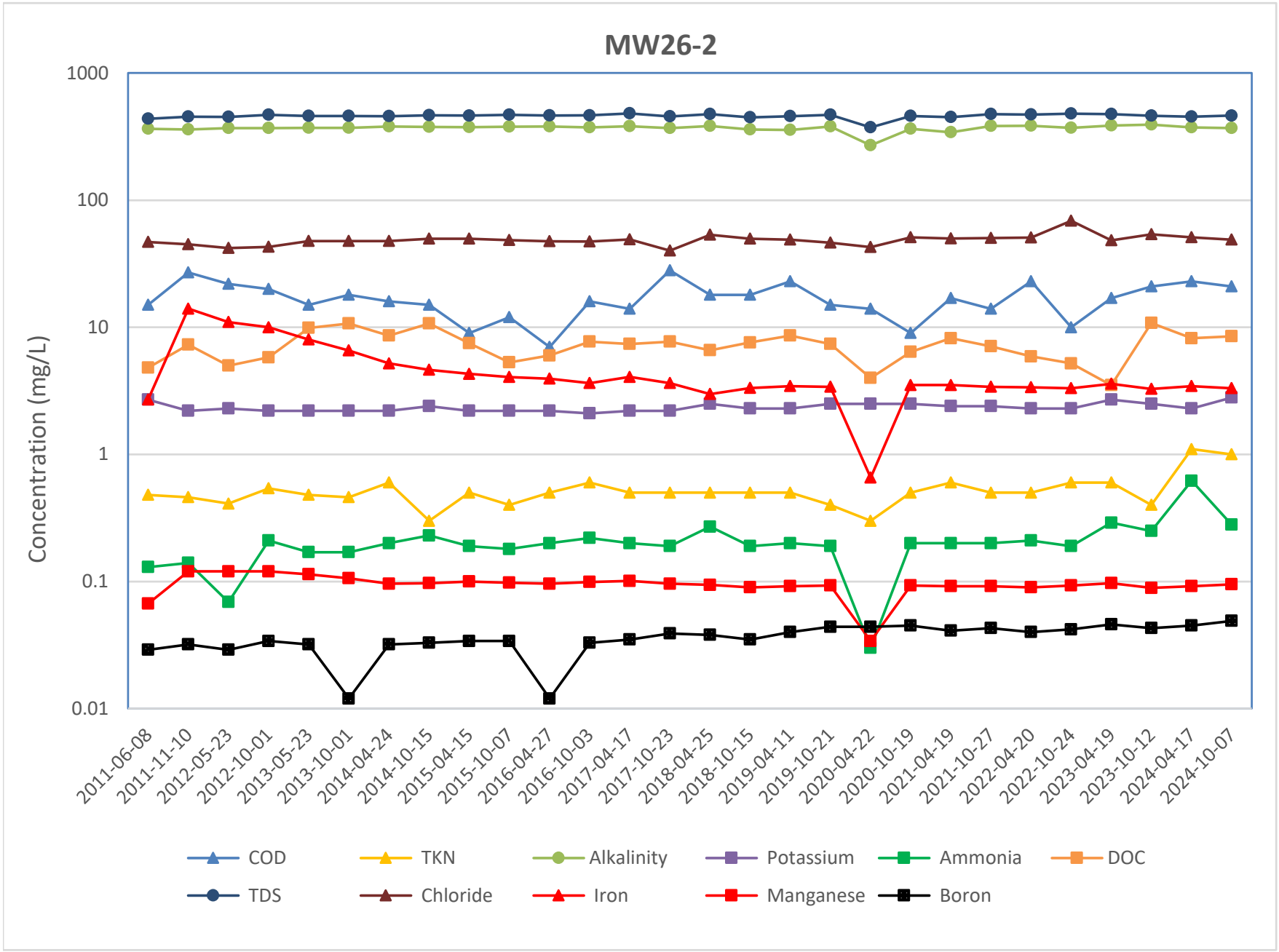

MW23A
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-10-25
2007-05-29
2007-10-17
2008-05-28
2008-09-10
2009-06-04
2009-08-18
2010-04-28
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-24
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-04
2017-04-18
2017-10-24
2018-04-25
2018-10-16
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

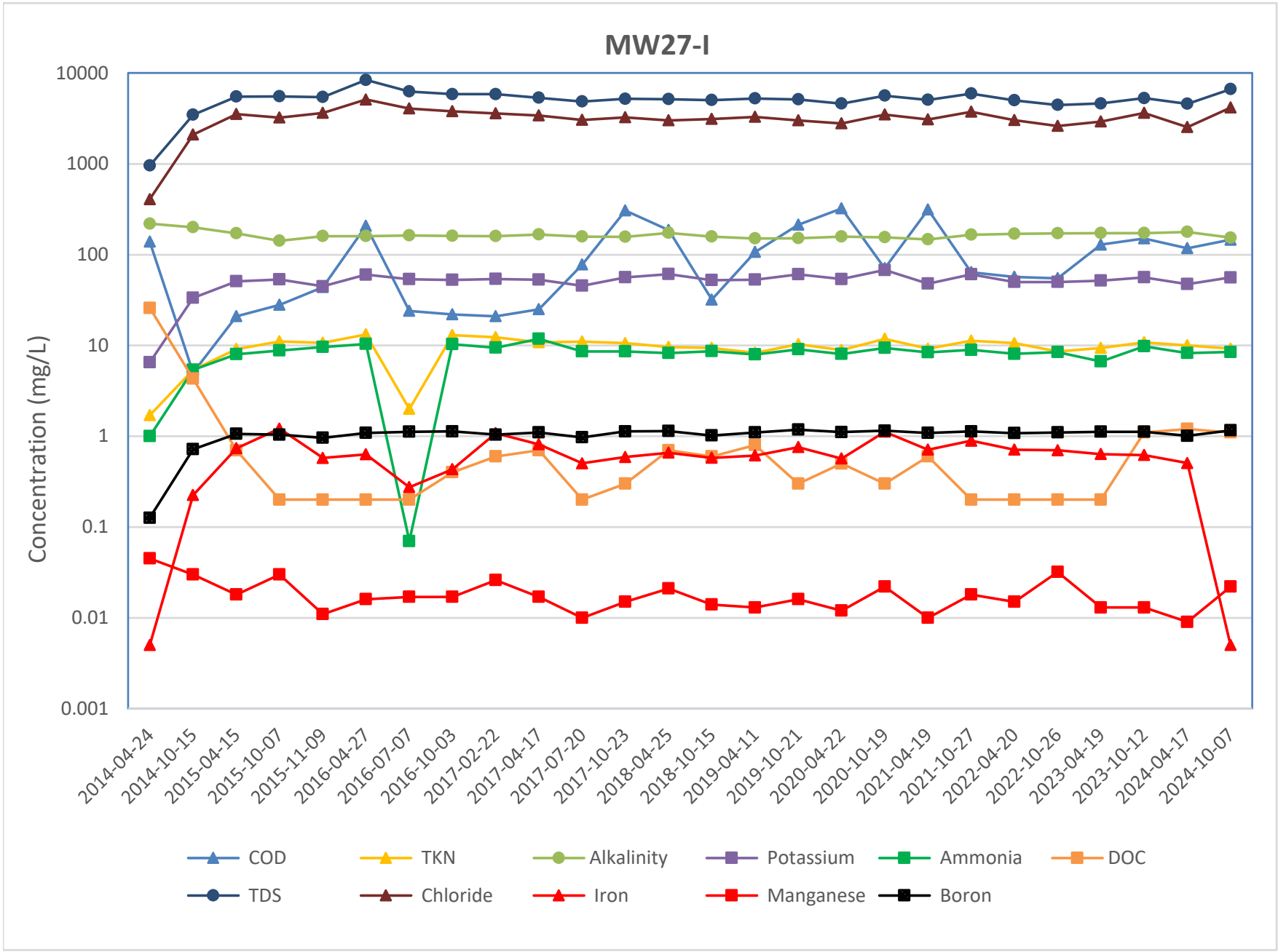

MW23B
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-03-06
2004-11-02
2005-05-25
2005-11-02
2006-06-05
2006-10-25
2007-05-29
2007-10-17
2008-05-29
2008-09-10
2009-06-04
2009-08-18
2010-04-28
2010-10-20
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-24
2014-10-16
2015-04-16
2015-10-07
2016-04-28
2016-10-04
2017-04-18
2017-10-24
2018-04-25
2018-10-16
2019-04-12
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
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

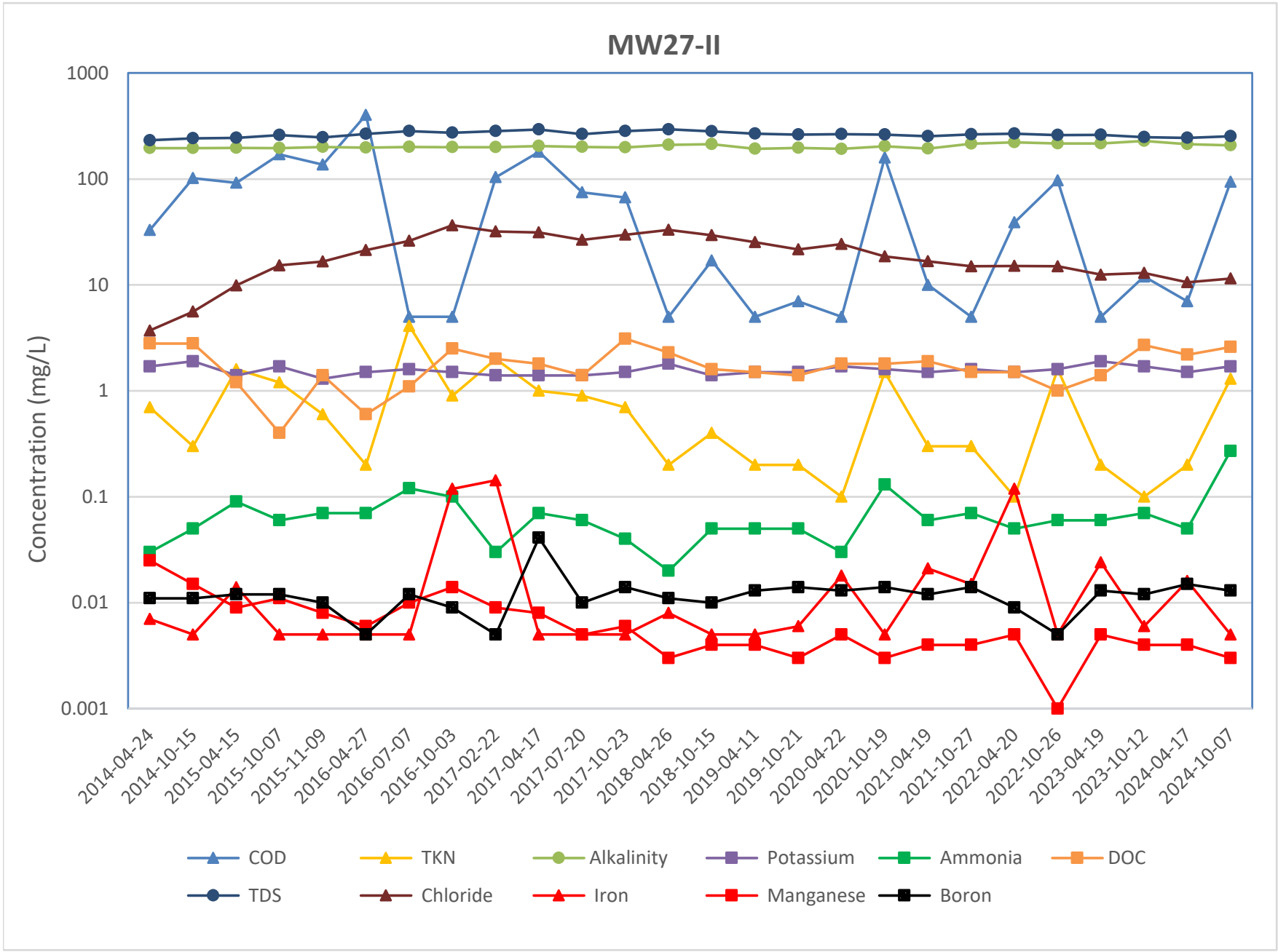

Office
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2004-03-06
2005-05-25
2006-10-30
2008-06-03
2008-09-24
2010-05-11
2010-10-27
2011-07-11
2011-11-10
2012-05-30
2012-10-01
2013-05-22
2013-10-01
2014-04-23
2014-10-15
2015-04-15
2015-10-07
2016-04-27
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-24
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-11
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

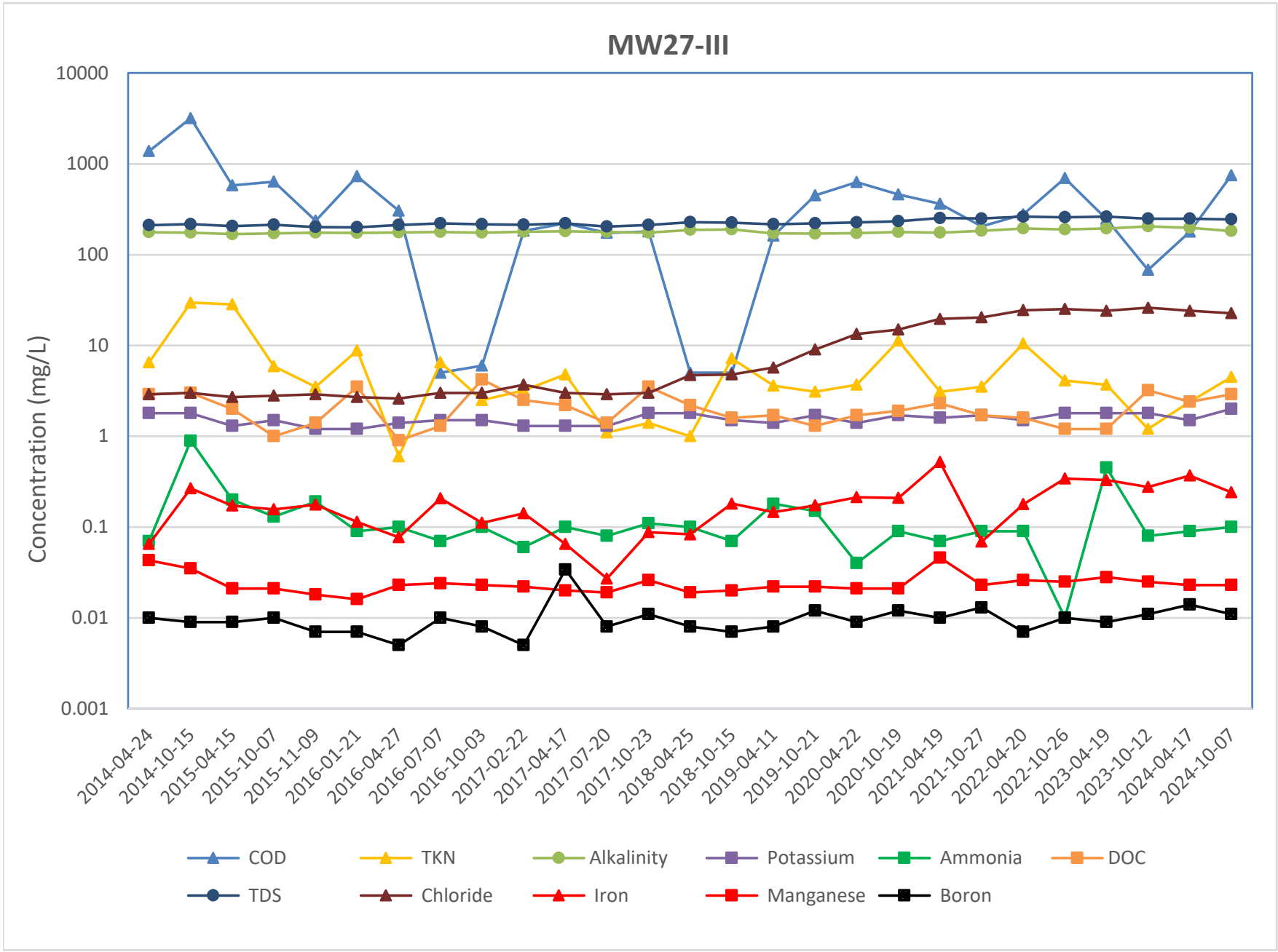

MW26
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2008-09-24
2009-06-15
2009-08-18
2010-05-11
2010-10-26
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2016-04-27
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-24
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

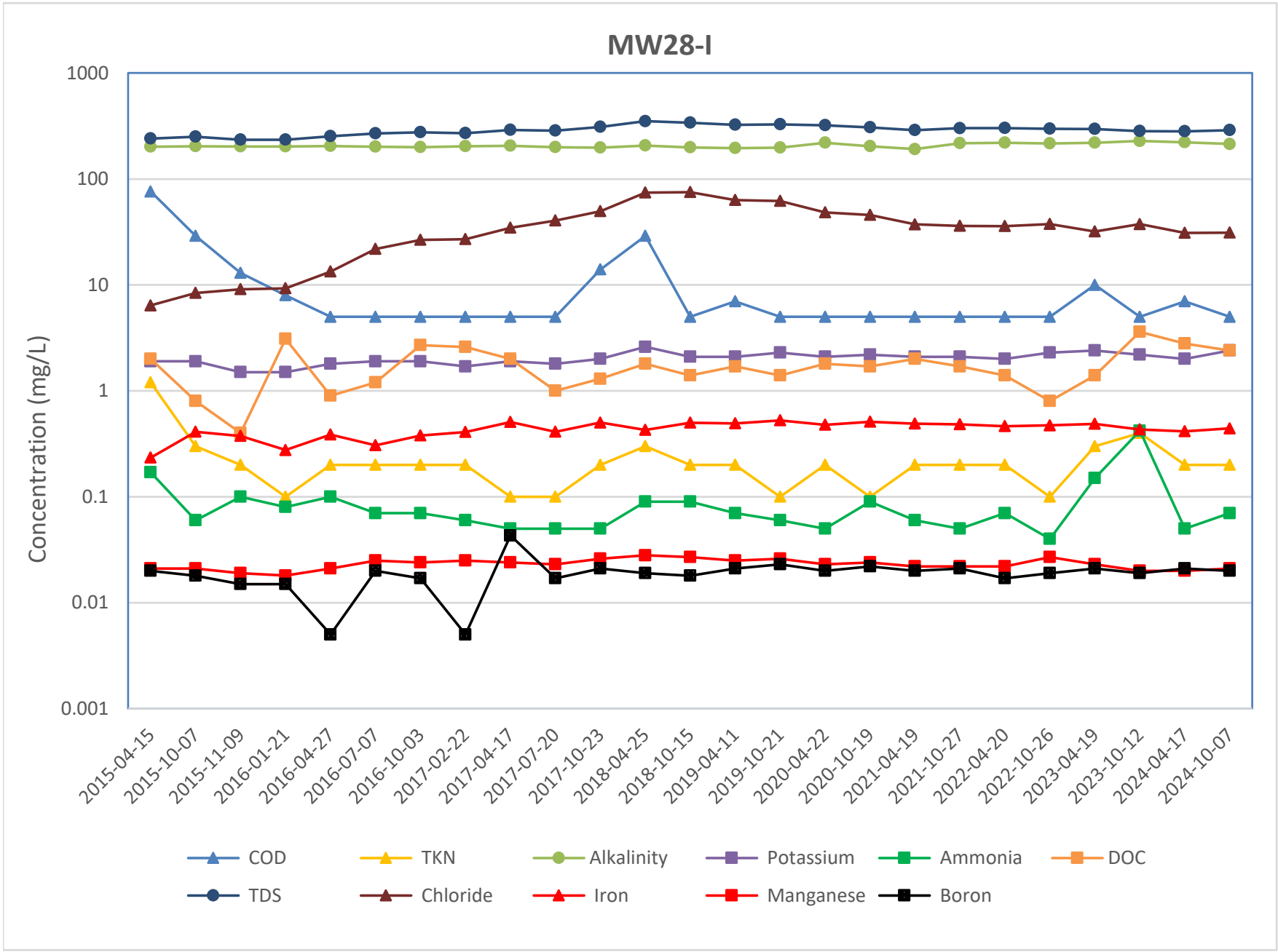

MW26-1
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2009-06-15
2009-08-18
2010-05-11
2010-10-26
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2016-04-27
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-24
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

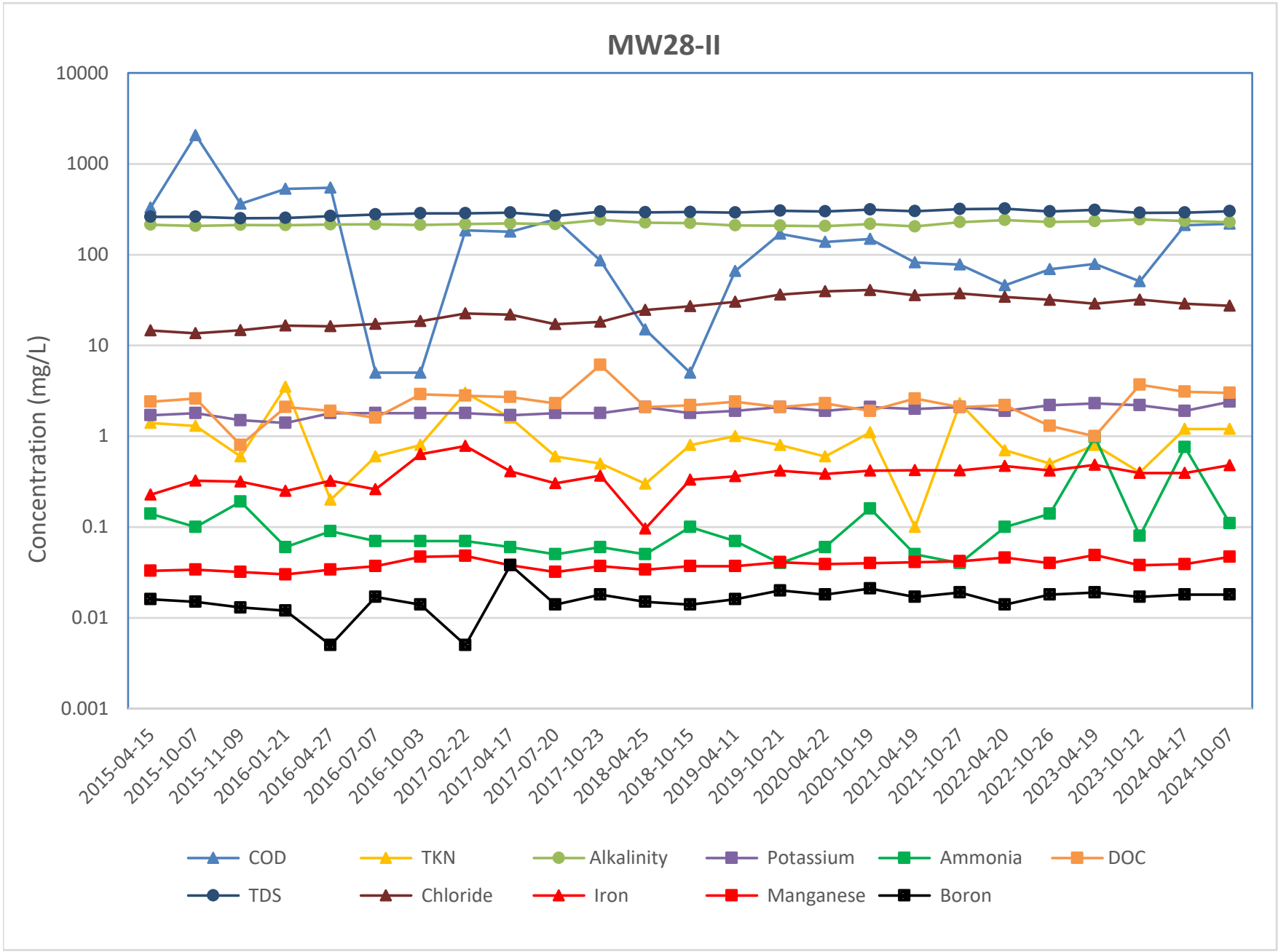

MW26-2
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2011-06-08
2011-11-10
2012-05-23
2012-10-01
2013-05-23
2013-10-01
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2016-04-27
2016-10-03
2017-04-17
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-24
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

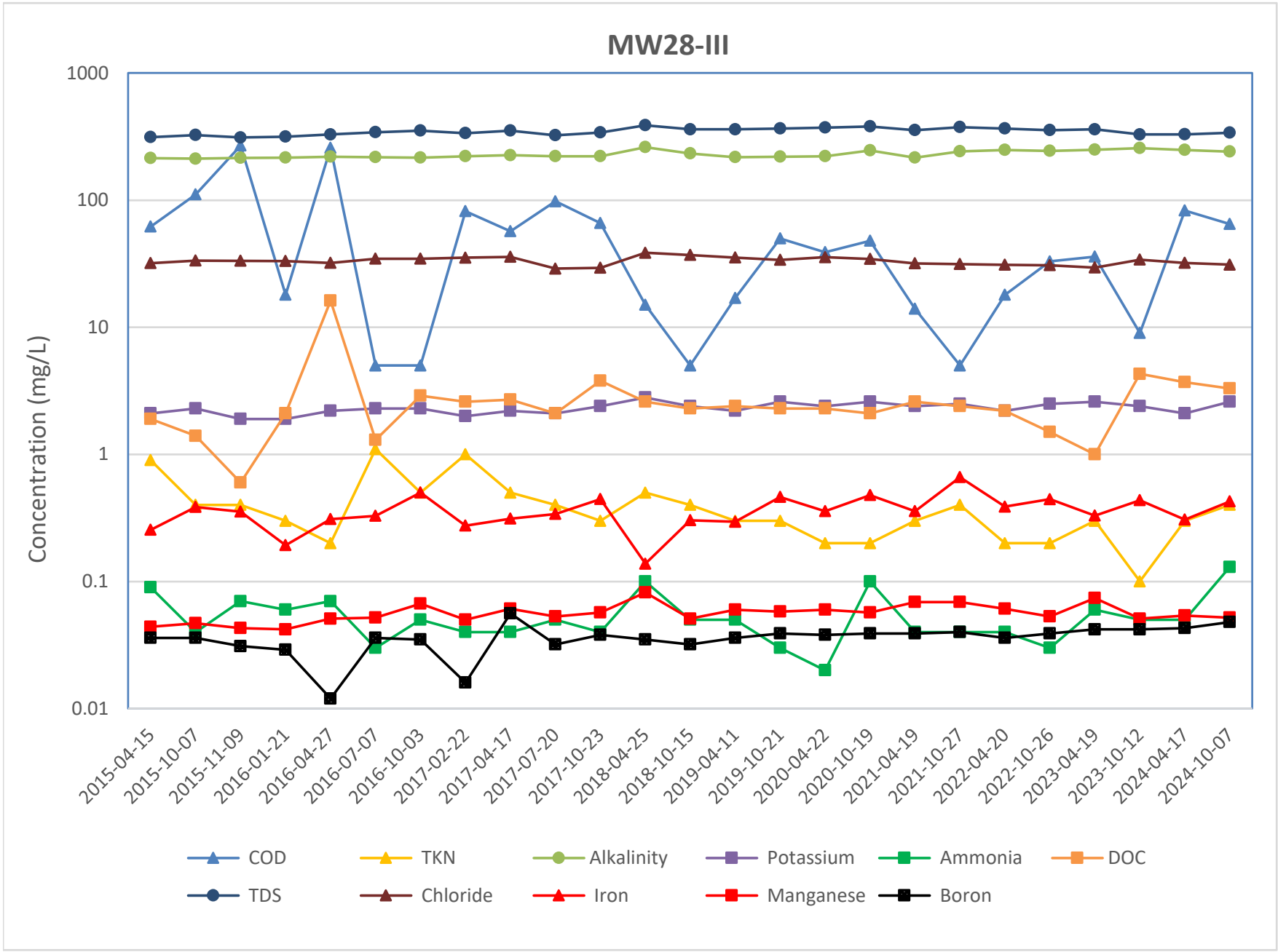

MW27-I
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2015-11-09
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

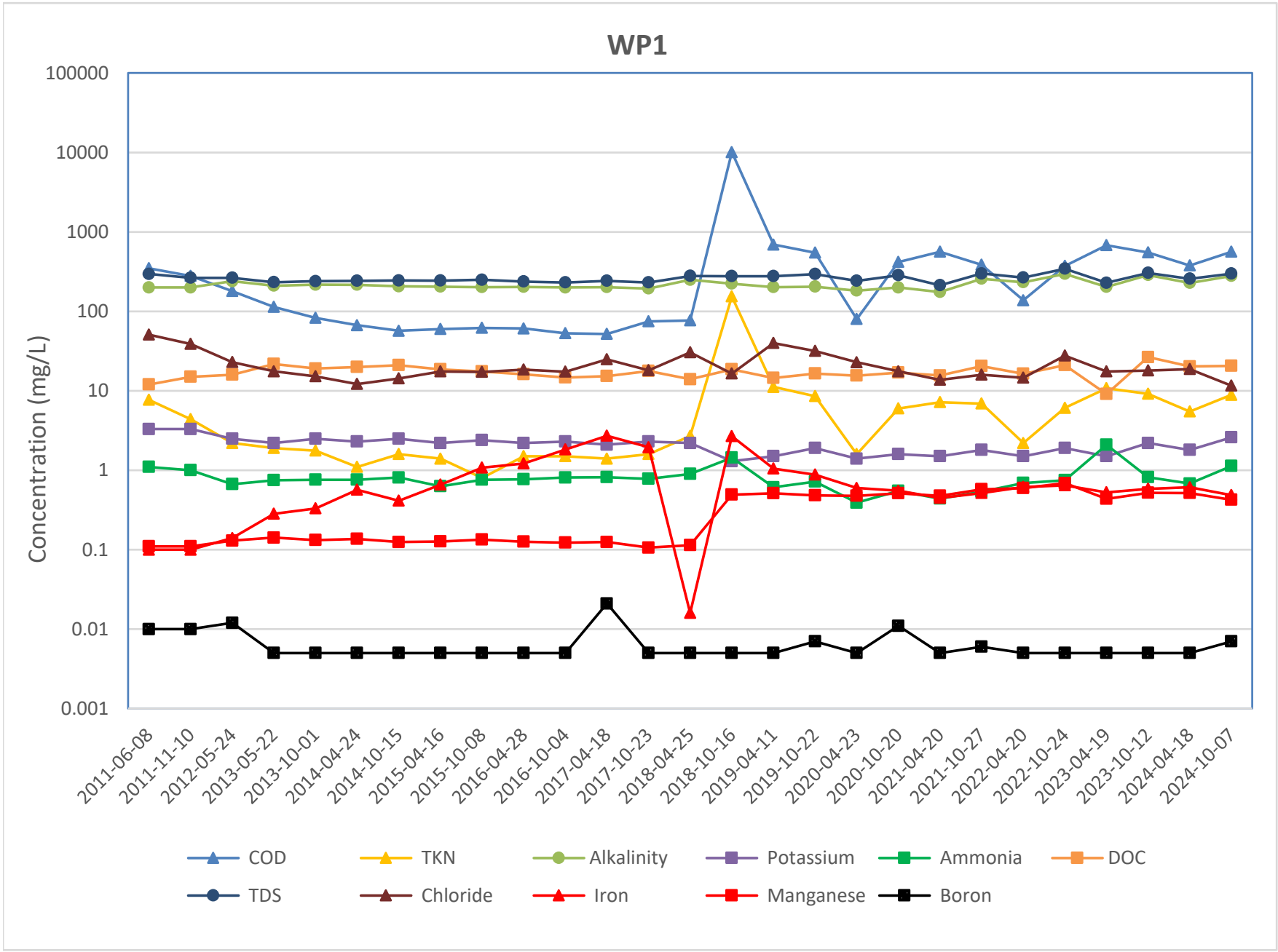

MW27-II
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2015-11-09
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-26
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

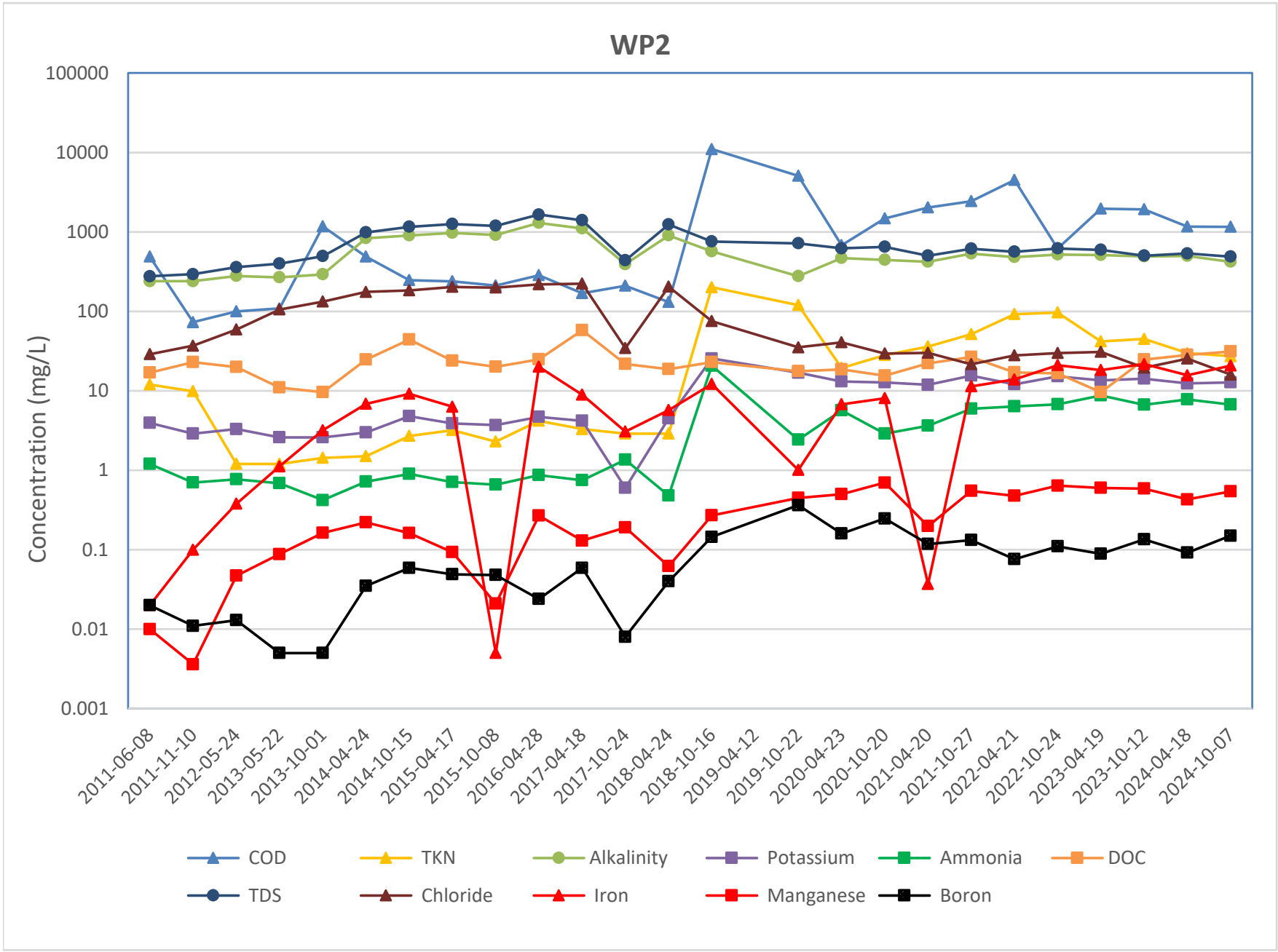

MW27-III
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2014-04-24
2014-10-15
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

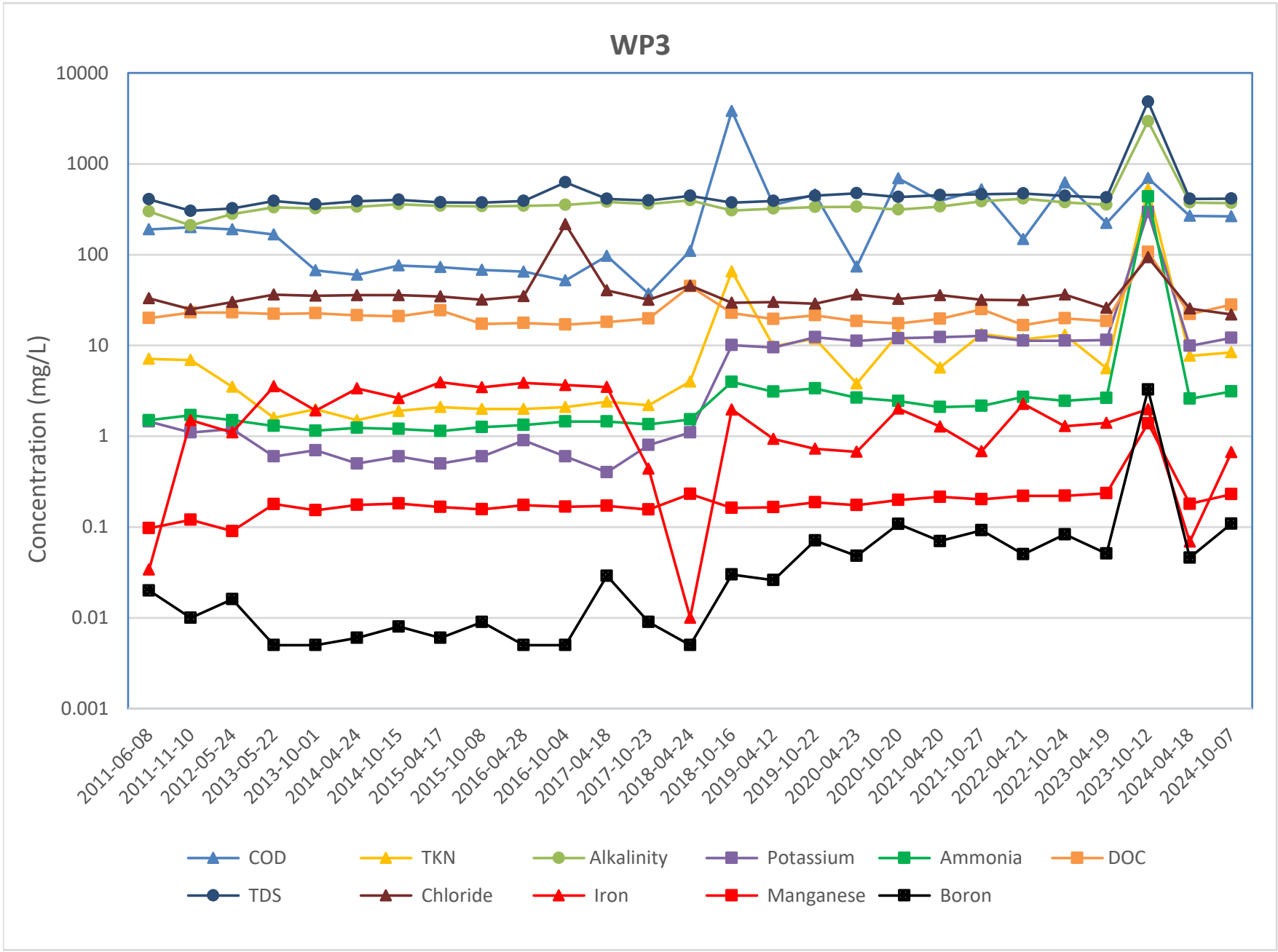

MW28-I
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

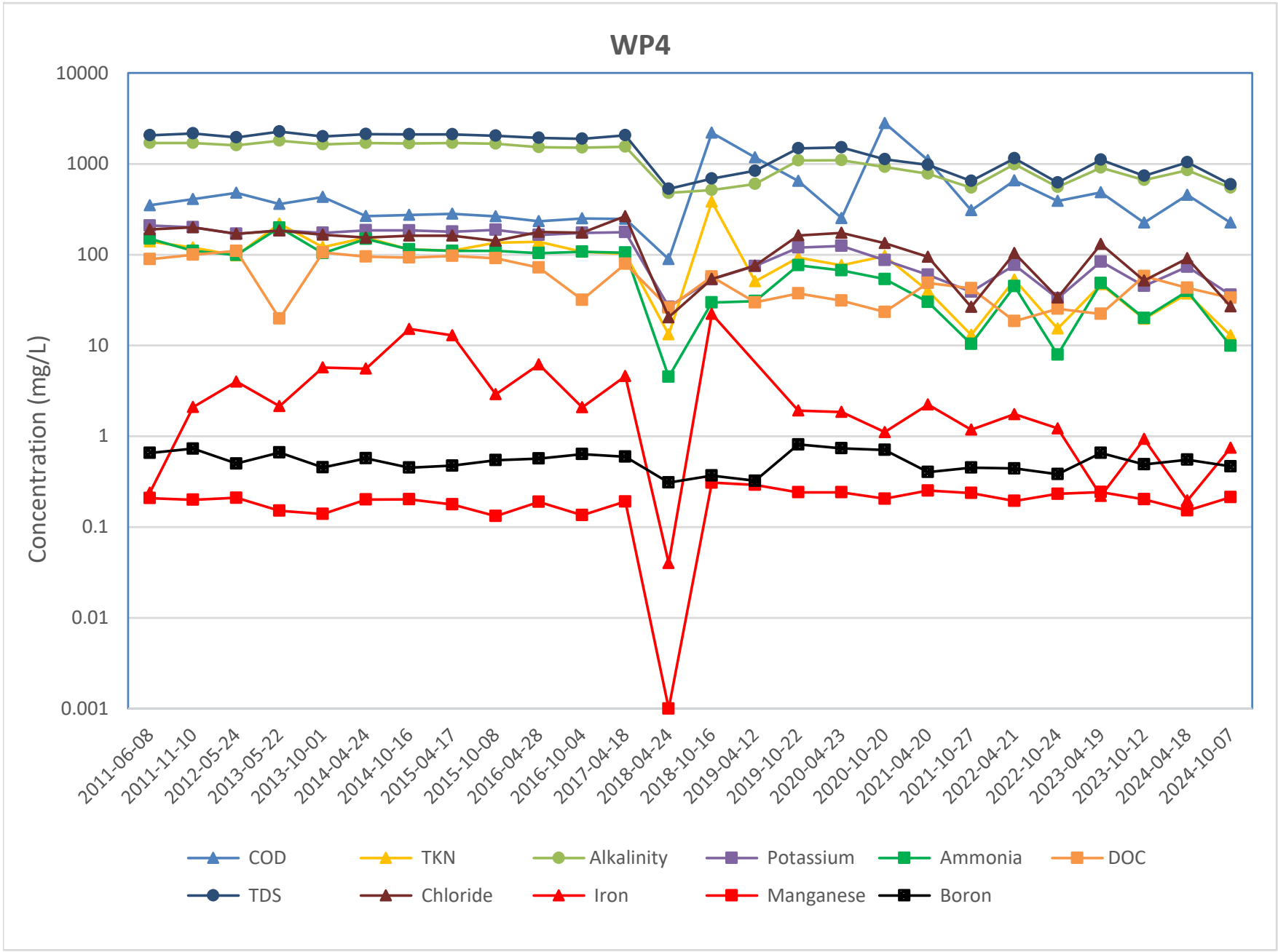

MW28-II
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

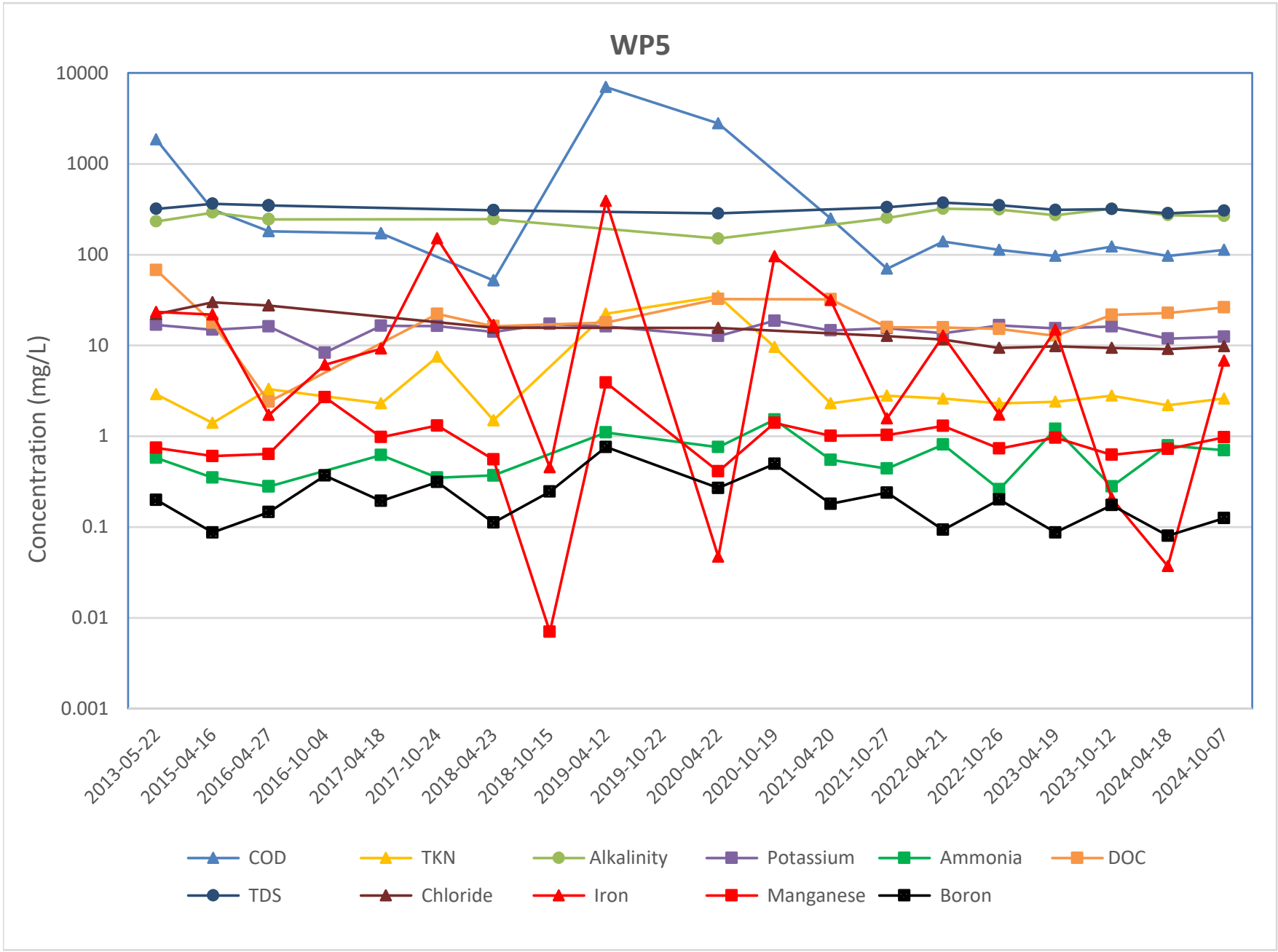

MW28-III
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2015-04-15
2015-10-07
2015-11-09
2016-01-21
2016-04-27
2016-07-07
2016-10-03
2017-02-22
2017-04-17
2017-07-20
2017-10-23
2018-04-25
2018-10-15
2019-04-11
2019-10-21
2020-04-22
2020-10-19
2021-04-19
2021-10-27
2022-04-20
2022-10-26
2023-04-19
2023-10-12
2024-04-17
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

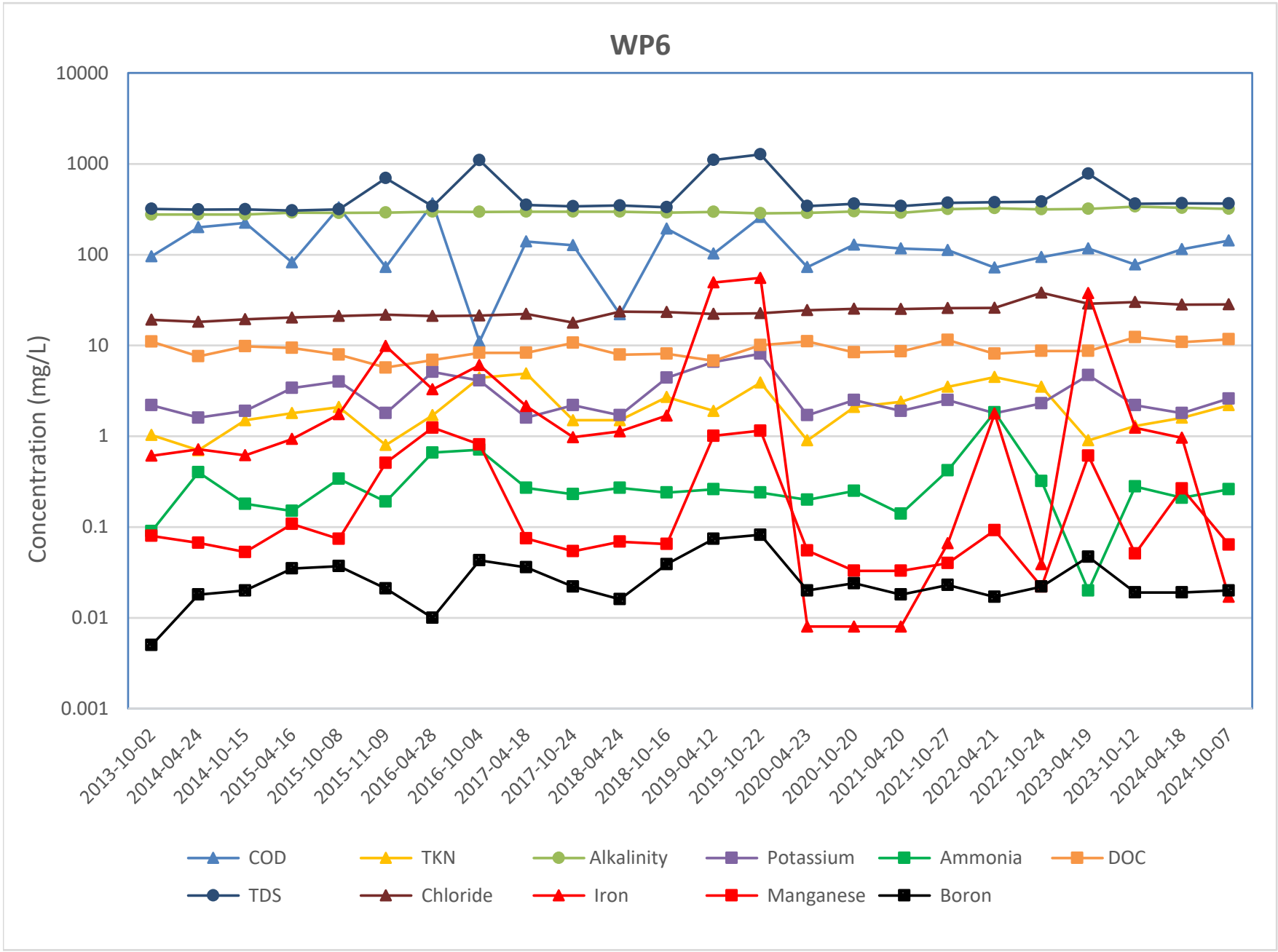

WP1
Concentration (mg/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-15
2015-04-16
2015-10-08
2016-04-28
2016-10-04
2017-04-18
2017-10-23
2018-04-25
2018-10-16
2019-04-11
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-20
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

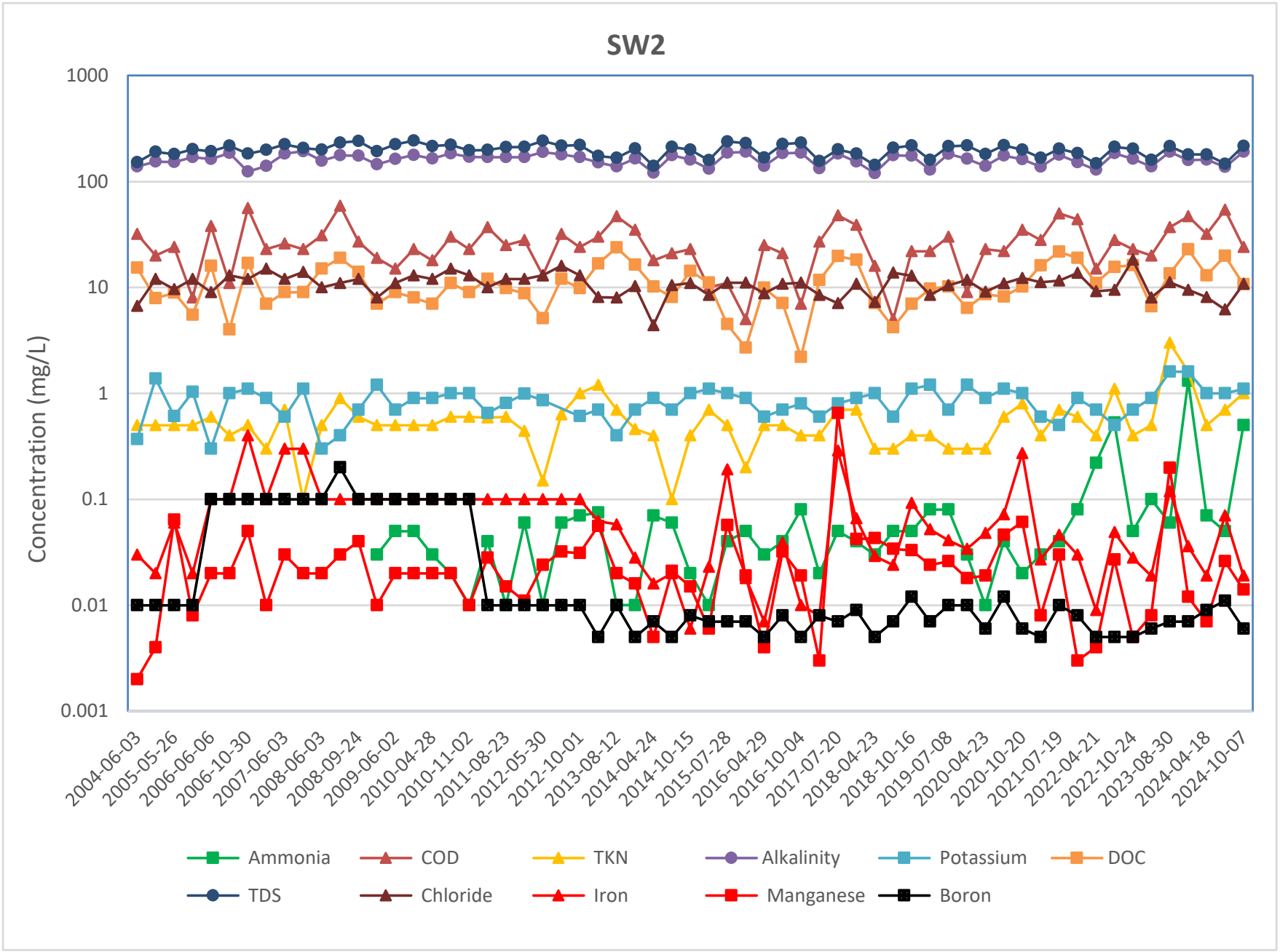

WP2
Concentration (mg/L)
100000
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-15
2015-04-17
2015-10-08
2016-04-28
2017-04-18
2017-10-24
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

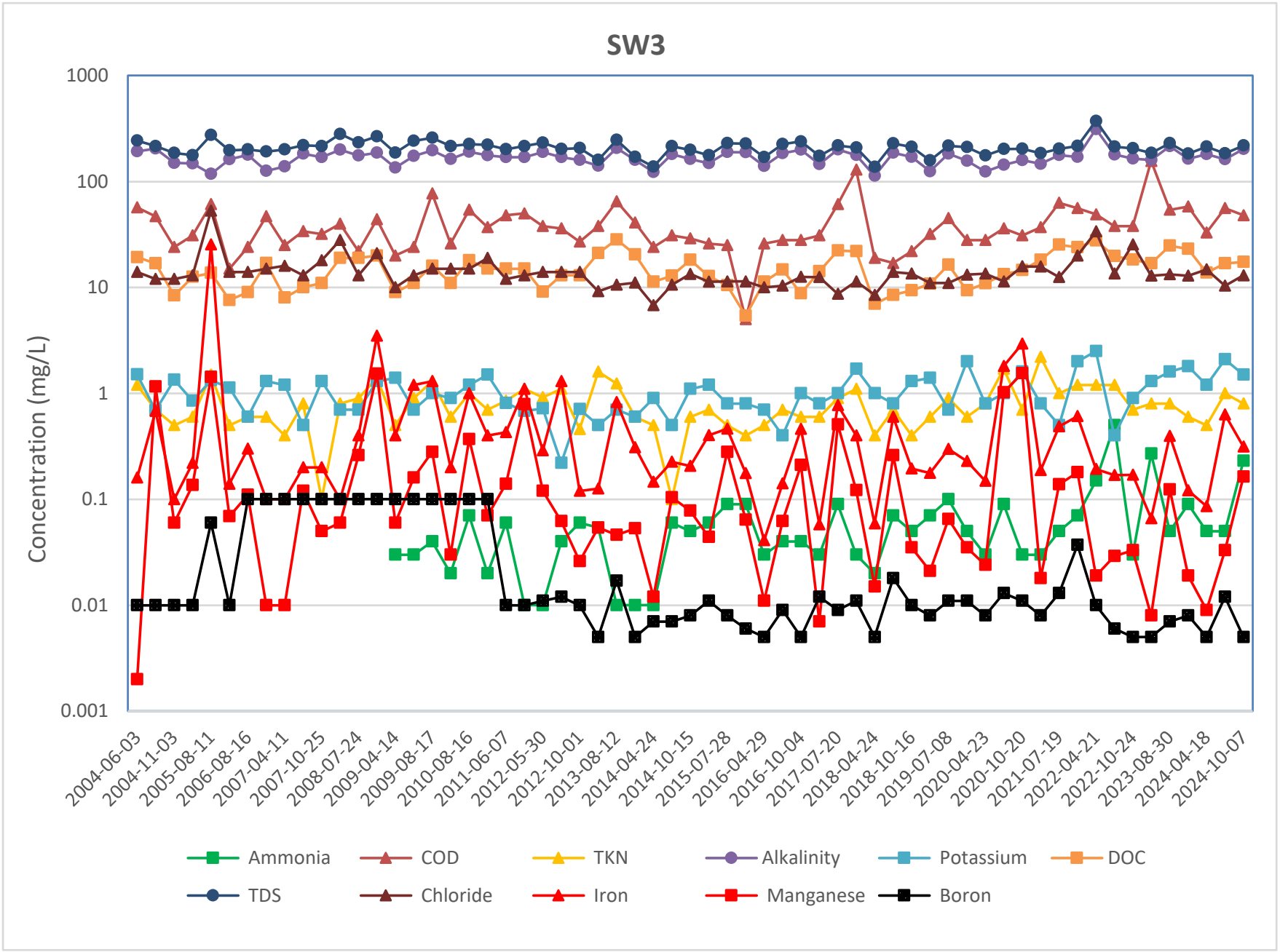

WP3
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-15
2015-04-17
2015-10-08
2016-04-28
2016-10-04
2017-04-18
2017-10-23
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

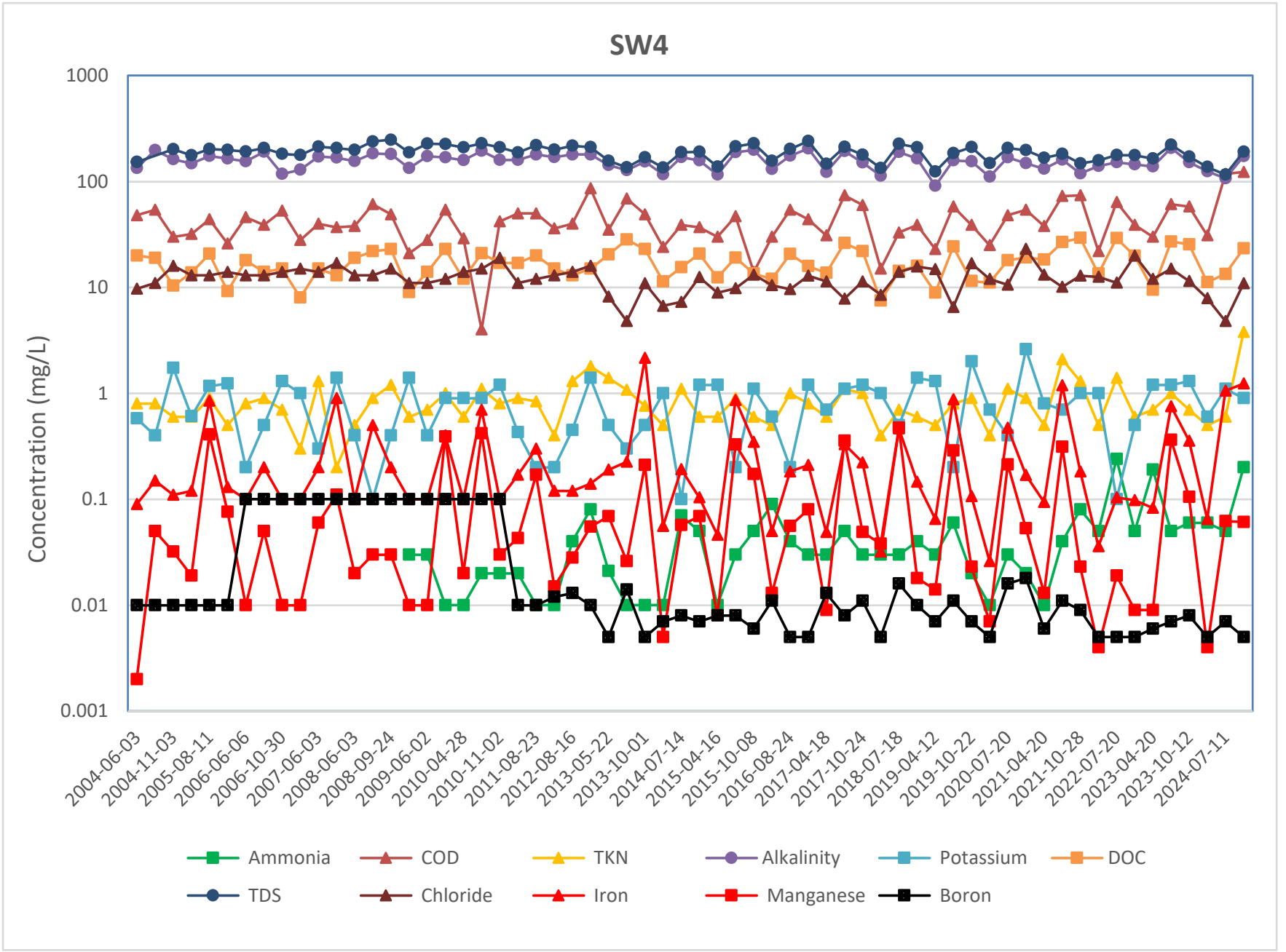

WP4
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2011-06-08
2011-11-10
2012-05-24
2013-05-22
2013-10-01
2014-04-24
2014-10-16
2015-04-17
2015-10-08
2016-04-28
2016-10-04
2017-04-18
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

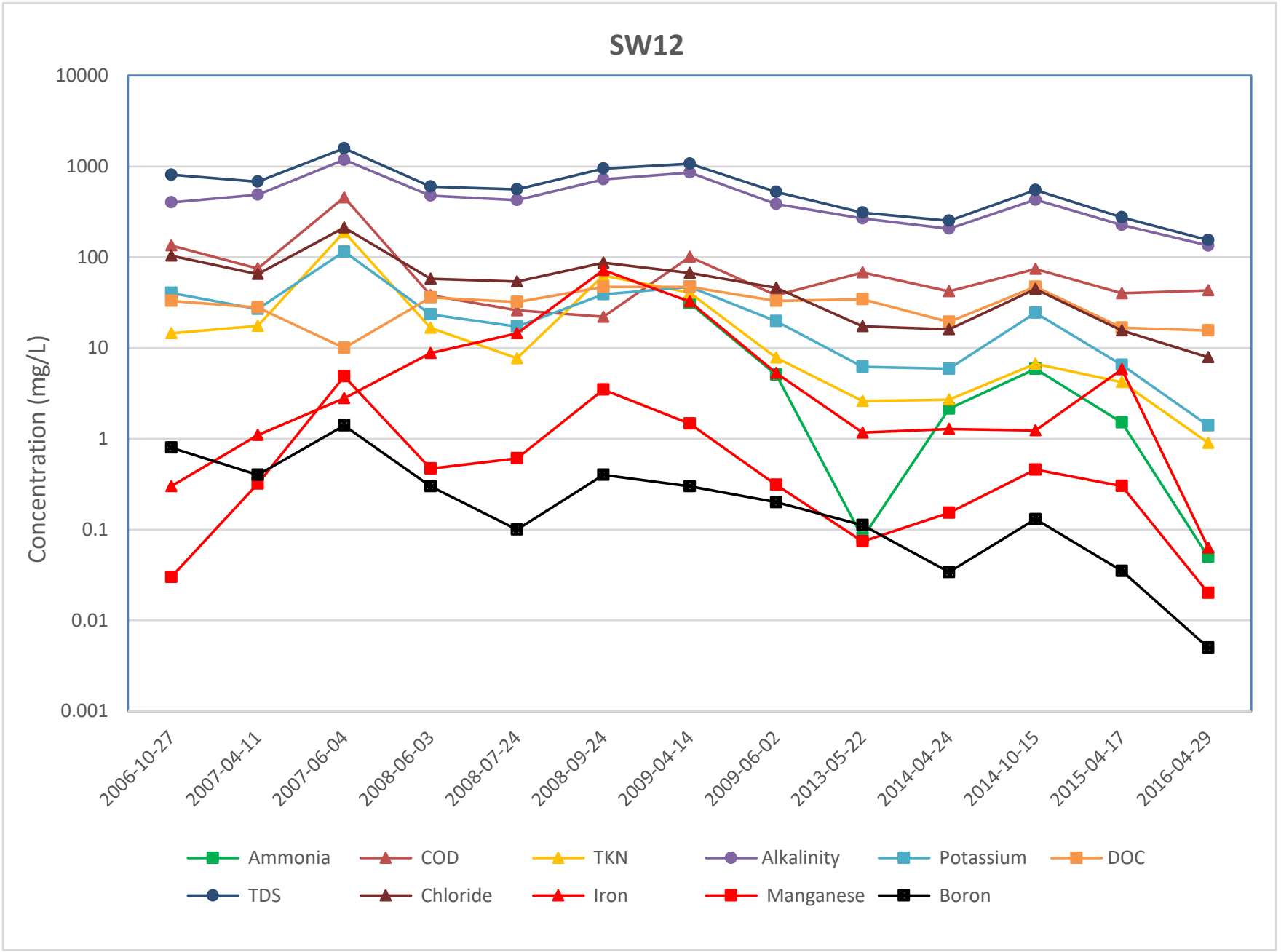

WP5
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2013-05-22
2015-04-16
2016-04-27
2016-10-04
2017-04-18
2017-10-24
2018-04-23
2018-10-15
2019-04-12
2019-10-22
2020-04-22
2020-10-19
2021-04-20
2021-10-27
2022-04-21
2022-10-26
2023-04-19
2023-10-12
2024-04-18
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

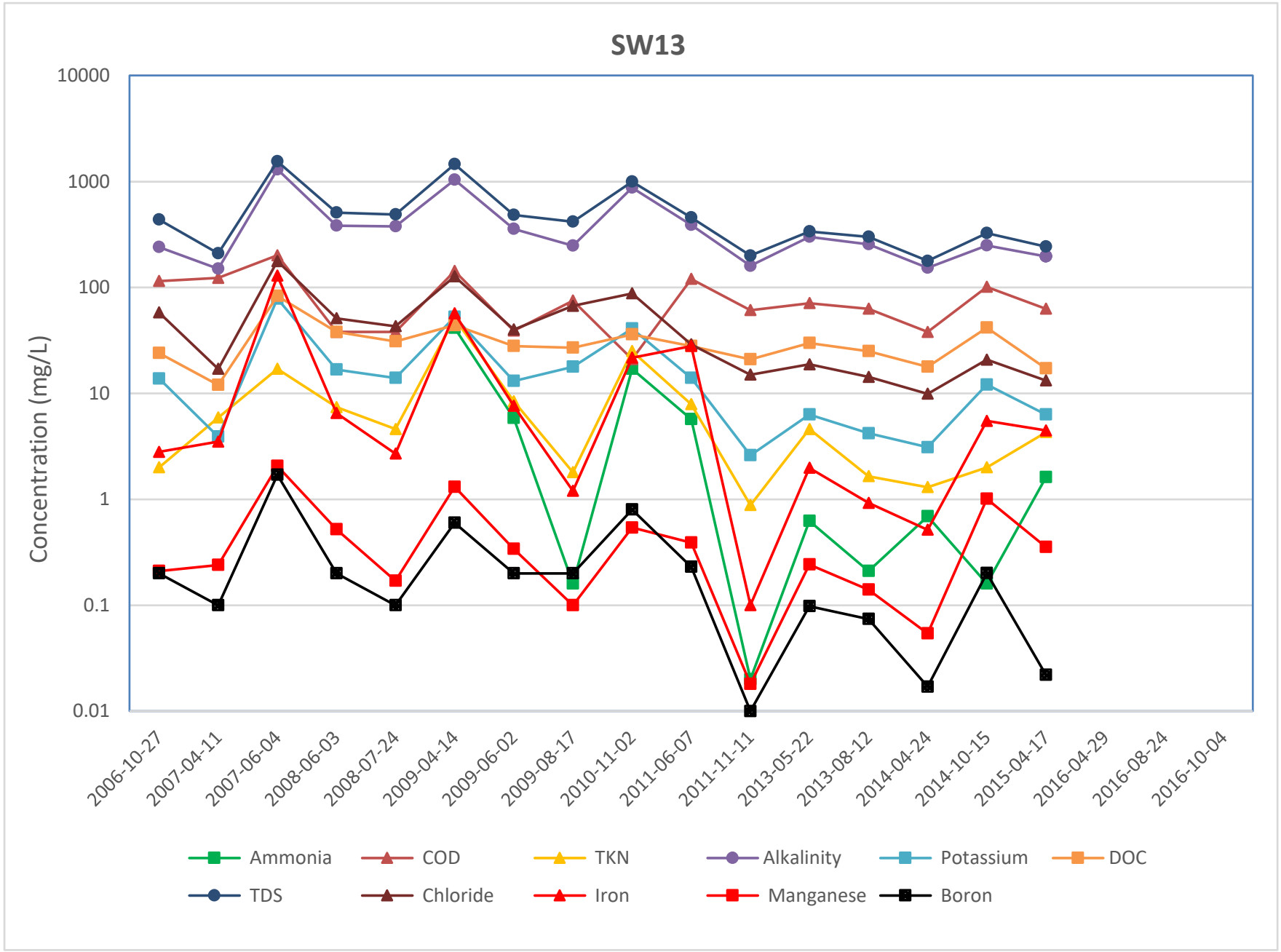

WP6
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2013-10-02
2014-04-24
2014-10-15
2015-04-16
2015-10-08
2015-11-09
2016-04-28
2016-10-04
2017-04-18
2017-10-24
2018-04-24
2018-10-16
2019-04-12
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-10-24
2023-04-19
2023-10-12
2024-04-18
2024-10-07
COD
TKN
Alkalinity
Potassium
Ammonia
DOC
TDS
Chloride
Iron
Manganese
Boron

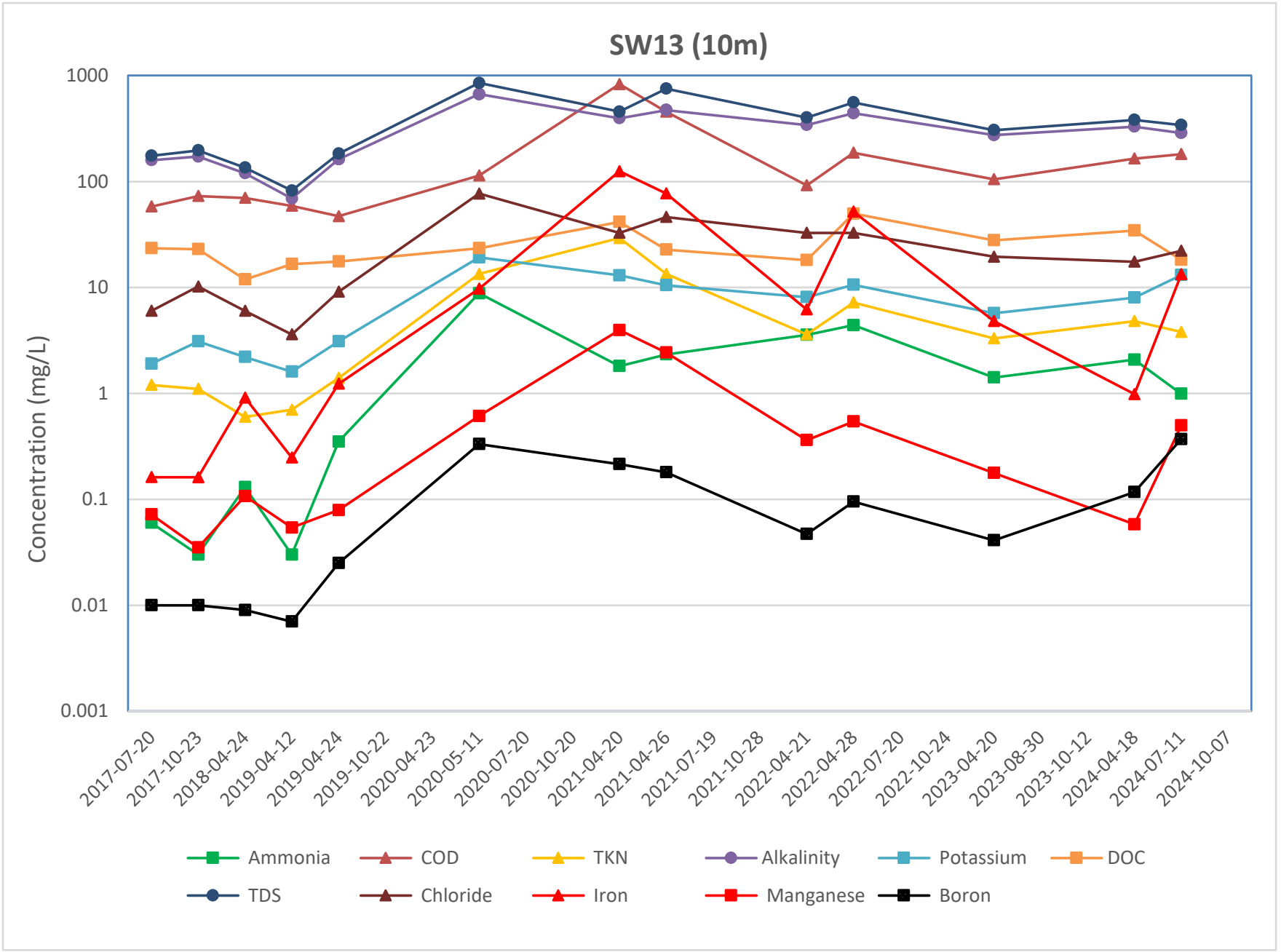

SW2
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-06-03
2005-05-26
2006-06-06
2006-10-30
2007-06-03
2008-06-03
2008-09-24
2009-06-02
2010-04-28
2010-11-02
2011-08-23
2012-05-30
2012-10-01
2013-08-12
2014-04-24
2014-10-15
2015-07-28
2016-04-29
2016-10-04
2017-07-20
2018-04-23
2018-10-16
2019-07-08
2020-04-23
2020-10-20
2021-07-19
2022-04-21
2022-10-24
2023-08-30
2024-04-18
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

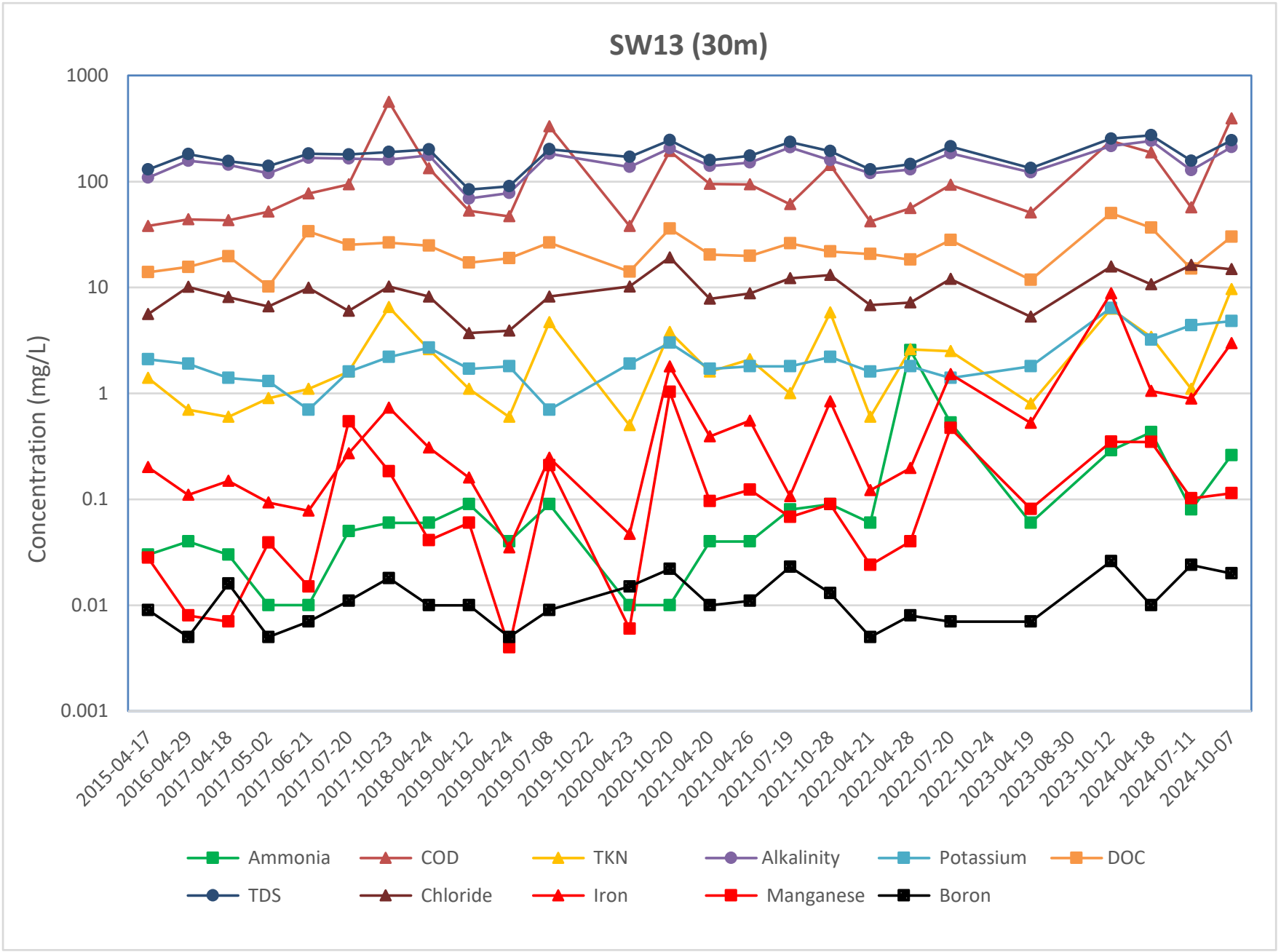

SW3
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-06-03
2004-11-03
2005-08-11
2006-08-16
2007-04-11
2007-10-25
2008-07-24
2009-04-14
2009-08-17
2010-08-16
2011-06-07
2012-05-30
2012-10-01
2013-08-12
2014-04-24
2014-10-15
2015-07-28
2016-04-29
2016-10-04
2017-07-20
2018-04-24
2018-10-16
2019-07-08
2020-04-23
2020-10-20
2021-07-19
2022-04-21
2022-10-24
2023-08-30
2024-04-18
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

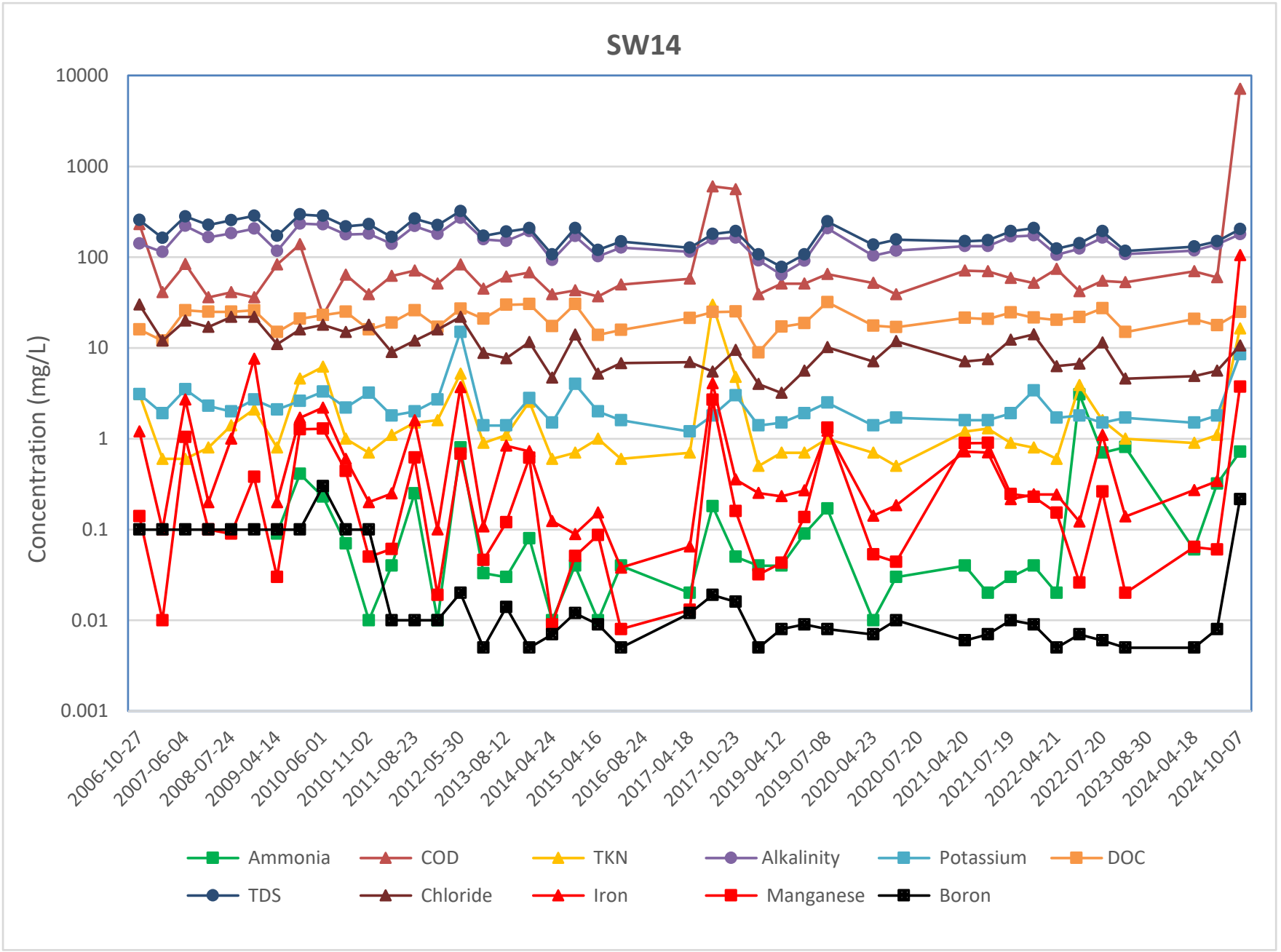

SW4
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2004-06-03
2004-11-03
2005-08-11
2006-06-06
2006-10-30
2007-06-03
2008-06-03
2008-09-24
2009-06-02
2010-04-28
2010-11-02
2011-08-23
2012-08-16
2013-05-22
2013-10-01
2014-07-14
2015-04-16
2015-10-08
2016-08-24
2017-04-18
2017-10-24
2018-07-18
2019-04-12
2019-10-22
2020-07-20
2021-04-20
2021-10-28
2022-07-20
2023-04-20
2023-10-12
2024-07-11
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

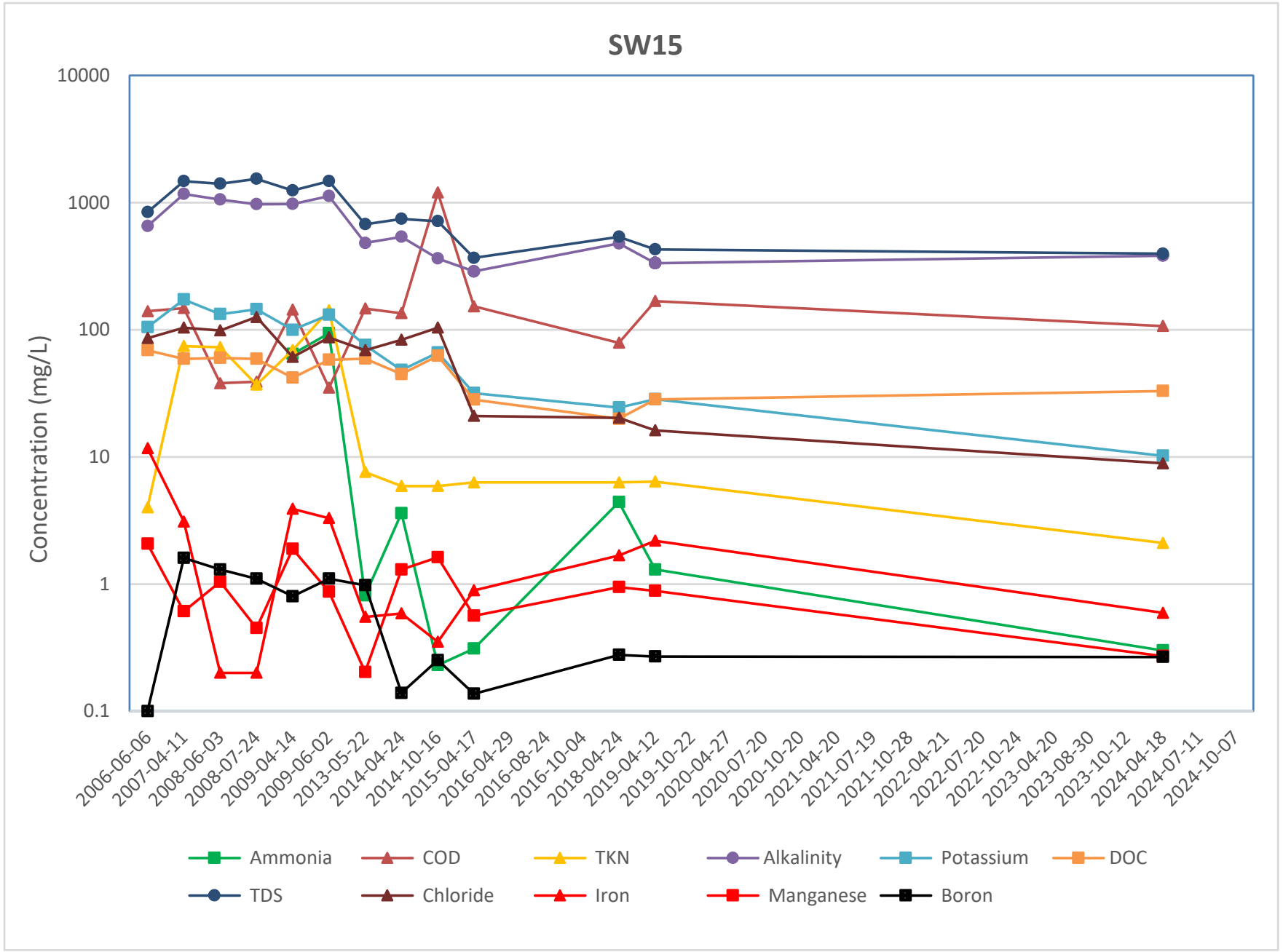

SW12
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2006-10-27
2007-04-11
2007-06-04
2008-06-03
2008-07-24
2008-09-24
2009-04-14
2009-06-02
2013-05-22
2014-04-24
2014-10-15
2015-04-17
2016-04-29
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

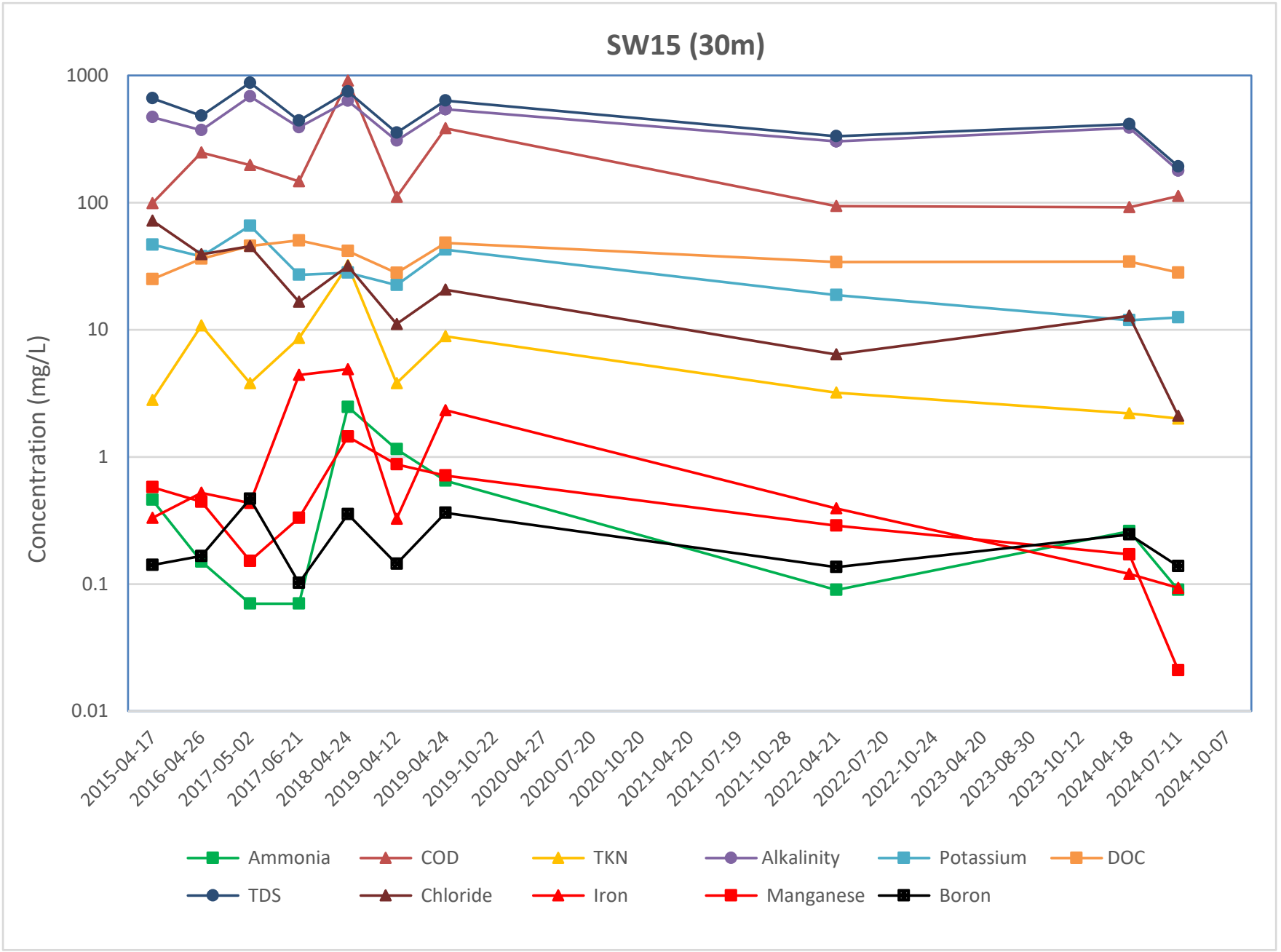

SW13
10000
1000
100
10
1
0.1
0.01
Concentration (mg/L)
2006-10-27
2007-04-11
2007-06-04
2008-06-03
2008-07-24
2009-04-14
2009-06-02
2009-08-17
2010-11-02
2011-06-07
2011-11-11
2013-05-22
2013-08-12
2014-04-24
2014-10-15
2015-04-17
2016-04-29
2016-08-24
2016-10-04
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

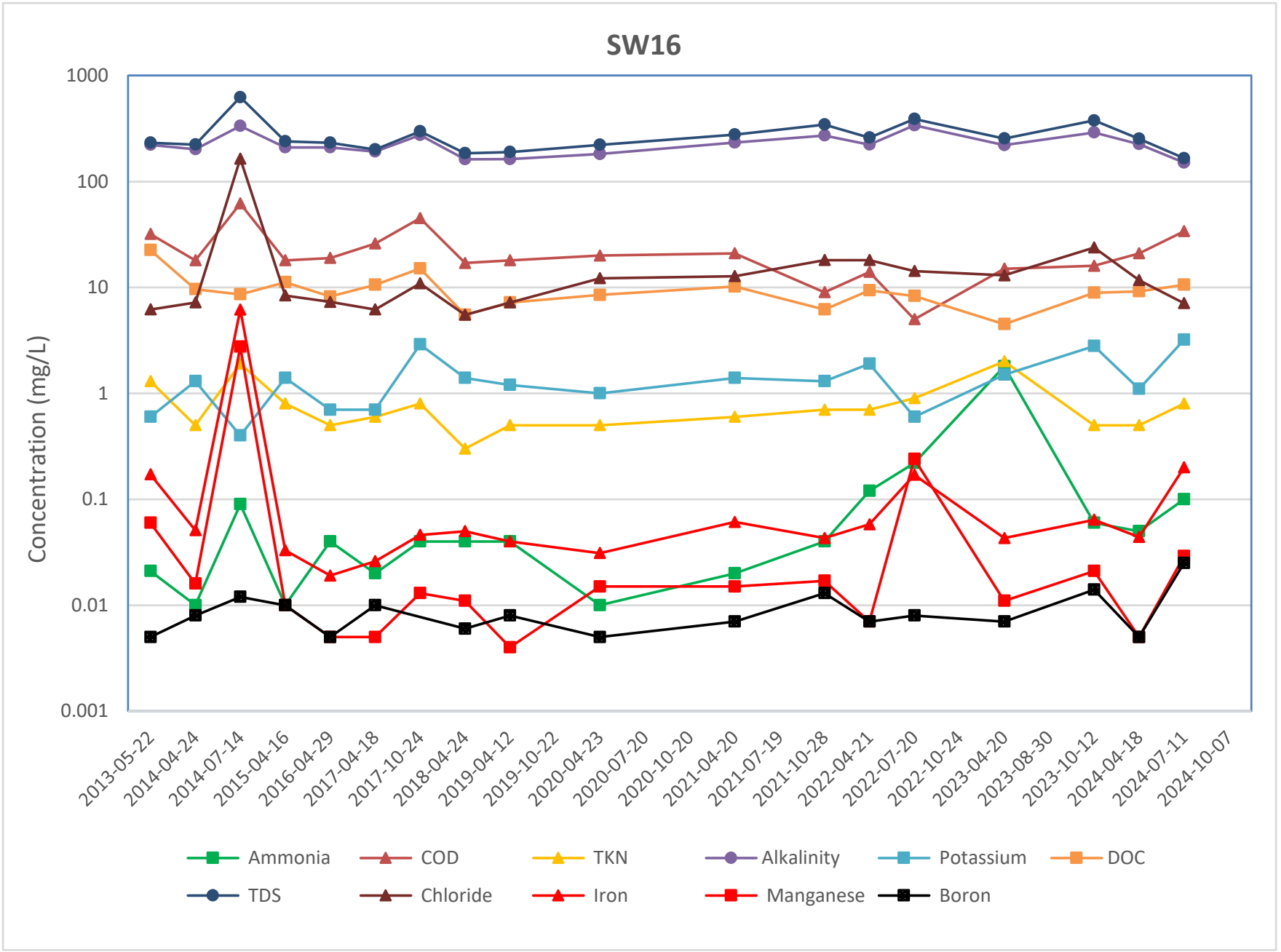

SW13 (10m)
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2017-07-20
2017-10-23
2018-04-24
2019-04-12
2019-04-24
2019-10-22
2020-04-23
2020-05-11
2020-07-20
2020-10-20
2021-04-20
2021-04-26
2021-07-19
2021-10-28
2022-04-21
2022-04-28
2022-07-20
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

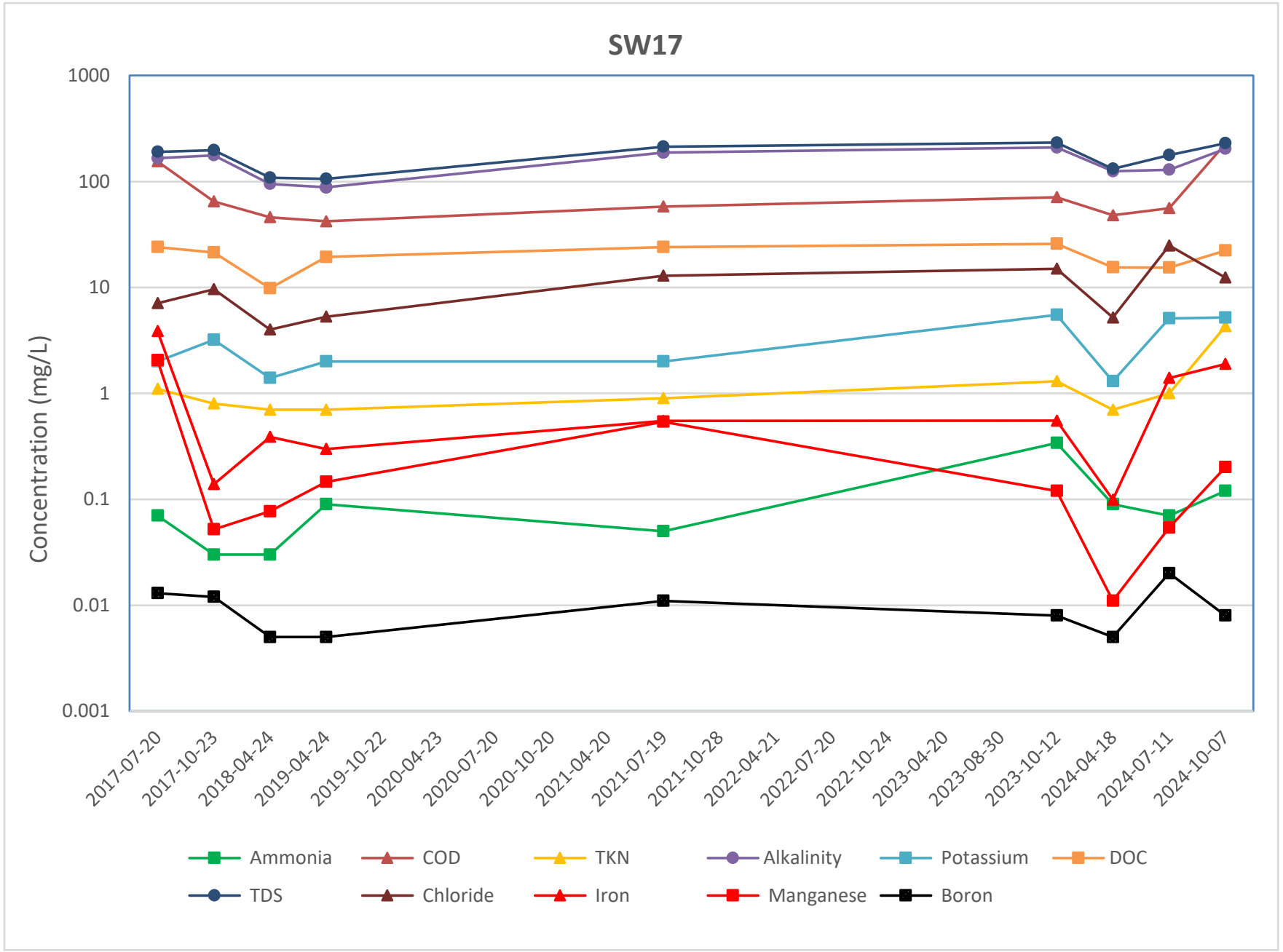

SW13 (30m)
Concentration (mg/L)
1000
100
10
1
0.1
0.01
0.001
2015-04-17
2016-04-29
2017-04-18
2017-05-02
2017-06-21
2017-07-20
2017-10-23
2018-04-24
2019-04-12
2019-04-24
2019-07-08
2019-10-22
2020-04-23
2020-10-20
2021-04-20
2021-04-26
2021-07-19
2021-10-28
2022-04-21
2022-04-28
2022-07-20
2022-10-24
2023-04-19
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

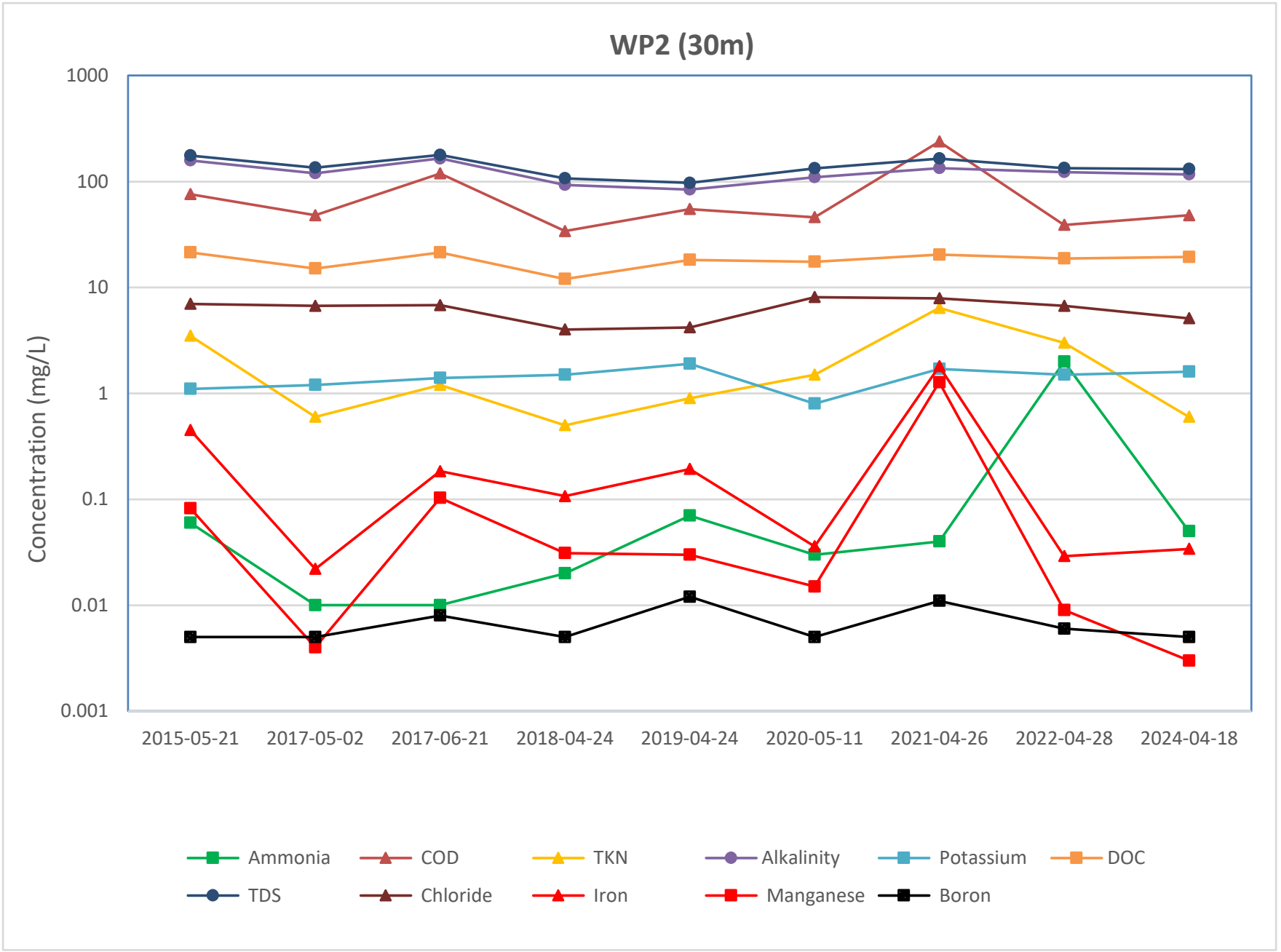

SW14
Concentration (mg/L)
10000
1000
100
10
1
0.1
0.01
0.001
2006-10-27
2007-06-04
2008-07-24
2009-04-14
2010-06-01
2010-11-02
2011-08-23
2012-05-30
2013-08-12
2014-04-24
2015-04-16
2016-08-24
2017-04-18
2017-10-23
2019-04-12
2019-07-08
2020-04-23
2020-07-20
2021-04-20
2021-07-19
2022-04-21
2022-07-20
2023-08-30
2024-04-18
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

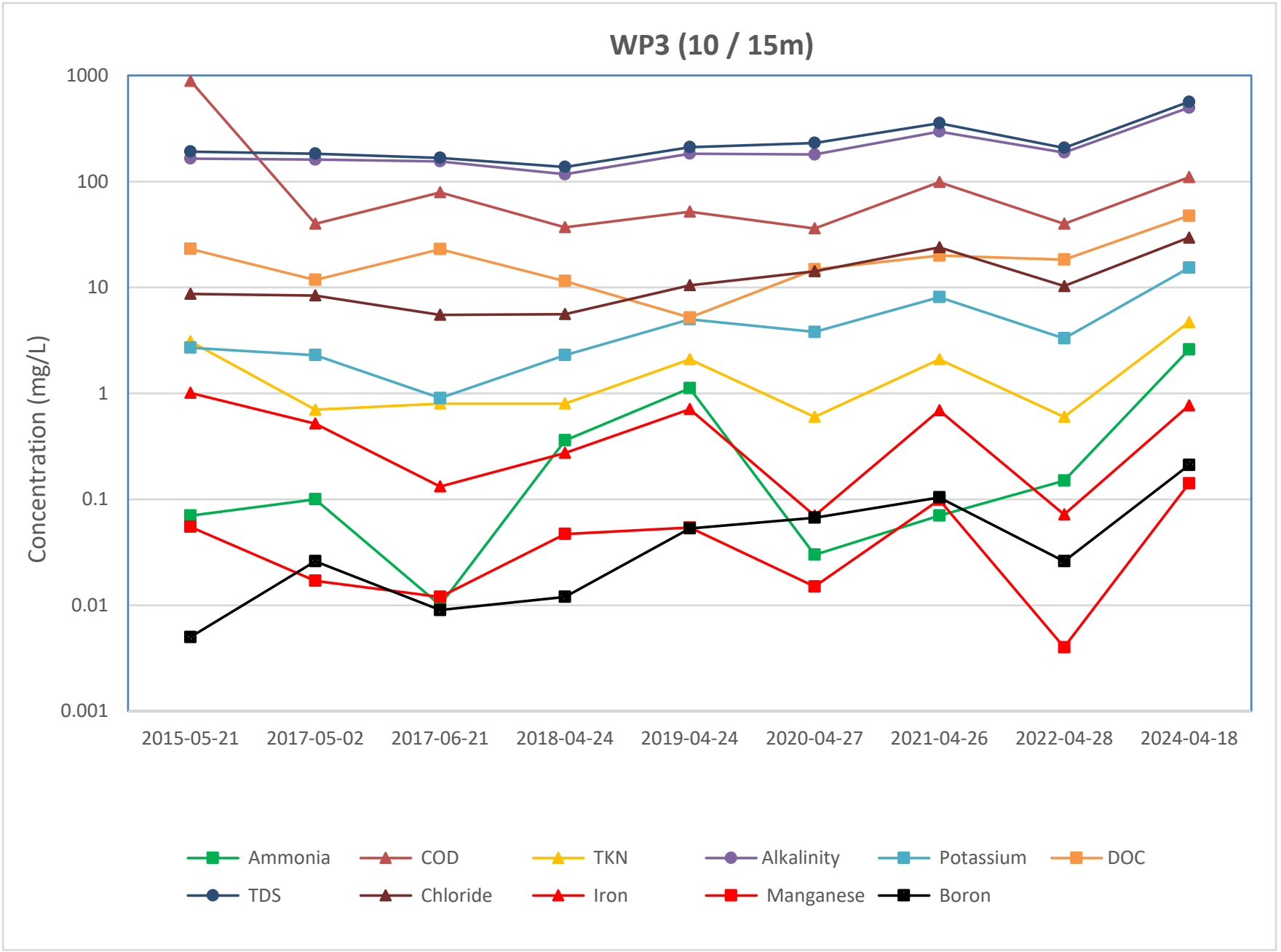

SW15
Concentration (mg/L)
10000
1000
100
10
1
0.1
2006-06-06
2007-04-11
2008-06-03
2008-07-24
2009-04-14
2009-06-02
2013-05-22
2014-04-24
2014-10-16
2015-04-17
2016-04-29
2016-08-24
2016-10-04
2018-04-24
2019-04-12
2019-10-22
2020-04-27
2020-07-20
2020-10-20
2021-04-20
2021-07-19
2021-10-28
2022-04-21
2022-07-20
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

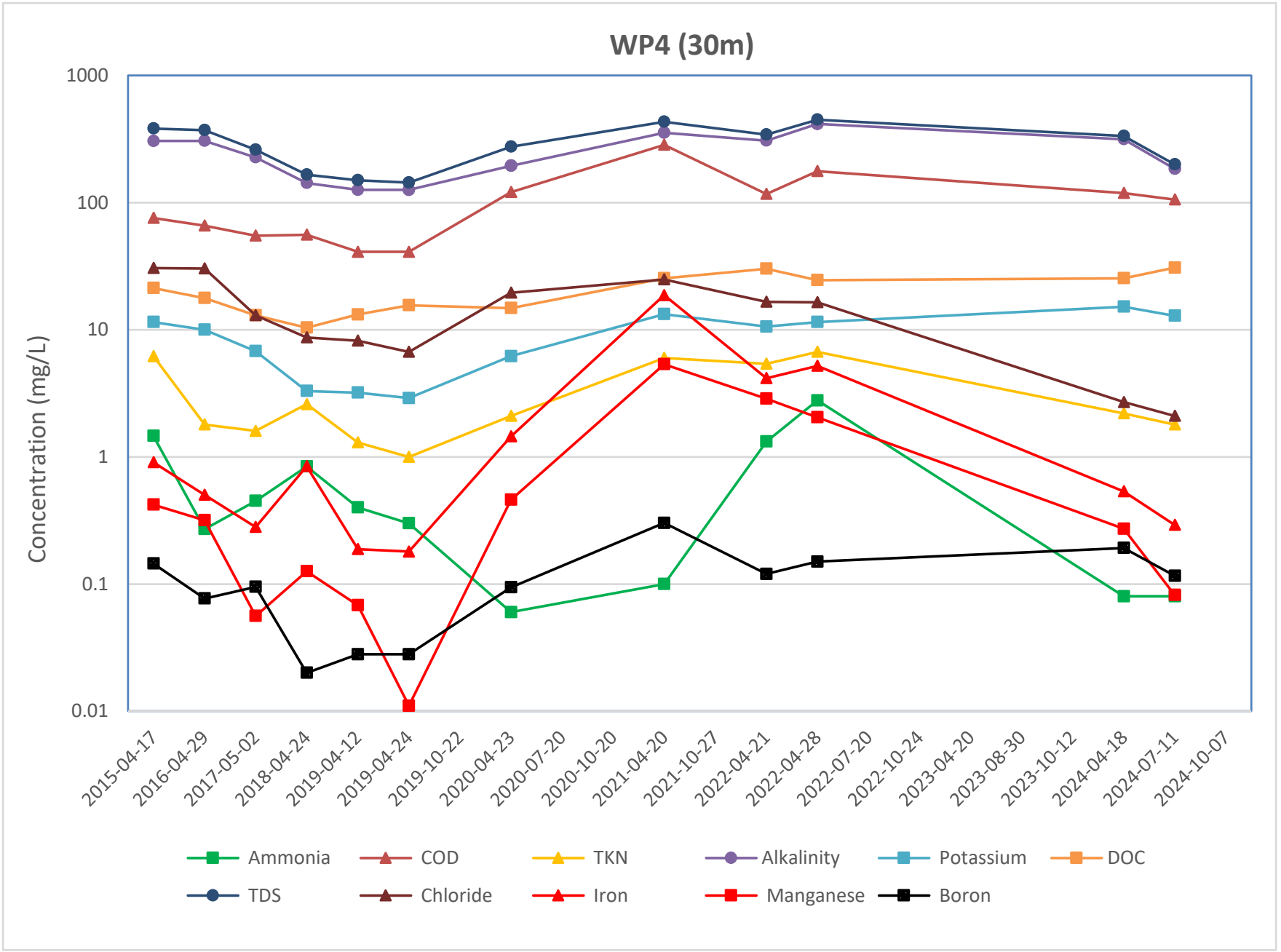

SW15 (30m)
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2015-04-17
2016-04-26
2017-05-02
2017-06-21
2018-04-24
2019-04-12
2019-04-24
2019-10-22
2020-04-27
2020-07-20
2020-10-20
2021-04-20
2021-07-19
2021-10-28
2022-04-21
2022-07-20
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
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
2015-04-16
2016-04-29
2017-04-18
2017-10-24
2018-04-24
2019-04-12
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
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
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
2019-04-24
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
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


WP2 (30m)
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
2020-05-11
2021-04-26
2022-04-28
2024-04-18
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
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron


WP4 (30m)
Concentration (mg/L)
1000
100
10
1
0.1
0.01
2015-04-17
2016-04-29
2017-05-02
2018-04-24
2019-04-12
2019-04-24
2019-10-22
2020-04-23
2020-07-20
2020-10-20
2021-04-20
2021-10-27
2022-04-21
2022-04-28
2022-07-20
2022-10-24
2023-04-20
2023-08-30
2023-10-12
2024-04-18
2024-07-11
2024-10-07
Ammonia
COD
TKN
Alkalinity
Potassium
DOC
TDS
Chloride
Iron
Manganese
Boron

APPENDIX H

Surface Water Photos



SW-2: April 2024



SW-2: July 2024



SW-2: October 2024



SW-3: April 2024



SW-3: July 2024



SW-3: October 2024



SW-4: April 2024



SW-4: July 2024



SW-4: October 2024



SW-12: April 2024



SW-12: July 2024



SW-12: October 2024



SW-13: April 2024



SW-13: July 2024



SW-13: October 2024



SW-14: April 2024



SW-14: July 2024



SW-14: October 2024



SW-15: April 2024



SW-15: July 2024



SW-15: October 2024



SW-16: April 2024



SW-16: July 2024



SW-16: October 2024



SW-17: April 2024



SW-17: July 2024



SW-17: October 2024



WP4 (30m): April 2024



WP4 (30m): July 2024



WP4 (30m): October 2024



WP2 – 10m: April 2024



WP2 – 20m: April 2024



WP2 – 30m: April 2024



WP3 – 10m: April 2024



WP3 – 20m: April 2024



WP3 – 30m: April 2024



WP4 – 10m: April 2024



WP4 – 20m: April 2024



WP4 – 30m: April 2024



SW12 – 10m: April 2024



SW12 – 20m: April 2024



SW12 – 30m: April 2024



SW13 – 10m: April 2024



SW13 – 20m: April 2024



SW13 – 30m: April 2024



SW15 – 10m: April 2024



SW15 – 20m: April 2024

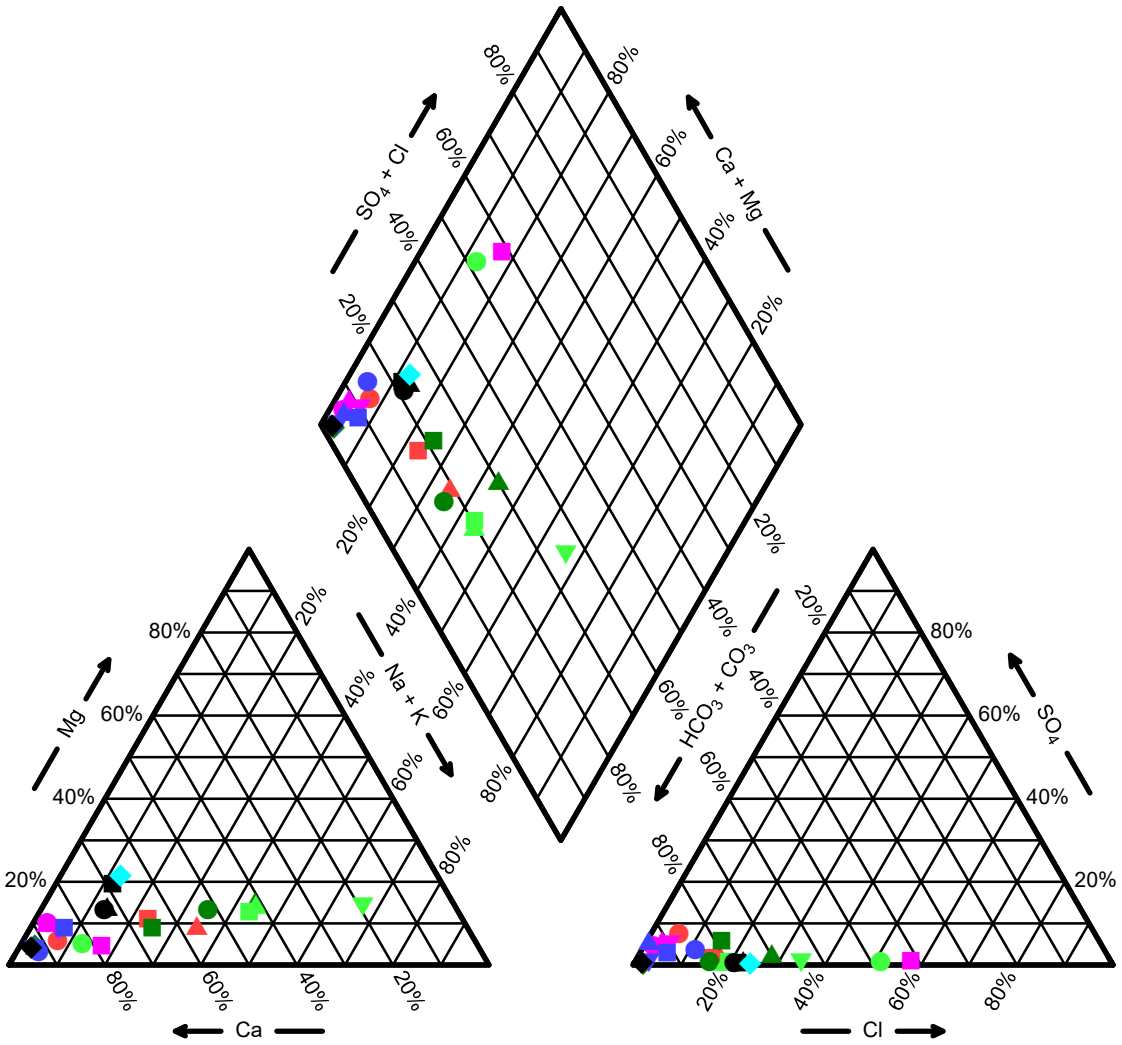


SW15 – 30m: April 2024

APPENDIX I

Piper Diagrams

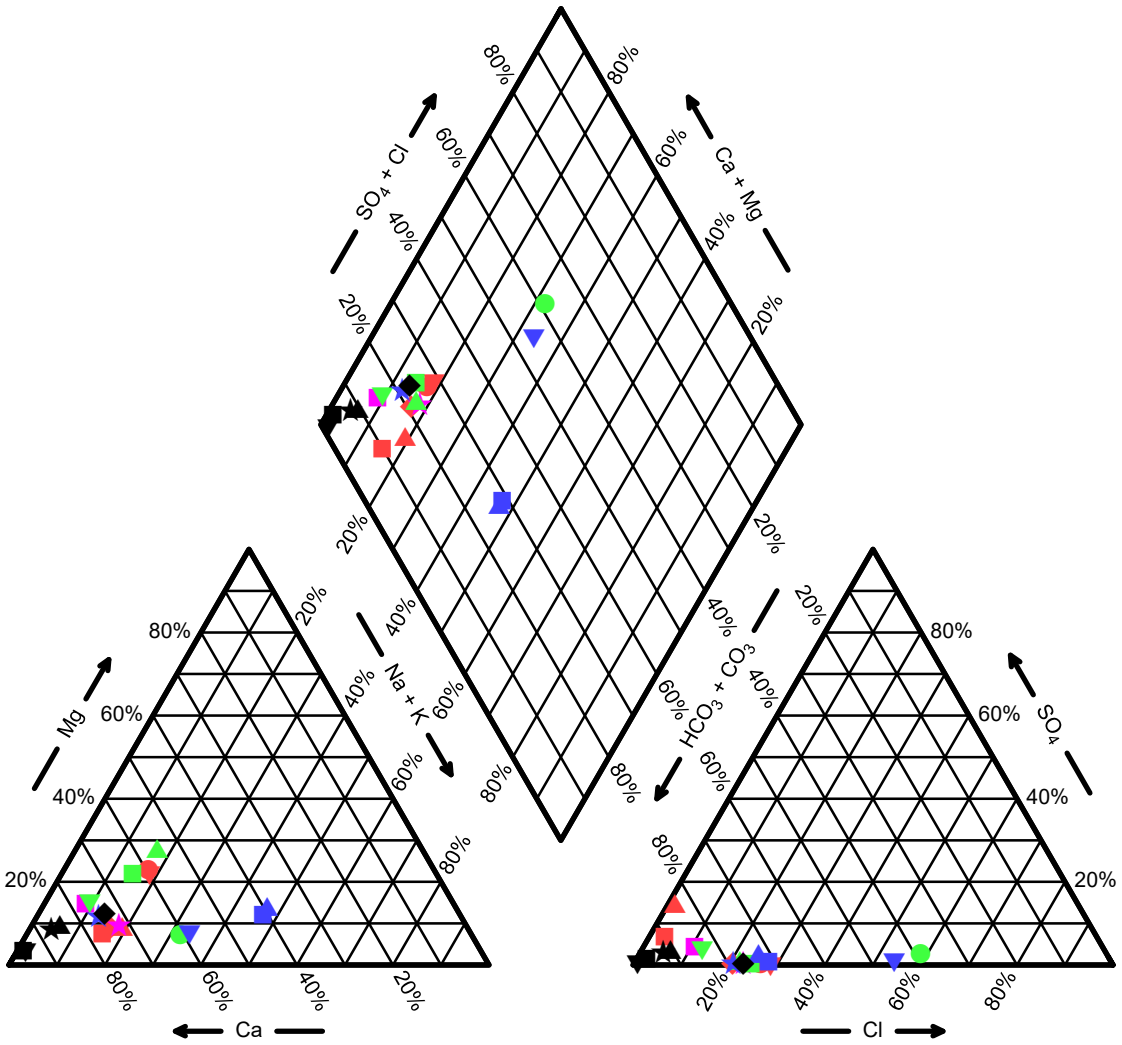
Piper Diagram - GW Locations



Legend

- MW2 17-Apr-24
- MW3 17-Apr-24
- MW3A 17-Apr-24
- MW5 17-Apr-24
- MW5A 17-Apr-24
- MW6 17-Apr-24
- MW6A 17-Apr-24
- MW7 17-Apr-24
- MW10 17-Apr-24
- MW10 7-Oct-24
- MW11A 17-Apr-24
- MW11A 7-Oct-24
- MW12 17-Apr-24
- MW12 7-Oct-24
- MW13 17-Apr-24
- MW13 7-Oct-24
- MW14 17-Apr-24
- MW14 7-Oct-24
- MW15 17-Apr-24
- MW15 7-Oct-24
- MW15A 17-Apr-24
- MW15A 7-Oct-24
- MW15B 17-Apr-24
- MW15B 7-Oct-24

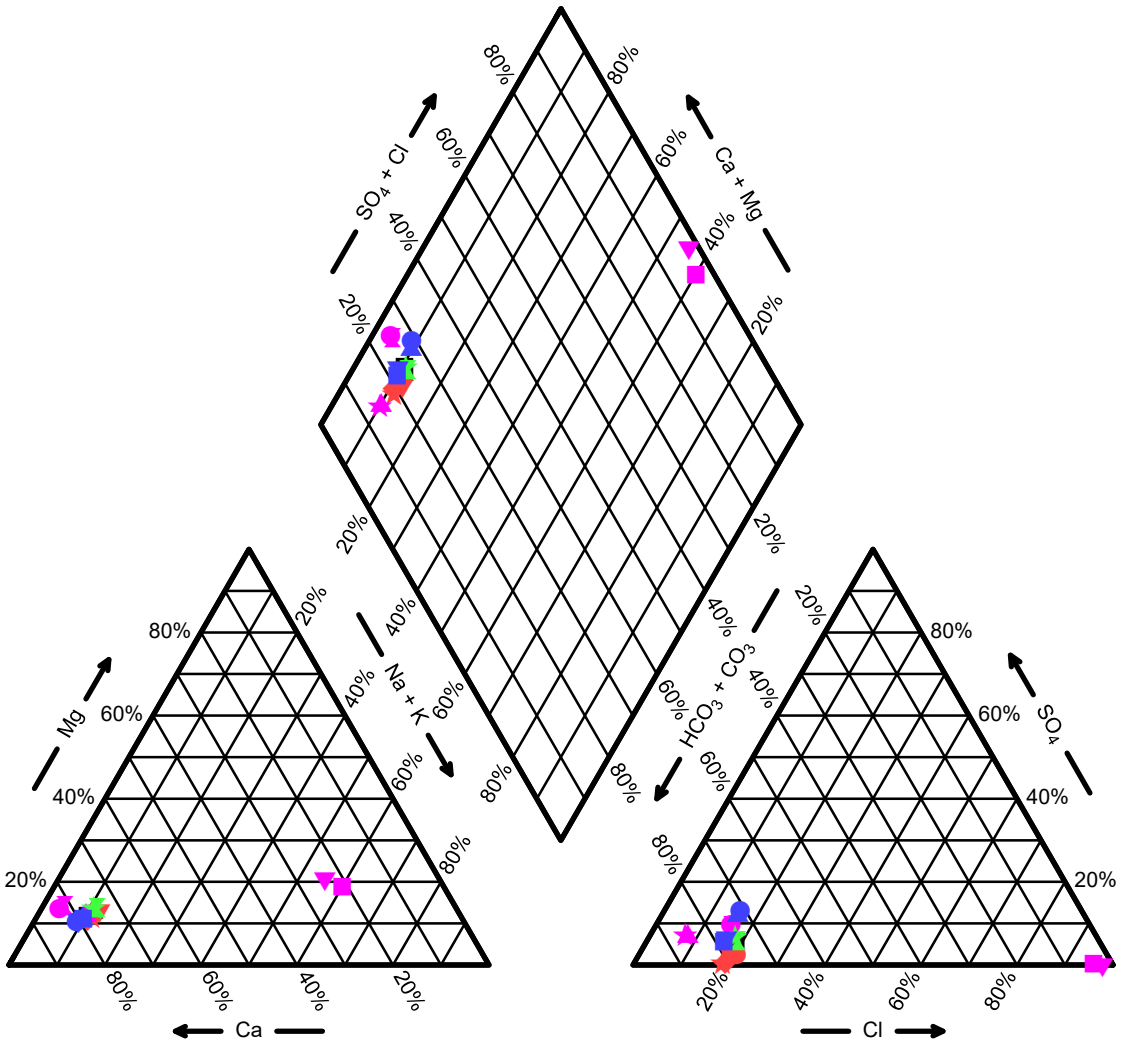
Piper Diagram - GW Locations



Legend

- MW18 17-Apr-24
- MW18 7-Oct-24
- MW18A 17-Apr-24
- MW18A 7-Oct-24
- MW18B 17-Apr-24
- MW18B 7-Oct-24
- MW19 17-Apr-24
- MW19 7-Oct-24
- MW22 17-Apr-24
- MW22 7-Oct-24
- MW22A 17-Apr-24
- MW22A 7-Oct-24
- MW22B 17-Apr-24
- MW22B 7-Oct-24
- MW23 17-Apr-24
- MW23 7-Oct-24
- MW23A 17-Apr-24
- MW23A 7-Oct-24
- MW23B 17-Apr-24
- MW23B 7-Oct-24

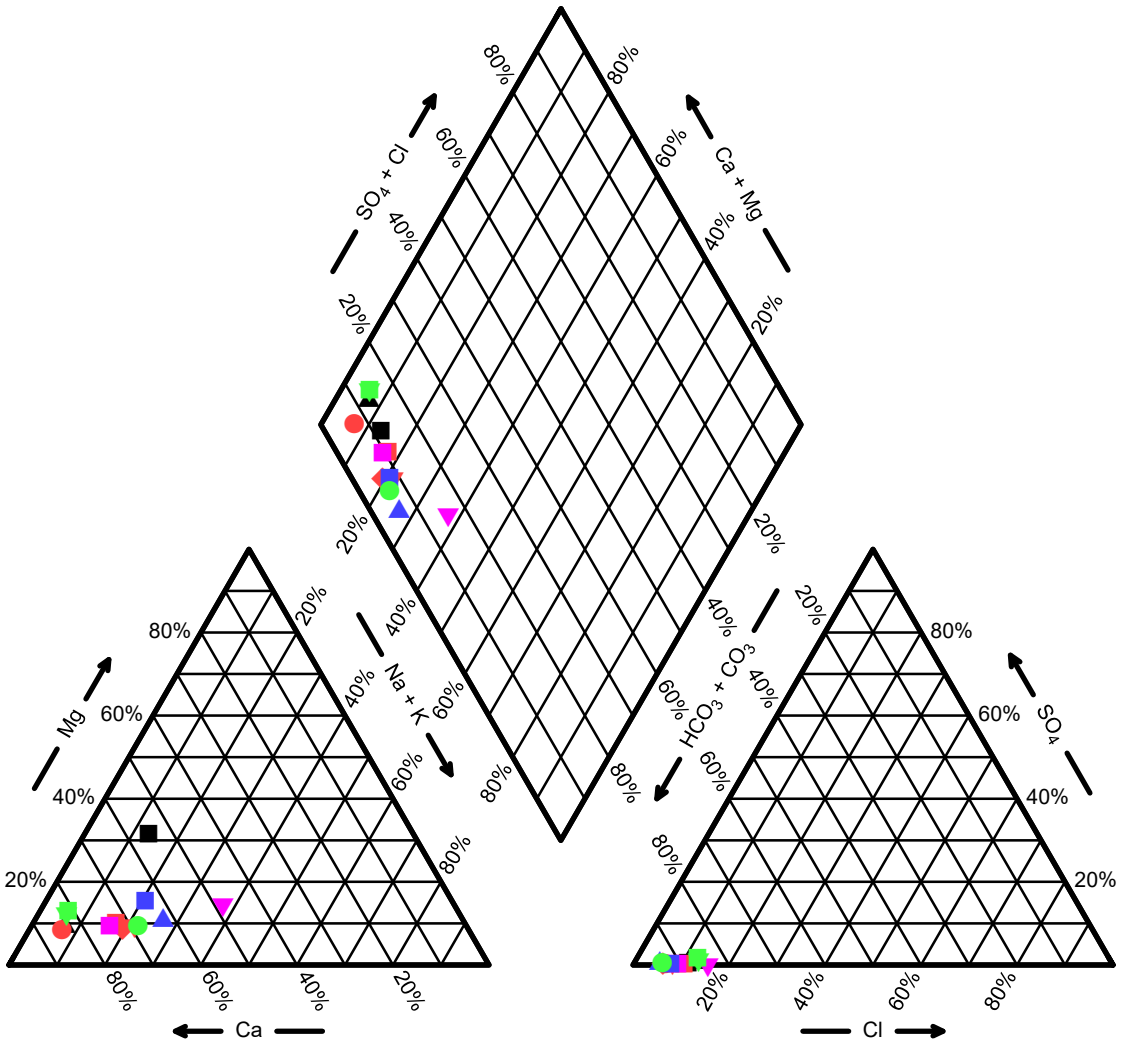
Piper Diagram - GW Locations



Legend

- MW26 17-Apr-24
- MW26 7-Oct-24
- MW26-1 17-Apr-24
- MW26-1 7-Oct-24
- MW26-2 17-Apr-24
- MW26-2 7-Oct-24
- MW27-I 17-Apr-24
- MW27-I 7-Oct-24
- MW27-II 17-Apr-24
- MW27-II 7-Oct-24
- MW27-III 17-Apr-24
- MW27-III 7-Oct-24
- MW28-I 17-Apr-24
- MW28-I 7-Oct-24
- MW28-II 17-Apr-24
- MW28-II 7-Oct-24
- MW28-III 17-Apr-24
- MW28-III 7-Oct-24

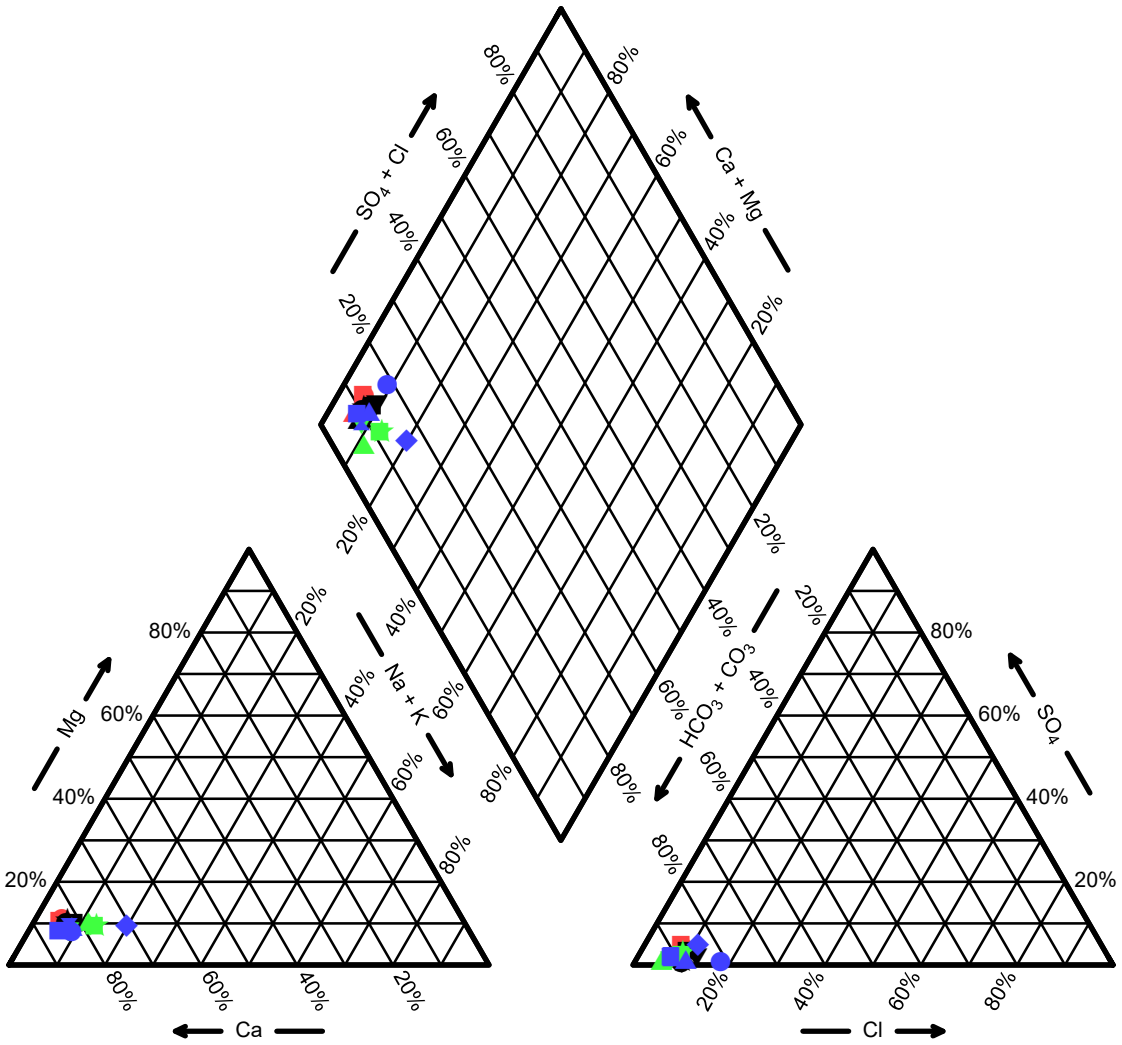
Piper Diagram - GW Locations



Legend

- Office 7-Oct-24
- WP1 17-Apr-24
- WP1 7-Oct-24
- WP2 17-Apr-24
- WP2 7-Oct-24
- WP3 17-Apr-24
- WP3 7-Oct-24
- WP4 17-Apr-24
- WP4 7-Oct-24
- WP5 17-Apr-24
- WP5 7-Oct-24
- WP6 17-Apr-24
- WP6 7-Oct-24

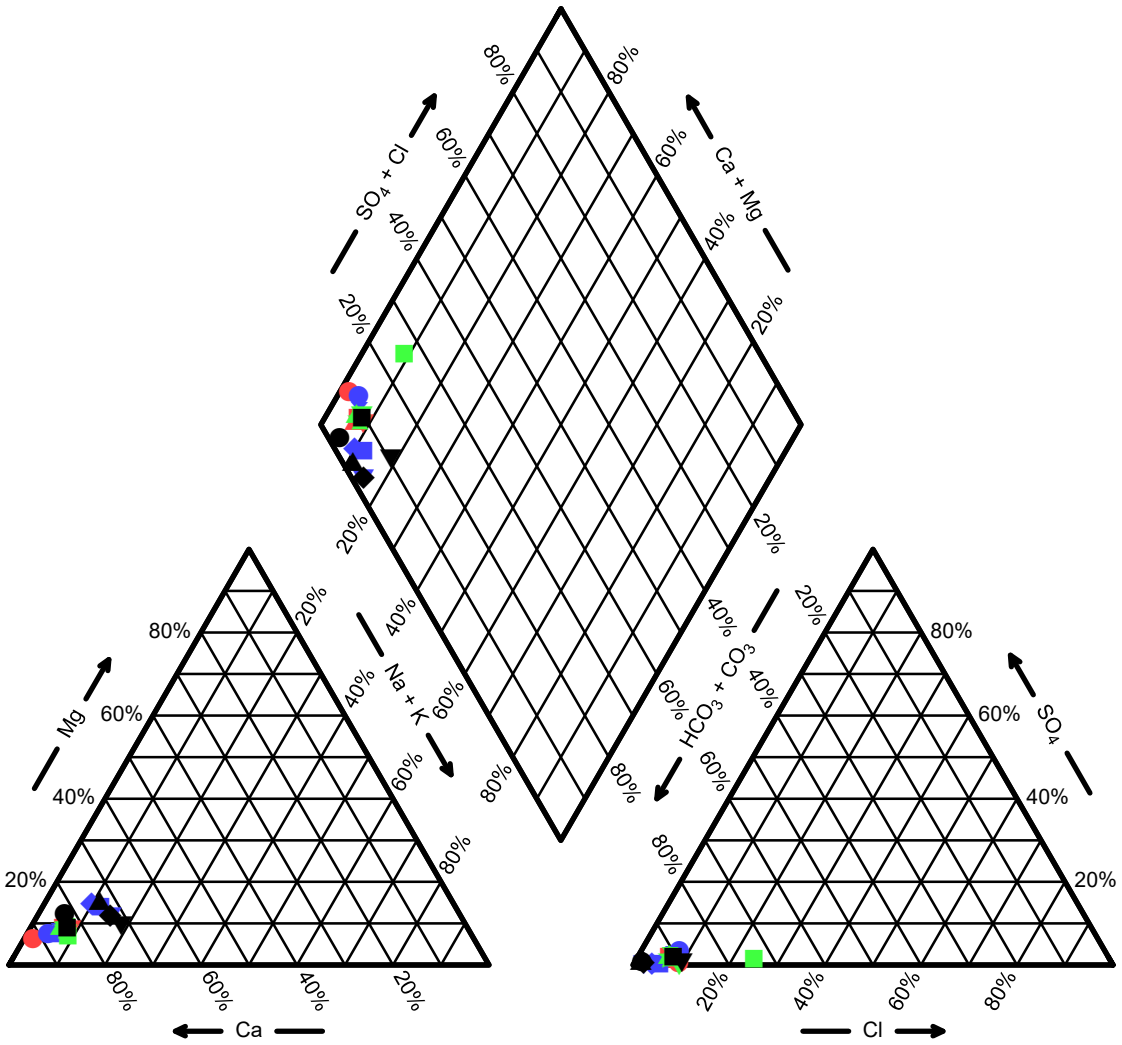
Piper Diagram - SW Locations

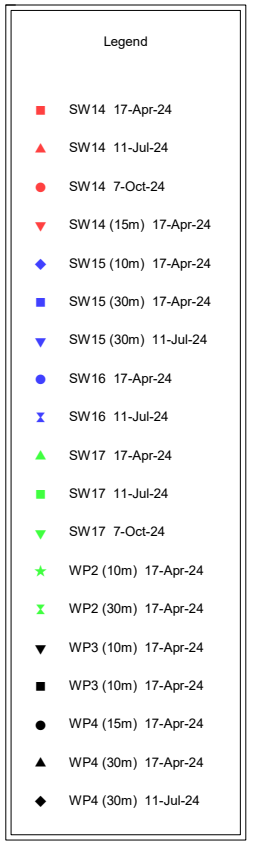


Legend

- SW2 17-Apr-24
- SW2 11-Jul-24
- SW2 7-Oct-24
- SW3 17-Apr-24
- SW3 11-Jul-24
- SW3 7-Oct-24
- SW4 17-Apr-24
- SW4 11-Jul-24
- SW4 7-Oct-24
- SW12 (15m) 17-Apr-24
- SW12 (30m) 17-Apr-24
- SW13 (10m) 17-Apr-24
- SW13 (10m) 17-Apr-24
- SW13 (10m) 11-Jul-24
- SW13 (30m) 17-Apr-24
- SW13 (30m) 17-Apr-24
- SW13 (30m) 11-Jul-24
- SW13 (30m) 7-Oct-24

Piper Diagram - SW Locations





APPENDIX J

Site Inspection Forms

CITY OF KAWARTHA LAKES
OPERATING LANDFILL INSPECTION FORM

LANDFILL: Fenelon

Inspected by: ~~JM~~ Bonnie Ferguson

Date: Jan 10, 2024

Time: 17:00

Weather Conditions: Snowing ~ -1°C

A. GENERAL OBSERVATIONS

A.1 Landfill Site: Good condition, some pooled water, has been raing for 2 days, pooling due to weather

A.2 Status of Landfill Development/Construction Activities:

A.3 Tipping Face:

Good

A.4 Residential Container Station:

Good

A.5 Maintenance and Administration Building:

Good

A.6 Weigh Scale Inspection Building:

Good

A.7 Reuse Centre:

Good

A.8 HHW Facility:

Good

A.9 Leaf & Yard Waste Composting Facility:

Good

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 for winter

B.2 Are staff wearing adequate safety equipment?

Closed for winter

C. LANDFILL COVER:

C.1 Any evidence of leachate seeps or erosion of landfill cover on waste disposal fill area? _____

No

C.2 Condition of North Slope? _____

C.3 Condition of vegetation? _____

Good

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

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?

No

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

J. LANDSCAPING:

J.1 Does the landscaping (trees, shrubs, and ground cover) require maintenance work (e.g. grass cutting, replacement or vegetation)?

No

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?

Land fill closed for winter

L.2 Is the landfill operations equipment in good working order?

Landfill closed for winter

L.3 Is the waste being spread, compacted and covered in accordance with the Maintenance & Operations Report?

Landfill closed, but waste compacted & covered

M. SITE SECURITY AND SAFETY PROTOCOLS

M.1 Are waste loads being adequately inspected (weigh scale/inspection building, residential container station, tipping face)?

Landfill 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? __

Yes

M.3 Location and condition of medical emergency kits (eye wash stations and first aid kits). _____

Yes

M.4 Staff knowledge of emergency procedures/numbers? _____

Yes

N. OTHER COMMENTS:

O. RECOMMENDATIONS:

CITY OF KAWARTHA LAKES
OPERATING LANDFILL INSPECTION FORM

LANDFILL: Fenelon

Inspected by: D. McGee

Date: July 11th, 2024

Time: 12:00 PM

Weather Conditions: Sunny, some clouds, 25°C

A. GENERAL OBSERVATIONS

A.1 Landfill Site: Closed during inspection

A.2 Status of Landfill Development/Construction Activities: Closed

A.3 Tipping Face: Satisfactory

A.4 Residential Container Station: closed

A.5 Maintenance and Administration Building: Closed

A.6 Weigh Scale Inspection Building: Closed

A.7 Reuse Centre: Closed

A.8 HHW Facility: Closed

A.9 Leaf & Yard Waste Composting Facility: N/A

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?

N/A

C. LANDFILL COVER:

C.1 Any evidence of leachate seeps or erosion of landfill cover on waste disposal fill area? No evidence

C.2 Condition of North Slope? All slopes appear stable

C.3 Condition of vegetation? Thick coverage, good

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? N/A

E. LEACHATE COLLECTION SYSTEM

E.1 Are manholes free of litter and debris? N/A

E.2 Condition of manholes/need repairs? N/A

F. MAIN ENTRANCE AND INTERNAL ROADS:

F.1 Is the main entrance or internal roads in need of repair or maintenance work? No, appears fine

G. DUST CONTROL:

G.1 Any dust problems because of the internal roads, working face or fill stockpiles? No

G.2 Condition of Roads: Some ruts, holes, no other concerns

H. ODOURS:

H.1 Any odour problems? Minor odours, not a concern

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? Minor, not a concern

J. LANDSCAPING:

J.1 Does the landscaping (trees, shrubs, and ground cover) require maintenance work (e.g. grass cutting, replacement or vegetation)? No

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? Unknown

L.2 Is the landfill operations equipment in good working order? Unknown

L.3 Is the waste being spread, compacted and covered in accordance with the Maintenance & Operations Report? Unknown

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? __

Unknown

M.3 Location and condition of medical emergency kits (eye wash stations and first aid kits). _____

Unknown

M.4 Staff knowledge of emergency procedures/numbers? _____

Unknown

N. OTHER COMMENTS:

O. RECOMMENDATIONS:

CITY OF KAWARTHA LAKES
OPERATING LANDFILL INSPECTION FORM

LANDFILL: FENELON

Inspected by: BRAD PETTERSONE

Date: OCTOBER 7, 2024

Time: 10:00

Weather Conditions: CLOUDY, 21°C

A. GENERAL OBSERVATIONS

A.1 Landfill Site: OPEN, IN SIMILAR CONDITION. GENERALLY TIDY AND ORGANIZED.

A.2 Status of Landfill Development/Construction Activities: ACTIVE, ISOLATED TO APPROVED CELLS / COMPOST AREAS.

A.3 Tipping Face: GOOD.

A.4 Residential Container Station: GOOD

A.5 Maintenance and Administration Building: Good

A.6 Weigh Scale Inspection Building: Good

A.7 Reuse Centre: Good

A.8 HHW Facility: Good

A.9 Leaf & Yard Waste Composting Facility: Good, clean & organized.

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, 2 staff at scale house & main building.

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,

C.2 Condition of North Slope? Good.

C.3 Condition of vegetation? Good, Healthy.

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? N/A.

E. LEACHATE COLLECTION SYSTEM

E.1 Are manholes free of litter and debris? N/A

E.2 Condition of manholes/need repairs? N/A.

F. MAIN ENTRANCE AND INTERNAL ROADS:

F.1 Is the main entrance or internal roads in need of repair or maintenance work?

NO.

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? NOT NOTED.

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?

SOME REFUSE BLOWN TO WEST, ADJACENT TO ACTIVE CELL.

J. LANDSCAPING:

J.1 Does the landscaping (trees, shrubs, and ground cover) require maintenance work (e.g. grass cutting, replacement or vegetation)?

NO.

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?

NOT KNOWN -

L.2 Is the landfill operations equipment in good working order?

NOT KNOWN

L.3 Is the waste being spread, compacted and covered in accordance with the Maintenance & Operations Report?

NOT CONFIRMED, BUT APPEARS TO BE DONE.

M. SITE SECURITY AND SAFETY PROTOCOLS

M.1 Are waste loads being adequately inspected (weigh scale/inspection building, residential container station, tipping face)?

YES.

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?

YES.

M.3 Location and condition of medical emergency kits (eye wash stations and first aid kits).

OBSERVED IN BATHROOM

M.4 Staff knowledge of emergency procedures/numbers?

NOT KNOWN.

N. OTHER COMMENTS:

ADDITIONAL FILL MATERIAL NEEDED @ MW-5 / MW-22 MONITORS TO MAKE MORE STABLE TO SAMPLE.

O. RECOMMENDATIONS:

APPENDIX K

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)	2024
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** ○ **Other**	Specify (Type Here):
The site is:	◉ **Active** ○ **Inactive** ○ **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** ○ **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 ◉ 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** ( ) **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** (●) **No** ( ) **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** ◉ **No** ○ **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** ○ **No** ○ **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** ○ **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** ( ) **No**	If no, the potential design and operational concerns/ exceptions are as follows (Type Here):	
6) The site meets compliance and assessment criteria.	( ) **Yes** (●) **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** ( ) **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: ***(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** ***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or** ***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):** ***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	(●) **Yes** ( ) **No**	**Note which practice(s):**	☐ **(a)** ☒ **(b)** ☒ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	( ) **Yes** (●) **No** ( ) **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:

21-May-2025

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No Changes to site design and operation are recommended** ○ **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:**	21-May-2025
CEP Contact Information:	Colin Ross		
Company:	Azimuth Environmental Consulting Inc.		
Address:	642 Welham Road, Barrie, ON 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 ( ) 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 (●) No ( ) **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** ◉ **No** ◯ **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** ◯ **No** ◯ **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** ◯ **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** ◉ **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 Zinc Total Phosphorus Cobalt Chromium Aluminum	0.3 mg/L 0.02 mg/L 0.03 mg/L 0.0009 mg/L 0.001 mg/L 0.075 mg/L	>100% >100% >100% >100% >100% >100%
Boron Cadmium Phenols unionized ammonia Arsenic	0.2 mg/L 0.0005 mg/L 0.001 mg/L 0.02 mg/L 0.005 mg/L	34% >100% >100% >100% >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** ○ **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** ○ **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 ○ No ○ Not Known ○ Not Applicable	If yes, provide details and whether remedial measures are necessary (Type Here) 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** ○ **No** ○ **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:

21-May-2025

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

○ **No Changes to the monitoring program are recommended**	
◉ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No changes to the site design and operation are recommended**	Type Here
○ **The following change(s) to the site design and operation is/are recommended:**	

CEP Signature	
Relevant Discipline	Hydrogeology
Date:	21-May-2025
CEP Contact Information:	Colin Ross
Company:	Azimuth Environmental Consulting Inc.
Address:	642 Welham Road, Barrie, ON L4N 9A1
Telephone No.:	705-721-8451 x 205
Fax No. :	705-721-8926
E-mail Address:	colin@azimuthenvironmental.com

Save As **Print Form**